

**Facilitating Creativity in Higher Education**  
The Views of National Teaching Fellows

A research report by  
The Creativity Centre Ltd

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# 1 Executive summary

As part of a collaborative programme of research into creativity in higher education, the Higher Education Academy and the National Endowment for Science Technology and the Arts (NESTA), commissioned the Creativity Centre to undertake a study of the views of National Teaching Fellows (NTFs) in England. The views of 94 NTFs on creativity and its role in teaching and learning were collected through an email survey of all NTFs and interviews with 21 Fellows.

Creativity is integral to the self-identity of most NTFs: all but three regard themselves as creative and there is a widely held belief that creative teaching facilitates creative learning.

The four aspects of creativity most congruent with the NTFs' definitions of creativity are: 'imagination', 'seeing unusual connections', 'original ideas' and 'combining ideas'. When the NTFs were asked to describe creativity in terms of their own discipline, results demonstrated that most of the answers could apply just as well to any discipline.

Most NTFs believe that the capacity to be creative helps people to be successful and that developing students' creativity is important. They are keen to develop students' creativity and are highly motivated to provide interesting and relevant teaching and learning experiences for their students. On the whole, their views about how creativity may be developed and supported are quite congruent with the creativity literature. Most NTFs see creativity as a capacity that can be developed rather than as a rare gift. This is significantly different to Fryer's creativity survey of 1028 teachers and FE lecturers in 1989.

NTFs use a range of approaches for developing students' creativity including:

- stimuli for imaginative thinking or heuristic strategies
- learning in a particular context or the provision of a suitable context for creative work
- supportive factors such as the relationship between tutor and students
- encouraging the development of personality characteristics
- teaching skills for use in creative work
- setting tasks which require creativity
- developing students' motivation.

A range of factors and conditions were identified by NTFs as enabling or inhibiting their ability to promote students' creativity.

The assessment of creativity is identified as a particular issue. In contrast to the overwhelming view that students' creativity is important and that it should be developed, only a quarter of NTFs undertake some kind of formal assessment and a third informal assessment of creative achievements. One in six NTFs reported that creativity was not assessed or hardly ever. Furthermore, while approximately four out of five NTFs believe that creativity is important for success, most NTFs do not think that the most academically successful students are also the most creative! These findings suggest that there is a pressing need to address the assessment of creativity in HE, and to examine further the relationship between creative ability and academic achievement: are some highly creative students failing to achieve academic success, as currently measured?

Key conclusions (see report for complete list) include:

- Most NTFs are highly motivated and keen to develop students' creativity.

- On the whole, their views on how student creativity may be developed and supported are quite congruent with the creativity 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 relevance of current criteria for academic success. Do the criteria really reflect the kind of graduates needed in the 21<sup>st</sup> Century? If not, how should they be changed?
- The assessment of creativity in HE needs to be addressed. In particular, where creativity is assessed *informally*, students need to know that this is happening and how it is being carried out. In a number of cases, greater clarity is also needed with regard to the *formal* assessment of creativity.
- A further investigation is warranted to ascertain 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 as a result of the findings.
- Although the NTFs' responses have provided a good picture of their views, it is not possible to say how this compares with the current views of other HE staff. A survey of *their* views would provide a useful comparison.

The study extends our understanding of how higher education teachers perceive creativity in students' learning and their own role in promoting students' creativity in the particular disciplinary and institutional contexts in which they work.

## 2 Terms of reference

The terms of reference given by the commissioning bodies were to:

- investigate the views of National Teaching Fellows (NTFs) about creativity, teaching and learning (mainly by means of a set of research questions specified by NESTA), using an email survey of 90 NTFs and interviews with 20 NTFs
- provide a brief literature review to contextualise the findings in the light of similar surveys, including the author's research.

## 3 Overview of the literature

The purpose of this review is to locate the investigation in context rather than conduct a comprehensive review of the literature on creativity, teaching and learning. Indeed, the literature on the nature and development of creativity (both in and out of formal educational settings) is vast and has been extensively reviewed elsewhere (see for instance, Stein, 1986; Fryer, 2003, 1996, 1989; Millar, 1995).

However, there has been rather less investigation into the *views* of educators on creativity in teaching and learning. Prior to the mid-1970s the majority of such studies were based on Torrance's Ideal Pupil Checklist (Torrance, 1965, 1975), a measure designed to discover teachers' *attitudes* to pupils' creative behaviour (see for instance, Torrance, 1965; Schaefer, 1973) rather than to identify 'ideal pupils' *per se*, as implied by the checklist name. This popular measure has continued to be used throughout the world (for instance, Von Eschenbach et al, 1981; Noland et al, 1984; Ohuche, 1986; Fryer, 1989; Sharma Sen & Sharma, 2004).

From his original study of the attitudes of over 1000 teachers in Germany, India, Greece, the Philippines and the USA, Torrance (1965) concluded that teachers in all five countries may be unduly punishing children who are good at guessing/estimating, those who are courageous in their convictions, emotionally sensitive children, intuitive thinkers, those who regress occasionally, visionary pupils and those who are unwilling to accept assertions without evidence. On the other hand, teachers may be unduly rewarding pupils for being courteous, doing work on time, and being obedient, popular and willing to accept the judgements of authorities.

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

The results of Bjerstedt's unstructured survey revealed that the most common definition of creative ability was in terms of 'independent work', followed by 'richness of ideas', 'originality' and 'the ability to combine'. A request to identify the characteristics of highly creative pupils was answered with 280 different responses, mostly embodying the notion of intellectual capacity, including 'flexible', 'full of ideas', 'keen to discuss things', 'curious' and 'conscious of problems'. According to the Swedish teachers, the distinguishing personality characteristics of creative pupils included 'independent', 'unconventional', 'open' and 'confident'. The pupils they considered creative were also described negatively: 'want to do everything differently', 'are a worrying element', 'do not co-operate', 'adjust badly to tuition' and 'listless at the prospect of some subjects'.

With regard to developing creativity, the Swedish teachers believed that practical subjects and Swedish offered the most scope, although they thought that creativity could be developed in any subject. They also thought that creativity could best be promoted via 'free practical exercises and group work'. In line with Torrance's conclusions (Torrance, 1965), the Swedish teachers believed that positive teacher attitudes were most important for facilitating creativity.

The Swedish study was followed by Fryer's *Project 1000*, a similar but larger-scale quantitative and qualitative investigation into the views of over 1000 UK teachers and further education lecturers about creativity, teaching and learning (for instance, Fryer 1989, 1996; Fryer and Collings, 1991). The teachers and lecturers who took part included those teaching 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 mentioned above. 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 *Project 1000* research, along with her own original measures and Torrance's Personality Checklist. Torrance's Personality Checklist is similar but not identical to the IDP. Fryer used it to find out how the teachers in her study saw themselves and how this compared with the 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. In a later study, Sharma Sen & Sharma (2004) 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 the 1989 study, there have been a number of similar small-scale studies of school teachers' views (for instance Woods, 1995). In the 1989 study, the teachers did not see themselves as creative but, instead, 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 the Romanian teachers they studied did not value initiative in themselves although they valued it highly in others. These teachers tended to be modest and have a low self-image.

Regarding HE, an internal review of creativity, teaching and learning among staff of the Faculty of Health & Social Care, Leeds Metropolitan University was undertaken by Fryer in 1992. In 1993/4, she led a small-scale comparative investigation into creative and effective teaching in HE involving Leeds Metropolitan University and Lisbon Polytechnic (Fryer, 1994b). At this time both the British and Portuguese HE staff were facing a growth in class sizes matched by limited resources and, at times, inadequate accommodation. Although the Portuguese team indicated that there was an emphasis on long hours of formal didactic teaching in their institutions, the British researchers found good examples of challenging and creative lessons in Lisbon. On the whole, there were many similarities in the way creativity was being addressed in both countries.

Internationally, an increasing number of universities are offering creativity development courses (see for instance Fryer, 2003, 2005) and there have been a number of related initiatives (for instance, DfEE, 1999). However, until the recent work of the Imaginative Curriculum project (see the collection of studies contained in Jackson et al in press) there has been no major investigation into creativity and teaching and learning in HE.

This study was intended to help address this deficiency by ascertaining the views of the National Teaching Fellowship Scheme (NTFS). The NTF scheme is open to all higher education teachers and others who support students' learning who are based in universities and colleges in England and Northern Ireland. It is designed to recognise and reward teachers and learning support staff for their excellence in teaching. The awardees are 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.

## 4 Aims and objectives

The aims of this investigation are 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 higher education.

More specifically, the objectives are to discover:

- 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 the development of students' creativity
- what 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 as a means of preparing students for the wider world
- NTFs' 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 the development of students' creativity and which they regard as inhibiting.

## 5 Methodology

The whole population of National Teaching Fellows appointed up to and including 2004 (N=130) was invited take part in the survey. Of these, 72% (N=94) agreed whilst 5 declined due to other commitments. The remaining NTFs did not respond.

