

## 7 Facilitating creativity in higher education

### A brief account of National Teaching Fellows' views

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#### Introduction

This chapter describes the results of a research study carried out by The Creativity Centre on behalf of the National Endowment for Science, Technology and the Arts (NESTA) and the Higher Education Academy (HEA). It explored the views of 94 National Teaching Fellows (NTFs) about creativity, teaching and learning in HE, via an email survey of 90 NTFs and interviews with a sub-sample of 21. The research questions (devised by NESTA and the HEA) are similar to those used by the author in *Project 1000*, a study of the views of 1,028 teachers and further education lecturers about creativity, teaching and learning (Fryer, 1989). Some of the *Project 1000* measures have also been used in this research. The results of the survey show that most Fellows are keen to develop students' creativity and are highly motivated to provide interesting and highly relevant teaching and learning experiences for their students. On the whole, their views about how creativity may be developed are quite congruent with the creativity literature. In contrast to the teachers and lecturers who took part in *Project 1000*, the NTFs are far less inclined to see creativity as a rare gift. The findings indicate a need to address the assessment of creativity in HE, especially the relationship between creative ability and academic achievement. Indeed, there is an urgent need to ascertain how many highly creative students fail to achieve academic success, as currently measured, and what steps need to be taken in the light of the findings. The results also suggest that it would be timely to examine HE provision with a view to creating provision that is geared more towards the future than the past.

#### Background literature

Here the aim is to briefly locate the results of this investigation in context rather than provide a comprehensive review of the literature on creativity, teaching and learning – which is vast and has been extensively reviewed elsewhere (for instance Stein, 1986; Fryer, 1989, 1996, 2003; Millar, 1995). So here, the focus is on the *views* of educators.

Prior to the mid-1970s, there were few studies of educators' views on creativity, and most of them focused on school teachers and were based on Torrance's

1 Ideal Pupil Checklist (Torrance, 1965, 1975). This measure was designed to dis-  
2 cover teachers' *attitudes* to pupils' creative behaviour (for instance, Torrance,  
3 1965; Schaefer, 1973) rather than to identify 'ideal pupils' per se. A popular  
4 measure, it is still used throughout the world (for instance, Von Eschenbach and  
5 Nolan, 1981; Noland *et al.*, 1984; Ohuche, 1986; Fryer, 1989; Sharma Sen and  
6 Sharma, 2004).

7 From his original study of the attitudes of over 1,000 teachers in Germany,  
8 India, Greece, the Philippines and the USA, Torrance (1965) concluded that  
9 teachers in all five countries may be unduly punishing children who are good at  
10 guessing/estimating, those courageous in their convictions, emotionally sensitive  
11 children, intuitive thinkers, those who regress occasionally, visionary pupils and  
12 those who are unwilling to accept assertions without evidence. On the other  
13 hand, teachers may be unduly rewarding pupils for being courteous, doing work  
14 on time, being obedient, popular and willing to accept the judgements of author-  
15 ities.

16 In 1976, a fairly comprehensive study of teachers' views on creativity was  
17 undertaken by Bjerstedt and colleagues in Malmö (Bjerstedt, 1976). A key aim  
18 was 'to explore via teacher opinions and classroom observation, teacher and  
19 student behaviours that can potentially influence creativity' (Eriksson, 1970).  
20 The study involved collecting the views of 292 educators via an unstructured  
21 questionnaire about creative ability and the steps they thought students should  
22 take to promote creative behaviour. This was followed by a more structured  
23 version administered to 360 'key teachers'. Also, 200 teachers were asked how  
24 they would respond to a range of hypothetical classroom situations.

25 The results of Bjerstedt's unstructured survey revealed that the most common  
26 definition of creative ability was 'independent work', followed by 'richness of  
27 ideas', 'originality' and 'the ability to combine'. A request to identify the  
28 characteristics of highly creative pupils was answered with 280 different  
29 responses, mostly embodying the notion of intellectual capacity, including 'flex-  
30 ible', 'full of ideas', 'keen to discuss things', 'curious' and 'conscious of prob-  
31 lems'. According to the Swedish teachers, the distinguishing personality  
32 characteristics of creative pupils included 'independent', 'unconventional',  
33 'open' and 'confident'. The pupils they considered creative were also described  
34 negatively: 'want to do everything differently', 'are a worrying element', 'do not  
35 co-operate', 'adjust badly to tuition' and 'listless at the prospect of some sub-  
36 jects'.