### 5.1 The sample

The overall sample of 94 is made up of 54 men and 40 women. With regard to the NTFs who took part in the email survey, 58.9 % (N=53) are male and 41.1% (N=37) female. From Table 1, it will be seen that over half of them are aged between 50 and 59 years.

Age range	Frequency	%
25-29	1	1.1
30-39	13	14.4
40-49	23	25.6
50-59	49	54.4
60+	4	4.4
Total	90	100.0

Table 1. Age range of sample (N = 90)

Every member of this sample holds a first degree and 90% (N=81) have a higher degree, with 5.6 % (N=5) having another postgraduate qualification. The majority hold senior university posts. The sample also represents a wide range of disciplines (see Table 2).

Discipline	Frequency	%
Learning/education	21	23.4
Arts	17	18.7
Health	13	14.4
Maths/stats/accountancy	8	8.9
Humanities	5	5.5
Science/technology	4	4.4
Business	4	4.4
Law	4	4.4
Social care/social sciences	4	4.4
Psychology/neuroscience	3	3.3
IT, systems analysis	3	3.3

Construction	2	2.2
Media production/ed. tech.	2	2.2
Total	90	99.5

Table 2. Main discipline (N=90)

## 5.2 Measures and procedure

90 participants completed an email questionnaire (see Appendix), which included open-ended questions specified by NESTA, together with a small number of measures developed by Fryer (1989), initially for *Project 1000*. Whilst the NTFs' questionnaire covers very similar ground to *Project 1000* (which was much larger and conducted over a longer time-scale), the questionnaire items are not all comparable. Also, the earlier questionnaire comprised mainly scales and checklists - which afforded a more sophisticated analysis of the quantitative data than has been possible in the present study. However, the present study is extremely rich in qualitative data.

A sample of 21 respondents, 11 females and 10 males, took part in interviews. The interview sample represents a variety of disciplines, ages, kinds of institution and regions. The selection of this sample was influenced both by a need to take account of these variables and a desire to explore in more detail some interesting lines of enquiry generated by the email survey. For the 17 respondents who also completed the email survey, the follow-up interview questions were selectively based on their questionnaire responses. The remaining 4 interviewees responded to the full set of research questions.

Both the emailed questionnaire and the interview study allowed respondents the opportunity to add any additional comments they wished to make.

## 6 Results

### 6.1 Perceptions of creativity

Table 3 indicates which aspects of creativity are congruent with the NTFs' perceptions of this concept.

Aspect of creativity	%
Imagination	90.0
Seeing unusual connections	86.7
Original ideas	80.0
Combining 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

Table 3. Aspects of creativity with which the NTFs identify (N=90)

The percentages reflect the extent to which each aspect matches the NTFs' concept of creativity. As the table shows, the four aspects of creativity most congruent with the NTFs' definitions of creativity are: 'imagination' (90%), 'seeing unusual connections' (86.7%), 'original ideas' (80%) and 'combining ideas' (80%). The Fellows identify least with the notion of 'mysterious processes' (14.4%) or the idea that 'tangible products' (18.9%) are involved.

Hardly any NTFs see creativity as irrelevant to them. When asked to describe what creativity means to them, they emphasised different constructs, which can be broadly categorised as:

- certain ways of thinking
- doing
- both thinking and doing
- the arts
- self expression
- creativity as a continuum
- the role of context in creativity.

Here are some examples:

*Thinking:*

- 'Thinking outside the box, not being constrained by assumptions, others' thinking and practices'.
- 'Lateral thinking, problem solving'.
- 'Being able to come up with a wide range of possible alternatives (divergent); being able to selectively reduce that wide range to a few possibilities (convergent)'.
- 'Solving ill-structured problems in ways which show initiative'.

*Doing:*

- 'Developing, implementing and leading new things'.
- 'The ability to manufacture meaningful intellectual property that has an emotional effect upon the recipient'.
- 'Making, producing, forming, bringing into being'.

*Thinking and doing:*

- 'Having a glimmer of a vision that you make concrete, which then takes you by surprise. Taking a risk to make something new and refreshing happen. Letting air in. Finding solutions'.
- 'Two things: thinking in a novel way, and also bringing it to fruition in some way – both the cerebral and the practical'.

*The arts:*

- 'Artistic version of innovative'.
- 'Opportunity to have new ideas... the word suggests the arts more than science'.

*Self expression:*

- 'to generate artefacts which express my unique viewpoint in the form of written or visual materials, or other forms of expression, such as discussion or debate, either just for my own personal satisfaction or to influence others in society'.
- 'The ability to express an innate aspect of your psyche'.

### *Creativity as a continuum:*

- At one extreme it can involve great artists and scientists making large inventive leaps.... At the other extreme we have ordinary people, using, for example, language in small-scale innovative ways... I think that creativity in teaching and research ... comes somewhere between the two.

### *The role of context in creativity:*

- 'contextually-based innovation inspired by responding to specific and challenging problems'.

There is also a response reminiscent of Erich Fromm:

- 'propensity to be perplexed and to seek solutions to that perplexity'.

Not surprisingly, in the interviews respondents emphasised different aspects of creativity. For example, whereas one Fellow described creativity as 'making something new, artistic', another commented, 'My first thought would be artistic creativity, but then it's also about facilitating learning, things which are not traditionally seen as the norm... being inventive in the way you see learning'. And a third remarked, 'Some people associate creativity with the arts, but I'm intrigued by creativity in science, engineering and design'. And a head of dance/choreography pointed out that 'There's an assumption that dance is creative but often it's imitative and derivative. The assumption that the arts are creative can lead to complacency amongst staff'.

Another assumption which was questioned at interview by a Literary Studies specialist was that originality was a necessary criterion of creativity. She supported her argument by pointing out that Shakespeare's work was not all original. However, what was new in the interview data (as opposed to the survey data) was the view that creativity has its origins in specific religious beliefs. According to a specialist in Greek Literature, 'Creativity is a Judaic-Christian notion, i.e. *God as creator*, whereas in Ancient Greece the gods were seen as *giving birth*'.

The interview responses also differed in terms of the emphasis given to the creative person, process or the context for creativity:

- 'How creative something is depends on the context – what's creative in one area may not be in another'.
- 'Creativity [is] an enormous struggle - thinking things through fundamentally and imaginatively. [It's] painful.... Most creative people are not mad. Creative people are never satisfied – [it involves] a search for a goal, achievement, ambition, looking for fulfilment e.g. solution to a problem'.

Fellows who emphasised the *thinking* processes involved in creativity used terms such as 'lateral thinking', 'divergent thinking' and an 'across the board way of perceiving the world' to describe this concept. However, one of the mathematicians interviewed said he hadn't ticked 'thinking processes' in his emailed questionnaire because he has no idea how he comes up with creative ideas or how he thinks. Nevertheless, he believes it helps to work intensively on a problem and then leave it alone, to make the answers appear. He maintained, 'That's how the body works; it processes in the unconscious'.

In the email questionnaire, NTFs were asked to indicate (on a five-point scale) the extent to which they agreed or disagreed with a series of statements about creativity (see Appendix: questionnaire, p39). Some statements are contentious, others reflect creativity research findings.

As Table 4 indicates, the majority of NTFs(71.1%) do not see creativity as a rare gift.

Level of agreement	Frequency	%
Disagree	42	46.7
Strongly disagree	22	24.4
Unsure	14	15.6
Agree	10	11.1
Strongly agree	2	2.2

Table 4. Level of agreement with: 'creativity is a rare gift' (N=90)

Level of agreement	Frequency	%
Strongly agree	44	48.9
Agree	39	43.3
Unsure	7	7.8

Table 5. Level of agreement with: 'developing creativity is possible' (N=90)

Most NTFs (92.2%) believe that creativity can be developed (Table 5). And this view was confirmed in the interview study, along with the view that 'highly creative people need protection'. Similarly, an English specialist expressed the belief that although small children are creative, this can be discouraged by the educational system, especially at secondary level. She maintained that the educational system tends to train out creativity and value formal education. First class honours students may have the confidence to resist this but other creative people may have less conventional academic success 'because they chose not to go down that route'.

Overall, there is less agreement among the NTFs about whether men and women are creative in the same way (Table 6). In fact, just under half the sample are unsure about this. At interview, some said this was because they had no evidence either way.

Level of agreement	Frequency	%
Unsure	43	47.8
Disagree	27	30.00
Agree	13	14.4
Strongly disagree	5	5.6
Strongly agree	2	2.2

Table 6. Level of agreement with: 'men and women are creative in the same way' (N=90)

However, those who did perceive differences made the following observations:

- it is the desire to be professionally successful which tends to limit men's divergence earlier than women's. Women are probably more flexible because there are not the same career opportunities and pressures to succeed in executive work.
- women see synergies; men don't like to do feelings.
- Although sexual stereotypes exist, [I'm] sceptical. Most people might be between the extremes anyway.
- Women are more likely to have a broader, more creative approach to life in general. They are encouraged to be more creative, whereas it seems men are not encouraged as much as women.
- Similar mechanisms are operating for men and women, but there are differences... women tend to be very open, reflecting on themselves in creative ways. Many men who come for interview are very stuck and need therapy rather than education. Men's creative

expression tends to be more individual, women's more relational, but there is no clear distinction. This could be because of cultural expectations on men to be isolated individuals; women are more collaborative.

- Men's voices are heard more often in class. They're dominant. Women work as a team; they're process-oriented, whereas men are objectives-oriented.

Similar uncertainty was evident in the overall data when NTFs were asked whether they thought people of different ethnic origin were creative in the same way (Table 7).

Level of agreement	Frequency	Valid %
Unsure	43	48.3
Disagree	23	25.8
Agree	10	11.2
Strongly disagree	9	10.1
Strongly agree	4	4.5

Table 7. Level of agreement with: 'people of different ethnic origin are creative in the same way' (N=89)

Yet, when asked if creativity was the same in all cultures, only just under a quarter (24.4%) were unsure. Just over half (57.8%) were convinced that it wasn't the same (Table 8).

Level of agreement	Frequency	%
Disagree	35	38.9
Unsure	22	24.4
Strongly disagree	17	18.9
Agree	12	13.3
Strongly agree	4	4.4

Table 8. Level of agreement with: 'creativity is the same in all cultures' (N=90)

In the interviews, none of the respondents mentioned any ethnic or cultural differences in the perception or expression of creativity, apart from one Fellow who pointed to differences in creative expression. Two respondents drew attention to ethnic differences in colour preferences – for instance, the Asian community was seen as opting for a more vibrant and exciting use of colour. Generally, where ethnic or cultural differences were perceived, these mostly related to the relationship between student and tutor or the effect of social constraints on the student, rather than any differences to do with creativity. Typically, students of Eastern origin were seen as more deferential than Western ones.

### 6.1.1 NTFs' perceptions of themselves as creative

As can be seen from Table 9, all but three of the respondents regard themselves as creative.

Level of agreement	Frequency	%
Yes	51	56.7
Generally quite creative	12	13.3
To an extent/sometimes	20	22.2
Occasionally/mildly	4	4.4
No	3	3.3
Total	90	100.0

Table 9. Perception of self as creative (N=90)

## 6.1.2. NTFs' views of creativity in their disciplines

In the survey questionnaire, when the NTFs were asked to describe creativity in terms of their own discipline, results demonstrated that most of the answers could apply just as well to any discipline. Here are some examples:

- '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).
- 'essentially, putting apparently disparate things together or seeing the relevance of something in a new context.... I would distinguish this from 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).
- '[In accountancy]... being creative means appreciating its philosophical underpinnings and building on these in non-numeric ways – through conceptual linkages, literary and visual means' (accountancy).
- 'developing new/personal interpretations; exploring new areas; taking chances, communicating ideas effectively; enthusing others with challenge of exploration; willingness to critically reflect on existing ideas' (history).
- 'new theories, original work, seeing new applications for existing mathematics' (maths).

In the examples which follow, the particular discipline is mentioned or implied, but again the descriptions of how creativity is involved are also applicable in other fields:

- 'studying ancient cultures through new angles, writing well, seeing how the ancient world can make a contribution to the present, and... how the present can shed light on the ancient world' (Greek Literature).
- 'in HE practice, I use many metaphors, imagery and sounds and encourage colleagues to do the same in their own fields... emphasise use of voice – I sometimes sing to my students! In work-based learning and management, I use action learning set processes and... silences... for creative reflection'. In law, I use metaphors and imagery, but I also create exercises for uses in workshops so as to check and develop understanding of key issues and concepts. I sometimes use incomplete diagrams and maps and then work with the students to complete them' (law).
- 'human geography requires a constant re-working of theory and methodology and this often involves creative approaches and methods of data collection' (geography).
- 'recognising new approaches to diagnosis and developing new methods of treatment' (equine surgery).
- 'designing refurbishment schemes for property' (building pathology).
- '[includes] different ways of thinking about patients' problems – finding different ways to help people discuss their problems that are not in the textbooks' (clinical pharmacology).

In the interviews, a historian described creativity as central to his discipline, since history is *constructed* - as evidence turns into argument and ultimately develops into the academic literacy of the discipline. This is something he aims to get his students to realise over time.

An applied mathematician also described his discipline as creative – ‘the most creative of all disciplines’ since every day one has to start with a blank piece of paper and create something. For him, maths involves thinking thoughts no-one has ever thought before. A head of educational development saw creativity as ‘different ways of organising and structuring a course and presenting materials’, whilst another tutor saw it in terms of her teaching rather than her discipline: ‘being creative is being outside of the norm. Not just giving lectures but thinking of ways in which to make learning more creative’.

### 6.1.3 The relationship between creativity, learning and achievement

Over 80.0% of the NTFs said that the capacity to be creative helps people to be successful.

Level of agreement	Frequency	%
Agree	46	51.1
Strongly agree	29	32.2
Unsure	12	13.3
Disagree	3	3.3

Table 10. Level of agreement with: ‘the capacity to be creative aids success’ (N=90)

A scientist argued that if you’re creative you tend to have imagination, which helps you to think round issues and judge what your options are. People who are creative can imagine different scenarios.

However, as indicated in Table 11, most NTFs (60.6%) do not think that the most academically successful students are also the most creative. Only 13.5% believed that they are.

Level of agreement	Frequency	Valid %
Disagree	40	44.9
Unsure	23	25.8
Strongly disagree	14	15.7
Agree	9	10.1
Strongly agree	3	3.4

Table 11. Level of agreement with: ‘the most academically successful students are the most creative’ (N=89)

This view is supported by the interview study where several kinds of explanations were given for the most academically successful students not being the most creative. These include:

- The way we set up academic study, people can learn to be successful and get good marks without necessarily being creative.
- Pressures to be accurate, to conform and to absorb information and ideas leave no space for creativity.
- Highly creative people tend to be disturbed and therefore wouldn’t function well in an educational context.
- Highly creative students are interested in everything [and] are too full of ideas... to cope with that.

Level of agreement	Frequency	%
Strongly disagree	44	48.9
Disagree	37	41.1
Unsure	5	5.6
Agree	4	4.4

Table 12. Level of agreement with: 'the most imaginative students are the most ineffectual' (N=90)

Most NTFs value imaginative students. But one said he thought the most imaginative were ineffectual because 'the curriculum encourages mediocrity and acceptance of... facts'.

Level of agreement	Frequency	%
Unsure	34	38.2
Disagree	22	24.7
Agree	17	19.1
Strongly agree	11	12.4
Strongly disagree	5	5.6

Table 13. Level of agreement with: 'people good at learning are more likely to be creative than people less good at learning' (N=89)

Level of agreement	Frequency	%
Unsure	33	37.1
Agree	28	31.5
Disagree	18	20.2
Strongly agree	7	7.9
Strongly disagree	3	3.4

Table 14. Level of agreement with: 'those who are creative are more likely to be good at learning than the not so creative' (N=89)

Not surprisingly, views varied about the extent to which those who were good at learning tended to be creative and vice versa.

## 6.2 Teaching, learning and creativity

With regard to teaching and learning, the interview study revealed an awareness that developing creativity takes time: 'It's not so much something that can be learned. You can't just go and read a book about it and say "now I'm creative". I think you have to develop it. It's a gradual process'.

### 6.2.1 The perceived purpose of developing students' creativity

Even though relatively few NTFs believe the most academically successful students are also the most creative (Table 11), 75% think that the capacity to be creative does contribute to academic success (Table 15), whilst 86% believe this prepares students for the wider world.

Level of agreement	Frequency	%
Agree	43	47.8
Strongly agree	24	26.7
Unsure	19	21.1
Disagree	4	4.4

Table 15. Level of agreement with: 'encouraging creativity enhances academic performance' (N=90)

Level of agreement	Frequency	%
Agree	48	53.3
Strongly agree	29	32.2
Unsure	10	11.1
Strongly disagree	2	2.2
Disagree	1	1.1

Table 16. Level of agreement with: 'encouraging creativity prepares students for the wider world' (N=90)

As a head of dance put it, 'Creativity is needed to deal with change. Change is inevitable since things are always in a state of flux. For the dance tutor, creativity involves innovation, but not necessarily originality. What's important for students is that it's new for them. There is a connection between creativity and learning in that both are about change'.

Asked whether the reason for encouraging student creativity was to enhance students' academic performance or to prepare them for their life beyond the University, a science specialist replied, 'I think it's about both... you're trying to enhance their learning but also, as scientists, they have to be creative. They need to be able to see beyond the frontier of our knowledge... and push it a bit further forward'.

## 6.2.2 The perceived importance of developing students' creativity

Most of the NTFs (93.3%) believe that developing students' creativity is important (Table 17) and 90% said they aim to develop students' creativity (Table 18).