37 With regard to developing creativity, the Swedish teachers believed that prac-  
38 tical subjects and Swedish offered the most scope, although they thought that  
39 creativity could be developed in any subject. They also thought creativity could  
40 best be promoted through 'free practical exercises and group work'. Like Tor-  
41 rance (1965), they believed that positive teacher attitudes were most important  
42 for facilitating creativity.

43 The Swedish study was followed by Fryer's *Project 1000*, a similar but  
44 larger-scale quantitative and qualitative investigation into the views of over  
45 1,000 UK teachers and further-education lecturers about creativity, teaching and  
46 learning (for instance, Fryer 1989, 1996; Fryer and Collings, 1991). The

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teachers and lecturers who took part taught pupils and students in the 5–18+ age ranges, in every area of the curriculum.

Fryer's 1989 investigation employed a range of original scales and checklists, as well as the Torrance checklists. Her research focused on teachers' perceptions of creativity, their preferred ways of teaching, attitudes to creativity, the facilitation of creativity, any barriers and enablers they perceived and teachers' preferred means of assessing creativity.

Results revealed (for the first time, as far as is known) clear and highly significant differences in perceptions of creativity and preferred creativity assessment criteria, between male and female staff, and amongst those teaching different disciplines. In addition, the variables which best discriminate between teachers most and least motivated to facilitate creativity were revealed. These variables all demonstrated a willingness to take learners' needs into account.

Of particular interest was the finding that attitudes to, and perceptions about, creativity in education co-varied with preferred ways of teaching. This led to the proposition that these might be rooted in some kind of underlying value system linked to *person orientation* (as defined in Collings, 1978; Collings and Smithers, 1984). This proposition was supported by a later investigation (Fryer, 1994a).

Fryer included the Ideal Pupil Checklist (IDP) in her 1989 study, along with her own measures and Torrance's Personality Checklist. The latter is similar but not identical to the IDP. Fryer used it to find out how the teachers saw themselves and how this compared with pupil characteristics they wanted to encourage or discourage. She found that the UK teachers and lecturers in her sample valued most the students who were 'considerate' and 'socially well-adjusted'. The next most popular student attributes were 'self confidence', 'independence in thinking' and 'curiosity', each of which is implicated in creativity. Sharma Sen and Sharma (2004) later found that a small sample of Indian teachers ( $n=28$ ) ranked pupils' 'self-confidence' and 'courage in convictions' third and fourth respectively, after 'socially skilled' and 'healthy' pupils. Since 1989, there have been a number of similar small-scale studies of school teachers' views (for instance Woods, 1995).

In *Project 1000*, the teachers did not see themselves as creative, but rather in terms of their sense of humour and social attributes. This is in keeping with the findings of Popescu-Nevianu and Cretsu (1986) who found that Romanian teachers didn't value initiative in themselves, but valued it highly in others.

Following a review of creativity, teaching and learning at Leeds Metropolitan University in 1992, the author led a small-scale comparative study in 1993/4 into creative and effective teaching, involving Leeds Metropolitan University and Lisbon Polytechnic (Fryer, 1994b). At this time both British and Portuguese staff were facing growing class sizes with limited resources. From the Portuguese team's comments, the British researchers had expected to find mainly didactic teaching in Lisbon. Instead, they found good examples of challenging and creative lessons as well as some similarities in how creativity was being addressed in both countries.

Internationally, an increasing number of universities offer creativity development courses (see for instance Fryer, 2003, 2005), and there have been a number

of related initiatives (for instance, DfEE, 1999). However, until this study (and companion studies described in this book), there has been very little research into creativity in teaching and learning in HE.

The National Teaching Fellowship Scheme (NTFS) is designed to recognise and reward teachers and learning support staff for their excellence in teaching in HE. The awardees have been selected for (amongst other things) their ability to inspire their students and colleagues, as well as demonstrating a reflective approach to teaching and learning support. Yet little is known about their views on creativity and learning and how this affects their preferred ways of teaching.