Level of agreement	Frequency	Valid %
Strongly disagree	53	59.6
Disagree	30	33.7
Unsure	4	4.5
Agree	1	1.1
Strongly agree	1	1.1

Table 17. Level of agreement with 'developing student creativity is *not* important' (N = 89)

Value	Frequency	%
Yes	81	90.0
No	8	8.9
Unsure/sometimes	1	1.1

Table 18. Whether NTFs aim to develop students' creativity (N=90)

## 6.2.3 How NTFs develop student creativity

This question generated a great deal of interesting, qualitative data. Taken together, responses reflect just about every aspect of creativity development. They may be broadly categorised as:

- stimuli for imaginative thinking or heuristic strategies
- learning in a particular context or the provision of a suitable context for creative work
- supportive factors such as the relationship between tutor and students
- personality characteristics
- teaching skills for use in creative work
- setting tasks which require creativity
- developing students' motivation.

Some of the NTFs' responses reflect more than one of the above categories. However, here are examples, category by category with NTFs' disciplines also indicated:

**a) Stimuli for imaginative thinking or heuristic strategies**

- 'problem-based learning' (physics).
- 'using games which set challenging problems... [encouraging] students to think of new approaches (chartered surveyor).
- 'providing broad project briefs that encourage a flexible, creative approach (TV production).
- 'encouraging students to contribute to the development of ideas and work at the edge of science, where nothing is as black and white as ... in the textbooks' (clinical pharmacology).
- 'giving students problems to solve in ways they choose; students learn through team-based learning how others tackle problems in different ways' (geography).
- 'problem-based learning' (paediatric dentistry).
- 'in law, I use metaphor and imagery' (law).
- 'asking deep questions' (applied maths).

**b) Learning in a particular context or the provision of a suitable context for creative work**

- '[using] real life scenarios to encourage the adaptation of radiographic technique – reinforcement of a spectrum of possibilities rather than right or wrong ways of doing things' (radiography).
- 'showing examples of creative thinking and solutions; providing reading and resources to extend thinking... ' (graphic design).
- 'I try to listen to what students tell me about their experiences and build on them' (marketing).
- 'by instigating a culture of creativity... a need to develop the notion of challenge... all learners can be creative if they choose to rise to the challenge' (science education).
- 'be specific about the parameters in which students work; set up a supportive learning environment so they can act on their own initiative' (organisational development).

**c) Supportive factors such as the relationship between tutor and students**

- 'strong encouragement with a friendly approach' (maths).
- 'trying to remain open to unexpected responses' (law).
- 'helping students learn in ways they value; interactivity is the key' (history).
- 'respect and value their ideas' (history).
- 'developing a strong rapport with the students so they trust what's being tried; being honest – *This is an experiment, let's see how it goes. if it doesn't work then we will not do it again*' (Law).
- 'providing secure frameworks within which to develop' (English).

**d) Personality characteristics**

- 'promoting autonomy' (community mental health).

- 'helping students develop an approach to risk-taking' (medical education).
- 'self confidence' (neuroscience).

#### e) Teaching skills for use in creative work

- 'first develop the craft skills; then when they're established, encourage them to play, confident that they can recover if it goes wrong' (education).
- 'analysis of popular music – why is it affecting [or] moving?' (commercial music).
- 'showing them that there is not just one approach ... but numerous facets to everything' (neuroscience).
- 'working on students' strengths whilst improving their weaknesses' (pedagogy and psychology).

#### f) Setting tasks which require creativity

- 'developing opportunities for creativity processes, solutions, journeys and application– briefs, seminars, essays, presentations...' (graphic design).
- 'setting creativity tasks and by being as open as I can be' (building pathology).
- 'in action learning sets with mature students, [generating] new ways of conceptualising and handling an issue; I use mind maps quite a lot and encourage students to develop their own techniques, for such mapping. I also use problem-based learning and add, or get students to add, what ifs' (law).

#### g) Developing students' motivation

- 'empower students so they feel they can have ownership and contribute usefully to discussions and debates' (psychobiology; health psychology).
- 'stimulate with diverse problems' (business).
- 'a person-centred approach to teaching, tapping into each individual's dreams, needs, aspirations, curiosity and motivation' (open learning).
- 'feedback is essential' (chartered surveyor).
- 'designing independent learning opportunities that reward creativity and original production' (TV production).
- 'variety, taking people by surprise, building confidence, enjoyment, fun and intellectual challenge' (literary studies).

One respondent, who said he did not aim to develop students' creativity, admitted to aspiring to 'develop their curiosity and criticality'. However, he preferred not to see this as creativity.

Some interesting strategies were also described in the interviews:

- **An English tutor** said she liked to use creative teaching strategies to 'bring a context to life' since creativity occurs in all human contexts. She thought it was important to be an energetic tutor who made her sessions exciting, dynamic and interesting. She liked to surprise her students and encourage laughter and engagement. She said she worked with questions a lot rather than formulating answers.
- **A dance specialist** maintained that teachers need to be imaginative and open doors for students. Her aim is to give students the skills to 'make learning their own'. She points out

that this may involve structured teaching sessions in terms of technique and choreographic skills, but that the outcome isn't predictable.

- **A maths tutor** said he found it hard to do anything new in maths (except in applied maths which he did not teach), but he thought student engagement was important. He used interactive push-button technology to really involve the large classes of students he taught. He pointed out that this method could be quite sophisticated, as students could engage in discussion before responding.
- **An applied mathematician** said that in lectures he showed how maths could be used in unusual situations such as dance or music. His classes ranged from 250 in the first year to 10 in year 3. This tutor regards teaching and research as one and the same. For him maths is research and research is creative.

Two Fellows working in very different fields (**construction management** and **nursing**) both described how they had created *virtual work contexts* in their classrooms to make learning come alive for their students and to enable them to see the relevance of their learning.

The chartered surveyor had created a virtual construction site which students could use in an interactive way; and he used a series of games and simulations to make learning highly relevant for his students.

The nursing tutor had taken this step because he'd found that students had not been applying the theory they learned in the classroom at work. This was because teaching had become too conceptual and theoretical – divorcing service delivery and patient care from classroom learning. His new method of teaching enabled his students to start with the practical and move to the theoretical.

Because this tutor recognises that all nurses need to be problem solvers, he gives them real problems together with the visual tools they need to interact with a computer programme which simulates an acute hospital and gives students access to typical patient records. This enables students to question, amongst other things, why a particular patient is being treated in a particular way and what the alternatives might be.

A head of **educational development**, aware that curiosity is a key characteristic of creative people, aims to develop creativity by stimulating students' curiosity. Another highly innovative approach to teaching for creativity has been developed by a specialist in **educational technology**. She has developed strategies for enabling students to be more creative online, working in a highly interactive and meaningful way. Topics are decided by the students and the work they do is demanding. This enables students working at a distance to experience more interaction than many large groups of students in traditional teaching situations can. The results achieved are impressive.

Indeed, traditional lectures are no longer popular with students, according to a **graphic design** tutor. She argues that this is because today's students are visually literate and have higher expectations than their predecessors. A specialist in **computer architecture** agrees. He points out that today's students take post '60s learning for granted. So, he has created a website to put inventions in computing in a historical context for students. Alongside this, he gets students to imagine what a computer might look like in the future. The briefs he sets are relatively open, so students have significant choice. He also addresses, on his website, the human, political and social dimensions and the ethical implications of computing – something he sees as largely neglected elsewhere.

But to return to the **graphic designer**, she finds students come along expecting to be bored. So she finds ways of making the curriculum more dynamic and varied. She believes in giving students more autonomy, allowing them to find their own direction. For her, facilitating creativity

is a balancing act which is both dynamic and fun. She wants her students to excel and they get really good results, with the majority achieving upper second class degrees and excellent careers. Her students enjoy working at this HE establishment so much that many come back to teach or they employ the college's students in their own highly successful businesses.

A **literature specialist** says she has no difficulty in getting really large groups of students to attend her lectures. Her students are all very able and highly motivated, but not necessarily confident. However, they are articulate and good at passing exams, so this tutor puts a lot of obstacles in their way to 'de-familiarise' them. The tutor believes that teaching should be colourful. Although her subject involves words, she encourage students to play with visuals – this may involve them creating books which contain lots of visual images but no words. She explains, 'I'm trying to get students to step to one side; people produce things that surprise and delight'. She aims to 'open up' students, tapping into their energy.

For her, 'teaching is like magic'. It requires significant preparation time, an open and friendly approach and 'often fighting students' expectations'. It involves creating structures in which people can feel safe and play, as well as talking through the process. She really emphasises play and stresses that 'awkward things release their more exciting ideas' so, in her view, lots of constraints are important for the development of creativity among highly able students. This tutor is very aware of how closely bound learning and creativity are.

A **dance/choreography tutor** described how she and her team get students to recognise their own and others' assumptions and to set themselves a challenge. The students then work out, with guidance, how to overcome them. The tutors also give them challenges. She is aware that assessment is a driving force for students and, therefore, cannot be ignored in teaching. So the dance tutors work out with the students how they might evidence what they're aiming to achieve. She also finds that when tutors model dance, it helps students understand. This tutor believes it's important for teachers to be more explicit with students about the underlying rationale.

A **scientist** expressed doubt about whether she is developing students' creativity or even whether her science students would appreciate having their creativity developed. However, she does believe that she is using creativity to enhance their learning. For her, creative teaching involves thinking of appropriate, innovative ways to support student learning. For example, if students struggle with a particular problem, she tries to find ways of representing that by getting them involved with the problem and, through this, helping them understand the issue better. For example, her students have made 3D models of molecules, which she finds more effective than having them look at complex diagrams on paper or computer. Other devices she uses include a 'University Challenge' and 'Spot the Mistake' session. She also thinks face to face teaching has value, as students will 'sit, listen and be enthused' for around 20 minutes.

A **creative writing tutor** has found that students are keen to understand themselves better through the medium of writing. This may involve them working through personal problems (which may be quite severe), their anxiety, or some kind of block. Occasionally, she says, people have to leave or get therapy. So her role is to work in a sensitive way across boundaries. Her students need to feel they are working in a safe learning environment, one which 'holds them' and allows them to explore their feelings and use their imagination. For some students, the work she does helps them to cope with an education system they would otherwise find difficult.

A **social work tutor** described how, when she teaches, she wants students to be participants in the classroom, working in small groups and valuing one another. She employs a problem-based approach. This Fellow regards a sense of trust as important, since her students are required to constructively criticise one another. They also have to collaborate in sharing materials and delivering group presentations.

A **historian** gets his students to see that people are subject to many influences which limit choice. To illustrate his argument, he points out to students that although young people feel that

they own youth culture, they didn't create it. They are consumers. 'So if I can get students to realise that they can think outside accepted knowledge or what is normal then that's what we're aiming at'.

## 6.2.4 Factors helping the NTFs develop students' creativity

The Fellows identified numerous factors which help them develop students' creativity. They include factors which help them personally or help their students; some relate to both. The factors may be grouped as:

- NTFs' personal qualities
- their abilities, activities or experience
- students' qualities and contributions
- manageable workload
- nature of discipline
- resources
- the system and its procedures
- the institution's or department's ethos
- the NTF Scheme.

### **NTFs' personal qualities**

Respondents identified the following personal characteristics as helpful in enabling them to develop students' creativity:

- tenacity, willingness to experiment, ability to use imagination, ability to relate their subject to the 'real' world, motivation, patience, willingness to take risks, courage, self confidence, ability to develop, a willingness to fail, having ideas/being able to think divergently, being creative/having 'creative energy', sensitivity, empathy, enthusiasm, personal discipline, genuine interest in others, passion for one's subject, an inquisitive mind, and a sense of humour.

The qualities they identified are almost all characteristics of creative people.

### **Their abilities, activities or experience**

These included their:

- teaching styles, skills and experience, research experience, the ability to reflect on their own performance, adopting a person-centred approach to teaching, good planning, good rapport with students (and rewarding them, building trust and allowing risk-taking and some failure), using group work, using a variety of tasks, giving students ownership of the process and/or elements of the programme, using both peer and self assessment.

### **Students' qualities and contributions**

- students' motivation and enthusiasm, input into learning and teaching, desire to become creative, learning styles, willingness to learn and be original, their own creativity, trust in the tutor and the learning process.

### **Having a manageable workload**

- small teaching groups, continuity of contact, time with students or for preparation, personal study, being a professor with low admin. duties, a light timetable and opportunities for travel, being a head of department.

### **The nature of their discipline**

- a discipline which lends itself to creative approaches, having clients [who] want something different; having a broad knowledge base and understanding the constraints.

## Resources

- having suitable resources, multimedia, realistic source materials (e.g. for scenarios), good library facilities, funding for innovation.

## The system and its procedures

- having control of the curriculum, flexibility of assessment, autonomy in selecting different teaching and assessment styles, being able to defend innovation in teaching through internalising the language and rationale of QA, the course/module design, being able to set one's own curriculum, receiving directives which are enabling, the institutional framework.

## The institution's or department's ethos

- a work ethic in which creativity is the norm, supportive peer groups, colleagues happy to experiment and try new things, inspiration from others, working in creative teams, having a supportive manager who values creativity, contact with individuals, support of external examiner, freedom to develop learning and teaching.

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. This had a lasting effect with graduates coming back to teach or offering employment to college leavers later on.

The interview study also revealed the importance of feeling supported when emphasising creativity in education. One NTF argued that if creativity in teaching and learning were to be subject to the RAE, everyone would be taking it seriously.

## 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 other opportunities. Only one tutor expressed concern about continuity when the funding period ceased.

## 6.2.5 Perceived link between teaching creatively and student creativity

There was widespread agreement (87.8%) with the view that creative teaching facilitates creative learning. For instance, an NTF said she thought that students who'd experienced creative teaching would be more likely to take that forward into their future work, especially if they went on to teach or do research.

Level of agreement	Frequency	%
Agree	47	52.2
Strongly agree	32	35.6
Unsure	10	11.1
Disagree	1	1.1

Table 19. Level of agreement with 'creative teaching facilitates student creativity' (N = 90)

One interviewee pointed out that creative teaching doesn't necessarily result in creative students although he thought there was some sort of relationship. In his view, a truly creative teacher reflects on how students learn best and moves away from safe, traditional approaches.

## 6.2.6 Students' learning styles and the NTFs' teaching styles

Respondents were asked whether their teaching styles were influenced by students' learning styles. 80% said that they were (Table 20).

Value	Frequency	%
Yes	72	80.0
No	13	14.4
Unsure/sometimes	5	5.6

Table 20. Whether the NTFs' teaching styles are influenced by students' learning styles (N=90)

Those who said they were not (14.4%) gave the following reasons:

- they believed that 'learning style theory' was invalid or unreliable
- they felt that students' *learning needs* were more important than their learning styles
- they did not know what their students' learning styles were
- they preferred to respond to student feedback
- they thought that large class sizes made feedback impractical
- they would rather *challenge* students' preferred ways of learning.

The NTFs were asked whether, if they both aimed to develop students' creativity and also took account of their learning styles, how the latter affected the former. This was not an easy question to answer. Quite a number ignored it or commented that they did not understand it. Of those who did respond, the most common answers were that they:

- were responsive to the students
- included a range of individual or group learning experiences
- allowed plenty of choice of learning methods, topics, texts, resources or assignments.

A scientist explained, '...in mixed groups you need to engage with all students and therefore I encourage those with confidence to be creative and support the less confident to do what they are safe with [and] gradually push the boundaries'. An arts specialist maintained that, 'some students need more tutor-led than student-led activities'. But perhaps the most energetic response was: 'I try to create a range of different teaching and learning strategies for every module I teach'.

Different views about learning styles were also evident in the interviews. For example, a dance tutor said she found some dance students had a highly developed sense of how things might happen, but had difficulty communicating their vision in another way. In her view, learning styles were 'problematic', whilst a head of learning development said he thought that notions of learning styles were 'grossly exaggerated'. A science specialist said that she had come to the conclusion that people had different learning preferences, but not discrete learning styles. This tutor plans a mixture of different activities to appeal to different learning preferences in an attempt to engage students at least part of the time.

### 6.2.7 Constraints on preferred ways of teaching

Table 21 highlights the factors which the NTFs see as inhibiting their preferred way of teaching. Respondents were asked to tick the items they found inhibiting.

Where unsuitable accommodation was an issue, this normally referred to the amount and type of physical space (for example tiered lecture theatres which were not always popular with staff). Sometimes it was a lack of suitable furnishing which caused problems. For example, a maths tutor found the lack of black (or white) boards frustrating. He expressed disgust that he was expected to use PowerPoint instead – something he found unacceptable - because that meant he had to decide in advance what he wanted to write.

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

Table 21. Constraints on NTFs teaching (N=89)

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

Although over-large classes was ranked fourth in the overall survey, it was clear from the interview data that there was a huge variation in what tutors regarded as a large class. This ranged from 24 to 300 students. Of course, what's acceptable to the tutor concerned depends on the discipline. Nevertheless, some tutors appeared to cope far better with large numbers of students than did others working in the same discipline. However, a problem in at least one institution was that a wide ability range (including both degree and diploma students) was being taught in the same class. Additional support was laid on for the diploma students after the lecture, but they tended not to access it. Instead, the attrition rate amongst diploma students was significant.

In addition, in the interview study, there was much concern about the need to belong or to feel accepted by one's peers or by the institution. One Fellow described the pressure he felt to conform to institutional norms and how isolated he felt questioning current teaching practice. 'As a member of staff not everyone knows what you're talking about.... There's no forum to discuss. People aren't really bothered.... If you want to be creative and imaginative, you can't ever belong. The institution recognises it, but doesn't encourage it'. His response was simply to accept his isolation and forge on with what he wanted to do. Several others were more hesitant. For them, the RAE in particular was regarded as a barrier – setting up tension in those who wanted both to teach in imaginative ways and to produce quality research papers for the RAE:

- 'It's restricting to produce work acceptable to others. You don't want to be left out on a limb'.
- 'for tutors, it's difficult to stick your neck out'.
- 'you don't want to seem like 'an oddity... not taken seriously... you have to write an acceptable RAE paper'.

One Fellow put it more strongly: 'You need to get rid of the RAE and the QAA... because the need to make something acceptable restricts what you really want to do, but you shouldn't separate research and teaching'. This kind of pressure led a historian who wanted to write an innovative student textbook, to feel inhibited about this, since he felt it wouldn't be acceptable to his peers, even though he knew that:

'The most creative work is probably that which people deliberate over as to whether it's creative, but most people want peer recognition even though we know we could do something more imaginative'.