### *Aims and objectives*

The aims of the present investigation were to ascertain the views of National Teaching Fellows about creativity and learning, the effect they perceive this has on their teaching and the implications for teaching and learning in HE.

More specific objectives were to discover the following:

- How the NTFs envisage creativity.
- Whether they regard themselves as creative.
- What they think creativity involves in terms of their discipline.
- How they view the relationship (if any) between creativity, learning and academic achievement.
- What creativity involves with regard to their teaching.
- The extent to which they aim to teach in ways which develop student creativity.
- The relationship they perceive between teaching creatively and developing students' creativity.
- The factors they regard as enabling or inhibiting.
- Whether they assess the creativity of students' work and, if they do, how they go about it.
- How they communicate any creativity assessment requirements to students.
- Whether they regard the development of students' creativity as primarily for academic purposes or to prepare students for the wider world.
- Their views on the effect of the current expansion of HE on teaching, learning and the development of students' creativity.
- Which aspects of this provision they regard as helpful to developing students' creativity and which they see as inhibiting.

### *Methods*

All 130 National Teaching Fellows appointed up to and including 2004 were invited to take part in the survey. The response rate was outstanding (72 per cent). The sample included 54 men and 40 women. From this sample, 90 completed an email questionnaire; 21 (11 females and ten males) took part in interviews. They represent a variety of disciplines, ages, kinds of institution and regions.

## Results and discussion

This section includes comparisons with the results of the author's *Project 1000* research in 1989, involving teachers and HE lecturers. Although the two samples are not matched, both consist of educators; and both studies focus on the same objectives and share some common measures.

### *Perceptions of creativity*

The Fellows were asked to indicate which items in Table 7.1 matched their perception of creativity. In line with the results of the 1989 study, *imagination* was most popular. *Original ideas* is also ranked highly – third in the present study and second in the previous one. *Seeing unusual connections* is ranked second in the current study and fourth in the earlier research. In the 1989 study, female respondents were significantly more likely to identify with *self-expression* as an aspect of creativity than were men ( $p < 0.01$ ). In the present study, the data did not meet the necessary statistical conditions.

When asked to describe in words what creativity means to them, the Fellows emphasised different constructs which may be broadly categorised as:

- *thinking* (e.g. 'solving ill-structured problems in ways which show initiative').
- *doing* (e.g. 'developing, implementing and leading new things').
- *thinking and doing* (e.g. 'both the cerebral and the practical').
- *the arts* (e.g. 'artistic version of innovative').

Table 7.1 Aspects of creativity with which the NTFs identify ( $n=90$ )

Aspect of creativity	%
Imagination	90.0
Seeing unusual connections	86.7
Combining ideas	80.0
Original ideas	80.0
Innovation	76.7
Thinking processes	72.2
Discovery	66.7
Invention	61.1
Generative thinking	53.3
Self-expression	52.2
Valuable ideas	52.2
Sudden inspiration	51.1
Analytical thinking	44.4
Awareness of beauty	25.6
Aesthetic products	21.1
Unconscious activities	21.1
Tangible products	18.9
Mysterious processes	14.4
Other	14.3

- *self-expression* (e.g. ‘ability to express an innate aspect of your psyche’).
- *creativity as a continuum* (e.g. ‘at one extreme... great artists and scientists... At the other... ordinary people...’)
- *context* (e.g. ‘contextually-based innovation inspired by responding to specific and challenging problems’).

Most NTFs (92.2 per cent) believe that creativity *can* be developed (compared with 89.6 per cent in 1989). However, there is a striking difference in the extent to which respondents see creativity as *a rare gift*. In *Project 1000*, 70.6 per cent agreed that it was, but in the present study 71.1 per cent *disagreed*. This could be because nowadays creativity is a ‘hot topic’. In 1989, there was little emphasis on creative education in the UK, except in relation to giftedness.

Just under half the NTFs doubt whether men and women are creative in the same way. This question was not asked directly in 1989, but when that data was analysed in terms of gender, significant inter-group differences were revealed in male and female perceptions of creativity, how they preferred to assess it, and how they preferred to teach (Fryer, 1989; Fryer and Collings, 1991).

Similarly, just under half the sample are unsure as to whether people of different ethnic origins are creative in the same way, even though more than half the NTFs think that creativity is different in different cultures. There is no evidence that ethnicity has a bearing on creative ability, but there is evidence of some cultural differences in how creativity is perceived and expressed (for instance, Raina, 2004).

In the questionnaire, NTFs were asked to describe creativity in terms of their own discipline. Most of the answers could apply to any discipline. For example:

- Finding new ways of engaging with students; tapping into unconventional ways of assessing student learning (neuroscience).
- Originality; developing, producing, manufacturing; bringing about ideas and designs solutions in different, unusual ways; to critically analyse, reflect and apply and develop ideas and attitudes (design history).
- Being able to conceptualise possible solutions to problems or explanations that are novel. Being able to select from a very wide range of possibilities a few that can credibly explain the past, present or future (information management).
- Finding new solutions (pharmacology).
- Putting apparently disparate things together or seeing the relevance of something in a new context... [compared with] the highest level of creativity in physics, which is to see problems where no-one else does and to have the technical ability to express them in a way that is useful (in which they can be attacked) (physics).
- New theories, original work, seeing new applications for existing mathematics (maths).

In *Project 1000*, staff were not asked directly how creativity was perceived in their discipline. Instead, the data was analysed in terms of subjects taught. This

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revealed significant differences in views about creativity, teaching, learning and assessment among different subject specialists (Fryer, 1989, 1996; Fryer and Collings, 1991). In the present study, the smaller sample and lack of quantitative data makes such comparisons problematic.

### *Views about creativity, teaching and learning*

Over 80 per cent of the NTFs think the capacity to be creative helps people to be successful, and 86 per cent believe this prepares students for the wider world. For example, one Fellow described how this impacts on people's lives:

I think if you're creative you ... can imagine all sorts of scenarios and it helps you judge what your options are ... I do think it broadens your perspectives. It also makes you very good at multi-tasking.

Whilst 75 per cent of the NTFs believe that the capacity to be creative enhances academic performance, few (13.5 per cent) believe that the most academically successful students are also the most creative. This begs important questions, such as:

- Do other things contribute more to academic success than the capacity to be creative? If so, are these desirable, especially given that over 80 per cent of the sample think developing students' creativity prepares them for the wider world?
- Are some highly creative students not academically successful? If so, is assessment in HE failing them in some way?

It is worth noting that many successful and creative people have either dropped out of school or HE or have achieved unremarkable grades (for instance Safter, 1993). An observation by Torrance (2002a) is also relevant:

Both Getzels and Jackson, and I found that between the populations on intelligence tests and creativity tests, there is only a 30% overlap. In studies of academic achievement, and in follow-up studies of creative behaviour, we found very little difference between the high IQ/not-so-high creativity, and the high creativity/not-so-high IQ. In fact, in most of my own studies, the high creativity/not so high IQ group achieved better than any other group. Thus we should make one of our missions that of getting research findings into practice.

### *Developing students' creativity*

Most NTFs (93.3 per cent) believe that developing students' creativity is important and 90 per cent aim to develop student creativity using a variety of approaches which include:

- 1 Stimuli for imaginative thinking or heuristic strategies, e.g.:



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- 'problem-based learning' (physics).
  - 'games which set challenging problems... [encouraging] students to think of new approaches' (chartered surveyor).
- 2 Learning in a particular context or providing a context for creative work, e.g.:
  - '[using] real life scenarios to encourage the adaptation of radiographic technique' (radiography).
  - 'showing examples of creative thinking and solutions; providing reading and resources to extend thinking... ' (graphic design).
- 3 Supportive factors such as the relationship between tutor and students, e.g.:
  - 'strong encouragement with a friendly approach' (maths).
  - 'trying to remain open to unexpected responses' (law).
- 4 Personality characteristics
  - 'helping students develop an approach to risk-taking' (medical education).
  - '[building] self confidence' (neuroscience).
- 5 Teaching skills for use in creative work
  - 'first developing the craft skills; then when they're established, encouraging them to play, confident that they can recover if it goes wrong' (education).
  - 'working on students' strengths whilst improving their weaknesses' (pedagogy and psychology).
- 6 Setting tasks which require creativity:
  - 'developing opportunities for creativity processes, solutions, journeys and application- briefs, seminars, essays, presentations.' (graphic design).
  - 'setting creativity tasks and being as open as I can be' (building pathology).
- 7 Developing students' motivation:
  - 'empower students so they feel they can have ownership and contribute usefully to discussions and debates' (psychobiology; health psychology).
  - 'a person-centred approach to teaching, tapping into each individual's dreams, needs, aspirations, curiosity and motivation' (open learning).