In the interviews, the segmentation of departments in her university was deplored by one NTF because this stifled the sharing of work and ideas. Other Fellows stressed the problems caused by excessive administrative duties, lack of time, students' attitudes or ages, the burden of preparing lessons in fields which date rapidly, the lack of support for part-time courses and the defensive practices and 'blame culture' operating in certain sectors. Yet, despite these real

concerns, not all staff saw constraints as inhibiting. A graphic designer, for example, pointed out that constraints could serve to channel creativity in particular directions.

## 6.2.8 The assessment of students' work and creativity

Value	Frequency	Valid %
Informally	30	33.7
Formally	23	25.8
Both	22	24.7
No	12	13.5
Occasionally/not in isolation	2	2.2

Table 22. Whether NTFs assess students' work for creativity (N=89)

Table 22 shows whether Fellows assess the creativity of students' work and if so whether they do so formally or informally. The informal assessment of creativity in students' work is carried out by over a third of the sample. Just over a quarter undertake some kind of formal assessment, with slightly fewer stating that they do both. The remainder said creativity was not assessed or hardly ever.

### Informal assessment

Informal assessment is carried out in various ways, not all of them satisfactory, as some tutors acknowledged. An added problem, according to NTFs who use this method, is that the educational criteria for creativity are not easy to operationalise. To cope with this, one preferred solution is to look for students' creativity 'through direct observation, reflective journals or projects negotiated through learning contracts'. Another is to search for evidence of students' creativity in 'group work and related exercises'. Furthermore, 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'. A different 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'.

### Formal assessment

Where creativity is formally assessed this is normally communicated to the students in writing and/or orally. Again, some tutors acknowledge that they do not communicate with students as clearly as they should about the assessment of creativity. Nor are assessment criteria always explicitly stated, sometimes because Fellows are 'struggling to find clear criteria'. Alternatively, the 'usual HE criteria' are regarded as sufficient. As one respondent commented, 'It's difficult to see how assessment criteria at HE level could *not* incorporate key elements of creativity in the highest level requirements'.

### Assessment criteria for creativity

The criteria Fellows reported using to assess creativity varied. They included:

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

- creativity *per se*.

A Fellow working in the media described how he regards the ability to be creative as a key skill since he wants his graduates to be able to influence their field in the future. However, an educational technology specialist does not assess creativity *per se*, but rather the *building blocks of creativity*, which, for her, include the student's approach and use of various media.

A head of social work described how assessment is objectives-focussed in her department. The means and criteria are clearly defined and moderated for equity. The assessment of students' creativity is included and this relates, at least in part, to the presentation of information. Similarly, a scientist described how creativity is assessed as part of students' overall performance and the presentation of their work.

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

- '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'.

Yet this tension does not necessarily stop Fellows expecting creativity from their students. Yet, about a third of the NTFs see assessment as inhibiting student creativity (see Section 6.3.2). However, not all staff recognise this tension. Instead, they ensure that assessment *requires* students to be creative. For example, a Fellow working in business studies observes:

'Assessment needs to be creative. A typical MSc assignment involves students writing two articles at consultant level to promote anything they want. They really like that. Assessment isn't and needn't be a barrier'.

Overall, a variety of means of assessment were used, with peer evaluation and the assessment of group work being most popular in the first year since this year's work did not count towards degree classification.

## 6.3 Views on teaching, learning and student creativity in HE generally

### 6.3.1 Aspects of HE provision regarded as supporting students' creativity

Views varied about which aspects of HE provision support creativity, but at least a fifth of the sample felt that students being actively involved in their learning was helpful. The importance of group work was also mentioned by about a fifth of respondents. In the interviews, staff working as a team was seen as enabling, as was the head's support:

- Working as a team helps – we're a *can do* team. We try things out. It helps that our subject is practical. People understand and accept that practice changes rapidly and that it's not fixed. We're constantly re-evaluating our practice.
- The head does make a difference. Their chief concerns affect you, as does how confident they are in what faculty are doing. If they're confident and see what you're doing as important they're more willing to change. But less confident heads are more cautious and staff become more cautious and resentful. All our heads espouse staff empowerment, but what people do is sometimes different.

### 6.3.2 Aspects of HE provision regarded as inhibiting students' creativity

Value	Frequency	Valid %
Yes	84	95.5
No	2	2.3
Possibly	1	1.1
Don't know	1	1.1

Table 23. Are any aspects of HE provision seen as inhibiting student creativity? (N=88)

Almost all of the NTFs (95.5%) who responded to this question thought that some aspects of HE provision inhibit students' creativity. Assessment was the factor most frequently mentioned (by about a third of the sample). Also, approximately one sixth of the NTFs were concerned about poor teaching (e.g. rote learning or prescriptive teaching). Other concerns included over-large classes, managerialism, inadequate student funding and an emphasis on 'not failing' rather than the freedom to think or take risks.

In the follow-up interviews, the following observations were made:

- 'A lot of curriculum changes are staff or research led and don't always benefit students'
- 'Not much hinders us – we think things do, but is it an excuse? It can be frustrating to see something not working but you have to go through QAA procedures before changing it'
- 'I'm concerned about a business approach to HE taking more students and teaching less hours. Really imaginative teachers are worn down by large class sizes'
- 'Students need a body of knowledge in order to create; some won't go beyond that, some will'
- 'Expectations and roles hinder – people asking what they can and can't do. Some think that rules are inviolate. There are self imposed barriers'
- 'Students will only be creative if they feel they won't be ridiculed'
- 'I think inhibiting student creativity is generally the way we teach. The accepted norm - particularly in science - is the two-hour lecture and some coursework. We're not terribly adventurous with our forms of assessment... It's not considered to be core activity'.

## 6.4 Impact of expansion of HE on teaching and learning

Not all areas of HE provision are expanding. Some are shrinking, as a physicist pointed out. However, where expansion was the norm, there were wide-ranging opinions about its impact on teaching and learning. Most were negative. However, some NTFs believed the expansion was (or could be) positive, especially if appropriately funded. Interestingly, many staff realised that this was a situation which demanded creativity - making them question how HE education needed to be delivered. Some Fellows were beginning to realise that it was time for a whole re-think of HE education.

Some of those who feel negative commented;

'... larger groups and modularity create anonymity and an emphasis on information delivery at the expense of cultivation of student ideas and thinking skills'.

'lack of resources means staff stressed by a highly bureaucratised sector will be even more stressed due to large classes and a diverse, hence challenging, student body'.

'[it's] exhausting'.

Those who were really negative remarked:

'The best British educational system is being destroyed by expansion that is under-funded and superficially conceptualised by policy makers. We're getting close to the point of no return'.

'A serious degradation in standards which compromises the UK HE system'.

At the same time, such views were called into question to a degree:

'My reaction is mixed. Falling standard whinges make me sceptical, but it's not always without substance; there will be less student independence and more packaged learning'.

Others expressed qualified approval:

'a major benefit, if fully funded; it is promoting innovation'.

'It would be great if resources matched. Turning students into 'customers' affects creativity; teachers want to deliver safe outcomes or learning 'products' and this can prohibit risk'.

'It's good and very necessary to teach a diverse range of students. We're ludicrously under-resourced so the students who need most dedicated staff time receive the least'.

'It creates difficulties for staff/student interaction but generates creative thinking in staff on how to overcome these issues'.

Those who felt very positively about expansion saw it as an opportunity, for example:

'I think it's great – widening the student 'profile' opens up students to [a greater diversity of] ideas, and people [and this enables them to] challenge assumptions'

'I hope it's going to open doors to new approaches and ideas and a re-examination of how things have been done in the past - which could bear improvement'.

Expansion was also seen as offering scope for flexible study as well as increased opportunities for research into teaching and learning:

I don't think it necessarily has a negative impact; larger groups and greater diversity can lead to questioning teaching methods and developing more effective new ones'.

In the interview study, the main concern was that expansion meant larger classes and less time for individual students, so staff did not know their students well. Some groups of students contained a broader spread of ability than previously, which meant that students who needed more support were being given less. Not all students had learned how to study independently at school and were not used to working productively in the gaps between formal teaching sessions.

In one institution, first year students were only offered lectures and given essays to write so that staff could be released to pursue research. 'Personal development plans' replaced tutorials (in which staff traditionally got to know their students well and in which student thinking could be challenged in a safe environment). This had a deleterious effect on students' learning. One of the interviewees in this institution deplored what he described as 'factory farming students' and 'managerialism'. In his view, this reduced flexibility and, coupled with modularisation, increased fragmentation. He expressed concern that staff discussions tended to be about the 'management of education' as opposed to 'teaching and learning'.

In another institution, the NTF interviewed described how first year students were put off attending large, anonymous lectures and this, coupled with a lack of individual support, had led to a high attrition rate in the first year. It also meant that even by Year 3 many students had not learned how to work independently, did not enjoy their final year projects and simply wanted to leave as soon as possible.

However, not all NTFs experienced problems with large student numbers. In some cases this was because the students were both able and highly motivated. In others, the NTFs were successfully tackling these problems themselves. One NTF pointed out:

'I went from teaching 20 students to 150. With the 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 being creative by doing computer-based learning and tutorial support in small groups again, but there's not many people that would be prepared to or have the opportunity to put in the effort to develop something like that.'

Others were also seeking (or finding) ways of equipping students to work independently. One head of department had introduced intensive blocks of teaching. In his view, this enabled school leavers to 'get into the swing of work' as well as giving them a sense of cohesion and belonging. This also gave students clear blocks of study time or time to undertake employment. Not everyone agreed with this, however. There was concern that intensive teaching did not allow students to consolidate their learning. Yet another solution was to involve students in teaching – with third year students teaching first years, for example.

## 6.5 Impact of expansion of HE on developing students' creativity

Not surprisingly, there was a range of opinion about the effect of the expansion of HE on student creativity. Those NTFs who saw this positively thought that a greater diversity of students could lead to the emergence of interesting groups, creative solutions and innovative project briefs - and that there was a real opportunity to increase student creativity. Others thought there was a danger that larger classes and more time pressures would push academics towards the use of familiar but unsound teaching methods. In addition, expansion could be used as an excuse to increase standardisation and stifle creativity.

Not everyone found expansion daunting. 'We can be creative in response. Supporting students may be better than spending time with them'. However, it was acknowledged that space would need to be used imaginatively; and staff would have to be quite skilled to manage this process.

One member of staff thought that this was the 'wrong question'. Instead we should be thinking about league tables. She spoke about the 'confidence to be creative' that students in top universities had, and argued that if money were poured into those at the bottom they would surge ahead.

## 7 Discussion of results

The response rate to the email survey questionnaire was outstanding (72%). Whether this reflects the current high levels of interest in creativity in education, a general enthusiasm amongst NTFs, or a combination of the two, is difficult to say. Nevertheless, it is clear from the comments received that many of the NTFs enjoyed taking part in the research and for some it served as a vehicle for reflecting on what they were doing and why.

## 7.1 Perceptions of creativity

In line with the results of *Project 1000* (Fryer 1989), more NTFs identify *imagination* as central to creativity than any other aspect (see Table 3). Also, as in the previous study, *original ideas* is ranked highly - 3<sup>rd</sup> in the present study, 2<sup>nd</sup> in the previous one. *Seeing unusual connections* is ranked 2<sup>nd</sup> in the current study, as opposed to 4<sup>th</sup> in the 1989 study. *Self expression* (currently 10<sup>th</sup>) was ranked much higher (3<sup>rd</sup>) in the earlier study. There could be a number of reasons for this. One possibility is that the previous sample had a predominance of women, whilst the present one has a predominance of men.

In *Project 1000*, female respondents were significantly more likely to identify with *self expression* as an aspect of creativity than were men ( $p < .01$ ). However, in the present study, the data did not meet the conditions necessary for a chi square test to be performed. As in the 1989 study, the NTFs identify least with *tangible products* and *mysterious processes* as aspects of creativity.

In keeping with the results of *Project 1000*, most NTFs (92.2%) believe that creativity *can* be developed (compared with 89.6% previously). Of course, it must be remembered that the two samples are not matched.

There is a striking difference in the results regarding the extent to which respondents see creativity as a *rare gift*. In the 1989 study, 70.6% agreed that it was a rare gift, but in the present study 71.1% *disagreed*. One explanation is that there is a much greater awareness and understanding of creativity in 2005 than there was in the late 1980s. At that time, there was little emphasis on creative education in the UK, except in relation to giftedness (Fryer, 1989).

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

In the present research, just under half the sample are also unsure about whether or not people of different ethnic origin are creative in the same way, even though more than half the NTFs are convinced 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). Since different cultural perspectives on creativity have not informed the creativity literature as much as they might, The Creativity Centre has taken various steps to help redress this imbalance (Fryer, 2004).

In *Project 1000*, staff were not asked directly how creativity was perceived in their discipline (although they were asked if it had been addressed in their training). Instead, the data was analysed in terms of subjects taught. This revealed significant inter-group differences in views about creativity, teaching, learning and assessment (Fryer, 1989, 1996; Fryer and Collings, 1991). In the present study, the smaller sample and lack of quantitative data makes such comparisons problematic.

Nevertheless, the qualitative data has revealed some interesting findings with regard to perceptions of creativity across disciplines. When the NTFs described what creativity meant in terms of their disciplines (see Section 6.1.2), there was a great deal of commonality, as well as some subject-specific references. This is in keeping with the view that creativity has transferable elements and subject-specific ones (i.e. domain specific knowledge and skills), as argued by Fryer (2000a). However, it is likely that even specific knowledge and skills may be seen as transferable in some instances; and that these 'remote associations' could lead to highly creative outcomes, as argued by Mednick (1962).

## 7.2 Views about creativity, teaching and learning

The majority of NTFs think the capacity to be creative contributes to academic success (see Section 6.1.3). However, few of them believe that the most academically successful students are also the most creative. There is an anomaly here. It begs some important questions, such as:

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

These questions merit prompt investigation since they have implications for the way in which academic success is defined and evaluated in the future.

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.

## 7.3 Developing students' creativity

The majority of the NTFs think that developing students' creativity is important. On the whole, the NTFs' strategies for developing their students' creativity (see Section 6.2.3) appear to be quite congruent with the literature (for instance, Torrance, 1962, 1995; Millar, 2004; Copley, 2001; Beetlestone, 1998; Fryer, 1996, 2004; Stein, 1974, 1975). A few of the Fellows referred to the use of formal 'thinking techniques' such as lateral thinking, brainstorming or mind-mapping. It is arguably not always necessary to resort to such techniques and programmes, although these can sometimes serve to remind us of possible 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 were accessed by several thousand students over a fifteen year period. The students came from a wide range of disciplines and worked together on issues relevant to them. The majority were professionals in health, social care, education or business. The purpose of these modules was to introduce the students to the whole field of creativity research and development and to enable 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). It might be worth considering whether these kinds of courses would assist students who lack access to such a resource. It could also be worth considering whether additional mechanisms need to be created for a better exchange of ideas about creativity, teaching and learning in HE generally.

The factors the NTFs describe as supporting them in developing students' creativity (see Section 6.2.4) are all highly congruent with descriptions of creative people in the literature (see for instance Stein, 1984; Torrance, 1965), so it is not surprising to find that most of them believe they are creative. The teachers and lecturers who took part in the 1989 study were not asked directly whether they thought they were creative. On the Torrance Personality Measure (Torrance, 1975) they tended to describe themselves in terms of their social attributes (Fryer, 1996), rather than as creative people. Torrance and Myers (1970) and Popescu-Neveanu and Cretsu (1986) also found that teachers did not see themselves as creative, even though, as Torrance and Myers argue, teaching is a most creative profession.

However, what is particularly interesting is that many NTFs' 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;). For example, in the earlier study, the teachers most keen to develop students' creativity were distinguished by their greater willingness to take students' learning needs into account. Like the teachers and lecturers in the previous study, most NTFs are interested in developing students' creativity and some appear to be very skilled in this regard.

In the interview study especially, some NTFs mentioned the value of supportive colleagues, supportive managers and an enabling ethos in their institution. Being an NTF is also seen as an enabling factor, as it results in increased autonomy, greater flexibility and, in some cases, lighter workloads. In *Project 1000*, it was the head's support that was singled out as an enabling factor.

It may well be because the NTFs as a group exhibit characteristics typical of good facilitators of creativity (as discussed by Torrance & Myers, 1970; and Fryer, 1996) that they are convinced that creative teaching facilitates student creativity. However, Cropley (1967) expresses doubt about whether the teacher being creative is always in students' best interests.

## 7.4 Students' learning styles and NTFs' teaching styles

Even though the majority of NTFs (80%) said they were influenced by students' learning styles, this is not an easy thing to take into account, except perhaps by allowing students plenty of 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 their students (see Section 6.2.6).

A few NTFs expressed doubts about the validity of learning style theory. One difficulty with attempts to assess learning styles is that there are alternative ways of measuring these and the measures overlap. Consider, for example, the 'holists' described by Pask & Scott (1972), the activists described by Honey & Mumford (1986) and the 'syllabus free' students described by Josephs & Smithers (1975). Furthermore, some learning styles are thought to be more stable than others (Floyd, 1976). Scores on some styles can shift as individuals mature - Kagan's impulsivity/reflectivity, for example (Kagan, 1966). It is not being argued that findings on students' learning styles should be ignored, but rather that there is a need to be aware of the complexities involved and the different ways in which learning styles can be categorised. A willingness to be sceptical and offer students plenty of choice appears to be a good strategy.

## 7.5 Constraints on preferred ways of teaching

The main constraints the NTFs identify as preventing them from teaching as they wish are: *excessive non-teaching workload*, *unsuitable accommodation*, *inadequate preparation time* and, to a slightly lesser degree, *overlarge classes* (see Section 6.2.7). Of these, an excessive non-teaching workload appears to offer the most immediate scope for a re-think. Indeed, addressing this could create more preparation time. In addition, it seems that many institutions urgently need to focus on how to manage space, time and large student numbers more effectively.