At interview, two Fellows working in very different fields (construction management and nursing) each described how they had created *virtual work contexts*



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in their classrooms to make learning come alive for their students and enable them to see the relevance of their learning. The chartered surveyor had created a virtual construction site that students could use in an interactive way; he used games and simulations to make learning highly relevant for students. The nursing tutor recognises that nurses need to be problem solvers. He gives students real problems and the visual tools to interact with a computer programme that simulates an acute hospital, with access to typical patient records. He took this step because students had not been applying the theory they learned. Teaching had become too conceptual and theoretical. His new method enabled students to start with the practical and move to the theoretical.

Most NTFs are interested in developing students' creativity and some appear to be very skilled in this regard. Their strategies are mostly quite congruent with the literature (for instance, Torrance, 1962, 1995; Stein, 1974, 1975; Fryer, 1996, 2004; Beetlestone, 1998; Cropley, 2001; Millar, 2004). A few Fellows referred to the use of formal 'thinking techniques' such as lateral thinking, brainstorming or mind-mapping. It is not always necessary to resort to such techniques and programmes, although they may suggest useful strategies. In the late 1980s, the author and her colleagues devised and delivered a series of accredited modules and courses in applied creativity at undergraduate and post-graduate levels and for professional updating. These modules introduced students to the whole field of creativity research and development, and enabled them to evaluate the relevance of formal 'creativity programmes' and everyday, informal approaches to their own work (which often involved the facilitation of others' creativity). These courses were accessed by several thousand students, from a wide range of disciplines over a 15-year period. The students worked together on issues relevant to them. Most were professionals in health, social care, education or business. It might be worth considering whether courses like these could benefit students and whether better mechanisms are needed for exchanging ideas about creativity, teaching and learning in HE generally.

### *Supportive factors*

The Fellows identified numerous factors that help them to develop students' creativity. These may be grouped as:

- NTFs' personal qualities.
- Their abilities, activities or experience.
- Students' qualities and contributions.
- Manageable workload.
- Nature of the discipline.
- Resources.
- The system and its procedures.
- The institution's or department's ethos.
- The NTF scheme.

*NTFs' personal qualities*

For example, tenacity, willingness to experiment, ability to use imagination, motivation, patience, willingness to take risks, courage, self-confidence. The personal characteristics they identified were almost all typical of creative people (see, for instance, Torrance, 1965; Stein, 1984).

*Their abilities, activities or experience*

For example, teaching styles, skills and experience, research experience.

*Students' qualities and contributions*

For example, students' motivation and enthusiasm, willingness to learn and be original, creativity.

*Having a manageable workload*

For example, small teaching groups, being a professor with low administration duties, a light timetable and opportunities for travel.

*The nature of their discipline*

For example, a discipline that lends itself to creative approaches.

*Resources*

For example, suitable resources, good library facilities, funding for innovation.

*The system and its procedures*

For example, control of the curriculum, flexibility of assessment, autonomy in selecting different teaching and assessment styles.

*The institution's or department's ethos*

For example, work ethic in which creativity is the norm, supportive peer groups, colleagues happy to experiment, inspiration from others, working in creative teams, having a supportive manager who values creativity, support of external examiner.

The importance of an enabling ethos was also mentioned at interview. For example, the family atmosphere generated in one institution was seen as making a very real difference and enabled staff and students to get to know one another well.

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*The NTF scheme*

The other supportive factor mentioned at interview was the NTF scheme itself. This was seen as providing freedom, flexibility, space to be creative or opening up opportunities.

Given these findings, it's not surprising that most NTFs believe they are creative. What is particularly interesting is that many Fellows' descriptions of themselves as facilitators of creativity are congruent with those of the *Project 1000* teachers identified by means of discriminant analysis as *most keen to develop creativity* (Fryer, 1989, 1996; Fryer and Collings, 1991).