In the 1989 study, *lack of resources* was the main concern, although *inadequate preparation time*, *overlarge classes* and *excessive non-teaching workload* were ranked almost as highly. In the present study, lack of resources is the least mentioned constraint (19.1%). The interviews revealed a degree of tension in some NTFs who were also trying to meet RAE requirements.

## 7.6 Assessing creativity in students' work

There is insufficient comparability in the way in which creativity is currently being assessed (see Section 6.2.8). This is fairly understandable given that assessing creativity necessarily involves some subjectivity. Nevertheless, useful objective criteria do exist (see for instance Puccio, 1994; Fryer, 1996, 2000b;). Various objective measures are available, 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 rather to distinguish between different levels of creative thinking ability. The Torrance Tests are based on American norms, are easy to administer, but complex to score. So The Creativity Centre has been developing alternative UK tests, which are simpler to score and which are yielding promising results.

As all kinds of measures have their strengths and weaknesses, it is good practice to use a range of assessment methods. The results also suggest the need for greater clarity and accountability if students' creativity is to continue to be assessed in discipline-based modules and courses. This applies especially to the informal assessment of creativity (see also Section 7.8).

## 7.7 Aspects of HE provision supporting students' creativity

It is clear from many of the responses to both the email survey and interviews that the NTFs are really aware of the many factors which support student creativity, including the need for students to be actively involved in their learning (see Section 6.3.1). Small group work is identified as a useful vehicle for active learning. Although group work does offer scope for active learning, it doesn't follow that 'working as a group' necessarily enables creativity. Highly creative students often prefer to work alone so that they can get really absorbed in a creative task which interests them (Shallcross, 1985). Similarly, Entwistle (1982) highlighted the importance of 'deep' as opposed to 'surface' learning in HE. Other factors, including good team work, a 'can do' attitude and supportive senior management, were also highlighted.

## 7.8 Aspects of HE provision inhibiting students' creativity

Assessment figured highly as one of the aspects of HE regarded as inhibiting creativity (see Section 6.3.2), which suggests that not all NTFs are able to select their preferred means of assessment. Although not all the Fellows saw assessment as inhibiting, there are important issues relating to assessment which need to be addressed, as discussed in Sections 7.2 & 7.6.

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

This prompted a wide range of responses from positive to really negative (see Section 6.4). There was particular concern that the expansion of student numbers was not being matched with additional resources. This is a key issue. However, results also suggest that it would be helpful if those NTFs who find the overall expansion of HE a positive experience and are unfazed by the increasing spread of student ability could share ideas and coping strategies with staff who are struggling to cope.

Interestingly, many NTFs believe that this situation demands creativity which demonstrates that 'ideal' conditions aren't always the ones that stimulate creativity. Results also suggest that this is an excellent juncture at which to take a fresh look at HE provision and how best to deliver it. This is likely to involve a radical look at how teaching and learning are delivered and how resources in HE are best deployed.

## 7.10 Impact of HE expansion on developing student creativity

Once more, responses varied along a continuum from positive to negative (see Section 6.5). At one extreme, expansion was seen as an exciting opportunity which could stimulate student creativity, because of the greater variety of student population. Alongside this, creativity would be stimulated as a result of staff being more imaginative about the learning experiences they created and their teaching generally. 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 conclusion that it is time for a radical re-think about how HE provision can be improved in order to enhance student creativity.

## 8 Conclusions and recommendations

1. Most NTFs are highly motivated and keen to develop students' creativity.
2. On the whole, their views on how student creativity may be developed and supported are quite congruent with the creativity literature.
3. Even though most of the NTFs see themselves as having more autonomy, flexibility and opportunities than their colleagues, many struggle with challenging working conditions which need addressing.
4. Questions need to be asked about the relevance of current criteria for academic success. Do these encourage conformity and 'playing safe', for example? Do the criteria really reflect the kind of graduates needed in the 21<sup>st</sup> century? If not, how should they be changed?
5. The assessment of creativity in HE needs to be addressed. In particular, where creativity is assessed *informally*, students need to know that this is happening and how it is being carried out. In a number of cases, greater clarity is also needed with regard to the *formal* assessment of creativity.
6. An on-going dialogue between staff who cope well with large numbers of students with diverse needs and staff who cope less well would be valuable.
7. It is clear that space, staff time, student time and other resources are not always being used as effectively as they might be.

8. A further investigation is urgently needed to ascertain 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 as a result of the findings.
9. Although the NTFs' responses have provided a good picture of their views, it is not possible to say how this compares with the current views of other HE staff. A survey of *their* views would provide a useful comparison.

Ideally, such a study would be larger and over a longer timescale. This would allow time for more extensive piloting with a larger sample than was possible in the present study, so that many of the open questions could be closed for the main survey. The advantage of using a greater proportion of scales and checklists (as in the 1989 study) is that this allows more scope for multivariate analyses of the data. These yield a much clearer picture of the patterns in the data. If such analyses were then followed up with the kind of qualitative interview study that was possible in the present study, this would provide both a broad map of HE lecturers' views and detailed snapshot examples.

10. On the whole, Fellows' responses highlight the fact that, despite some really innovative teaching, current HE provision as a whole is still very much geared to the previous century (and in some instances the century before that!). There is now a real opportunity to create provision geared to the current situation and future needs, rather than to the past. 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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# Appendix

## Survey Questionnaire

### Section One: Biographical information

Please mark the appropriate boxes or enter the information requested (boxes will expand as you write).

Please leave shaded columns blank

Are you?

Male	
Female	

Is your age in the range?

Under 25 years	
25 to 29 years	
30 to 39 years	
40 to 49 years	
50 to 59 years	
60 years or over	

What qualifications do you hold?

	21	22
	23	24

What is your job title?

	25	26
	27	28

What are your specialist areas of teaching and/or research?

	29	30
	31	32

Please briefly describe your NTF project

	33	34
	35	36

### Section Two: Your views on creativity, learning and teaching

What does the term *creativity* mean to you?

	37	38
	39	40

Would you say you are creative? Why?

	41	42
	43	44

With regard to your discipline, what does *being creative* involve?

	45	46
	47	48

To what extent do you agree/disagree with the following statements?

						49	50
	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	51	52
Creativity is a rare gift which only a few people have						53	54
Creativity is the same in all cultures						55	56
It is possible to develop a person's creativity						57	58
People who are good at learning are more likely to be creative than those who are less good at learning						59	60
People who are creative are more likely to be good at learning than those who are not so creative						61	62
Men and women are creative in the same way						63	64
People of different ethnic origins are creative in the same way						65	66
The most imaginative students are the most ineffectual						67	68
The most academically successful students are also the most creative						69	70
The capacity to be creative helps people be successful						71	72
Creative teaching facilitates student creativity						73	74
Developing student creativity is not important						75	76
Encouraging student creativity enhances their academic performance						77	78
Encouraging student creativity prepares them for the wider world						79	80

Do students' learning styles influence your teaching styles?			
Yes		81	82
No			
If no: please explain why not			
		83	84
Do you aim to develop student creativity?			
Yes		85	86
No		87	88
If no: please explain why not			
		89	90
If yes: (a) how do you go about this?			
		91	92
(b) What key factors help you achieve this aim?			
		93	94
		101	102
If you do aim to develop student creativity and you also take account of student learning styles in your teaching, how does this affect your facilitation of student creativity?		103	104
		105	106
Here is a list of constraints which colleagues say prevent them from teaching as they wish. Mark the ones which apply to you:		107	108
Inadequate preparation time		109	110
Insufficient class contact time		111	112
Over-large classes		113	114
Excessive non-teaching workload		115	116
Unsuitable accommodation		117	118
Inadequate resources		119	120
Constraints imposed because of colleagues' requirements		121	122
Other constraints (please state)		123	124
		125	126
Do you assess the creativity of your students' work?			
Informally		127	128
Formally		129	130
Not at all		131	132
If you do assess it, what means and what criteria do you use?		133	134
		135	136
How is this communicated to students?		137	138
		139	140

When describing creativity, people emphasise different aspects. Please consider the following items and mark the ones which best match your view of creativity.

Creativity involves:

Valuable ideas	
Original ideas	
Tangible products	
Mysterious processes	
Unconscious activities	
Invention	
Discovery	
Sudden inspiration	
Self-expression	
Imagination	
Innovation	
Generative thinking	
Analytical thinking	
An awareness of beauty	
Aesthetic products	
Thinking processes	
Combining ideas	
Seeing unusual connections	
Other (please state)	

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### Section 3: Your views on teaching and learning in HE generally

Which aspects of HE provision would you say were most helpful to student creativity?

--

Do any aspects of HE provision inhibit student creativity?

Yes	
No	

If, yes, please describe briefly:

--

What do you think the impact of the expansion of HE is on teaching and learning?

--

How do you think this expansion affects the development of student creativity?

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187	188
189	190
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