*Students' learning styles and NTFs' teaching styles*

Although most NTFs (80 per cent) said they were influenced by students' learning styles, this is not easy to take into account, except perhaps by allowing students more choice and significant autonomy in their learning. This is exactly what those Fellows who do address students' learning styles report doing, together with a willingness to be responsive to students.

A few NTFs expressed doubts about the validity of learning style theory. One difficulty with attempts to assess learning styles is that these can be categorised in different ways and categories overlap. Consider, for example, the 'holists' described by Pask and Scott (1972), the 'activists' of Honey and Mumford (1986) and the 'syllabus free' students described by Josephs and Smithers (1975). Also, some learning styles are thought to be more stable than others (Floyd, 1976). Scores on some styles can shift as individuals mature – on *impulsivity/reflectivity*, for example (Kagan, 1966).

*Constraints on preferred ways of teaching*

Fellows were asked to tick the factors they see as inhibiting their preferred way of teaching.

An 'excessive non-teaching workload' appears to offer the most immediate scope for a re-think and this could create more preparation time. Clearly, it would be worth considering how to deploy HE resources more effectively.

In the interview study, quite a few NTFs mentioned feeling constrained by the need for peer or institutional approval. For some, the RAE was a barrier – setting up tension in those who wanted both to teach imaginatively and produce high-quality research papers. One Fellow described the pressure he felt to conform to institutional norms along with a sense of isolation – as a result of questioning current teaching practice. Despite this, he chose to forge ahead with his goals. His experience is quite typical of highly creative people (for instance, Torrance, 2002b).

*Assessing creativity in students' work*

Results indicate insufficient comparability in how creativity is assessed. Just over one-third of the sample assessed students' creativity *informally*; just over one-quarter undertake some kind of *formal* assessment. Slightly less do both.

Table 7.2 Constraints on NTFs teaching ( $n=89$ )

Constraint	Valid %
Excessive non-teaching workload	38.2
Unsuitable accommodation	37.1
Inadequate preparation time	33.7
Over-large classes	31.5
Insufficient class contact time	29.2
Constraints imposed because of colleagues' requirements	22.5
Inadequate resources	19.1
Other constraints	25.5*

Note

\*Other constraints comprised a mixture of structural, procedural and personal factors.

*Informal assessment* is carried out in various ways, not all satisfactory. Many find it difficult to operationalize creativity criteria. And what tutors seek as evidence of creativity appears to vary. Where criteria are stated, they include 'creativity' per se, 'innovative' or 'appropriate' solutions and 'novel ideas'. One approach is to penalise students for *lack* of creativity: 'If a scenario is given and the student ignores the contextual information, they wouldn't get credit for describing a rigid... technique.'

Where creativity is *formally assessed*, this is normally communicated to students, although some tutors acknowledge they do not communicate this as clearly as they might. Overall, a variety of means of assessment were used, with peer evaluation and group project assessment being popular in years that don't count towards degree classification. Again, criteria are not always explicitly stated. Alternatively, the 'usual HE criteria' are regarded as sufficient to incorporate creativity.

Where creativity criteria are stated, they include:

- going beyond boundaries.
- being prepared to take risks.
- innovation, innovative thinking.
- originality.
- entrepreneurship.
- problem-solving ability
- imaginative use of media within the context of the brief.
- initiative.
- inventiveness.
- sophistication.
- engagement, motivation.
- ability to analyse critically.
- creativity per se.

In both the interviews and email survey, some NTFs saw a tension between the constraints of degree requirements and the desire to assess (and/or develop) creativity, for example:

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- ‘being creative doesn’t always fit with the criteria.’
- ‘assessment limits student creativity. You can’t let them be too open-ended, because they might not meet the assessment criteria.’

However, this tension doesn’t necessarily stop NTFs expecting creativity from their students, even though about one-third of them see assessment as inhibiting students. A few Fellows don’t have this problem; they ensure that assessment *requires* students to be creative.

Whilst assessing creativity necessarily involves some subjectivity, useful objective criteria do exist (for instance, Puccio, 1994; Fryer, 1996, 2000) along with objective measures, of which perhaps the best known are the Torrance Tests of Creative Thinking (TTCTs). The TTCTs have sometimes been criticised for not assessing creativity comprehensively. However, their role is not to do this, but to distinguish between different levels of creative-thinking ability. These tests are based on American norms, are easy to administer, but complex to score. The Creativity Centre has been developing alternative UK tests, which are yielding promising results. All measures have strengths and weaknesses, so a good solution is to use a range of methods. Overall, the research suggests the need for greater clarity and accountability in creativity assessment in HE.

### *Aspects of HE provision supporting students’ creativity*

The NTFs are really aware of the many factors that support student creativity, including the need for active involvement in learning, with group work as the preferred vehicle. Although group work offers considerable scope, it doesn’t necessarily follow that ‘working as a group’ enables creativity. Highly creative students often prefer to work alone and get absorbed in work that interests them (Shallcross, 1985). The NTFs also mentioned staff teamwork, a *can-do* attitude and supportive senior management.

### *Aspects of HE provision inhibiting students’ creativity*

Almost all of the NTFs (95.5 per cent) thought that some aspects of HE provision inhibit students’ creativity. Assessment was most frequently mentioned (by about one-third of the sample). Other concerns include poor teaching, over-large classes, managerialism, inadequate student funding and a stress on ‘not failing’ rather than freedom to think or take risks.

### *The impact of HE expansion on teaching and learning*

Most, but not all, areas of HE are expanding and views about the impact varied. Some Fellows believed this was (or could be) positive, especially if well-funded. Interestingly, many staff realised that this was a situation demanding creativity – as they had to question how HE education needed to be delivered.

At interview, there was concern about ‘factory farming students’ and ‘managerialism’. The effect of expansion on class sizes was a key concern because

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students who needed most support were getting less. Yet not all NTFs experienced problems, sometimes because their able and highly motivated students coped well in large groups, sometimes because the tutors were successfully tackling these problems. For example:

I went from teaching 20 students overnight to teaching 150. With 20 students, we would tend to do lots of group work, a much more creative approach to learning. But when I had 150 students, all that had to cease. We've now got round that by... doing computer-based learning and tutorial support in small groups again.

A particular concern was that the expansion of student numbers was not being matched with additional resources, which suggests the need for a radical look at how teaching and learning are delivered and how resources in HE are best deployed.

#### ***Impact of HE expansion on developing student creativity***

Again, responses varied along a continuum from positive to negative. At one extreme, expansion was seen as an exciting opportunity that could stimulate student creativity, given the growing diversity of students. Indeed, there was the prospect of creating really innovative teaching and learning experiences. At the other extreme, there was concern that institutions would retreat into managerialism and factory-farming solutions. Again, this leads to the view that it is time for a radical re-think about how HE provision can be improved in order to enhance student creativity.

#### **Conclusions and recommendations**

Most NTFs are highly motivated and keen to develop students' creativity. Their views on how student creativity may be developed and supported are generally quite congruent with the literature. Even though most of the NTFs see themselves as having more autonomy, flexibility and opportunities than their colleagues, many struggle with challenging working conditions. Questions need to be asked about the criteria for academic success. Do these encourage conformity and 'playing safe', for example? Do the criteria really reflect the needs of graduates in the twenty-first century? If not, how should they be changed? The assessment of creativity in HE needs to be addressed. Where creativity is assessed *informally*, students need to know this is happening and how it is being carried out. In some cases, greater clarity is also needed with regard to the *formal* assessment of creativity. A continuing dialogue would be valuable between staff who cope well with large numbers of students with diverse needs and staff who cope less well. It is clear that space, staff time, student time and other resources are not always being used entirely effectively. The results suggest that a further investigation is warranted to determine whether there are significant numbers of highly creative students who are not achieving high levels of academic success; and what steps need to be taken.

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Although the NTFs' responses have provided a good picture of their views, it is not possible to say how this compares with the views of other HE staff. A survey of *their* views would provide a valuable comparison. On the whole, Fellows' responses highlight the fact that, despite some really innovative teaching, much HE provision is still geared to the previous century (and in some instances, the century before that!). There is a real opportunity to create provision geared to current and future needs. Enlightened Fellows have pointed the way forward; it is time to explore in more detail what future educational provision could and should be.

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