

Can schools fit creativity into science lessons?



**Sheffield
Hallam University**

SHARPENS YOUR THINKING

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Creativity: why bother?

- The UK needs to be creative - to survive economically.

UK schools can help to educate creative, innovative workers.

To support creativity, schools must provide more autonomy for students.

The survey



Dear colleague,

This is part of a multi-year study into creativity in science lessons in secondary schools in the UK. Since creativity depends on a measure of freedom this initial survey is looking at teachers' views on the degree of flexibility that they have to develop their personal practice as well as their feelings about autonomy in schools.

I would be very grateful if you would fill in the questionnaire as fully as possible. Each school is being sent three copies. It would be very helpful if one of these was filled in by a teacher new to the profession, one in mid career and another by a colleague with many years experience. All three questionnaires can fit, folded, into the single reply-paid envelope provided. I have left space for you to add any comments you feel would be useful - please feel free to do this as I will read all of the returned questionnaires personally.

If you would like to be informed about the findings of this survey please tick the relevant boxes below and write out your email address.

Thankyou very much in advance for your involvement and any support you feel able to offer this project.

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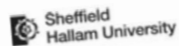
Feedback options

Your email address:

- Please tick the box if you would be interested in hearing the results of this survey.
- Please tick the box if you would be willing to be contacted about future research in this area.

Your name and email address will not be used for any purpose not directly related to this project. It will not be passed on to any other bodies.

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Statements	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
1 I am expected to follow the departmental schemes of work quite closely.					
2 All members of my department are expected to be heavily involved in constructing the departmental scheme of work.					
3 Students tend to have a clear view that examination success is very important and this constrains my freedom to try new approaches to teaching and learning.					
4 I tend to plan my own lessons - I do not like using lesson plans provided by other teachers or published schemes.					
5 I feel that I have much more freedom to develop and modify lessons now than five years ago.					
6 I think you can get quite 'stale' as a teacher if you follow the same course without changing it in some way for a few years.					
7 There has been no significant change in my level of autonomy over the last five years.					
As I gain more experience I feel more constrained by departmental schemes.					
I would like more autonomy in my job. There seems to be too much control over what I do at the moment.					
Government announcements seem to suggest increased freedom for teachers in coming years.					
Financial pressures will probably reduce my professional freedom in the coming years.					
Government's emphasis on more tests, academic qualifications will reduce autonomy in the coming years.					

Use the space below to comment about your feelings of personal autonomy if you wish.

F In your class is a girl named Margy who has been the butt of jokes for years. She is quiet and usually alone. In spite of the efforts of previous teachers, Margy has not been accepted by the other children. Your strategy would be to:

Strategy	Score
1 please score each from 1= very inappropriate to 7= very appropriate	
2 encourage her into interactions and provide her with much praise for any social initiative.	
3 encourage her and emphasize that she should make friends so she'll be happier.	
4 encourage her to talk about her relations with the other kids, and encourage her to take steps when she's ready	
5 encourage her to observe how other children relate and to join in with them.	

Over the past few weeks things have been disappearing from the teacher's desk and lunch money from some of the children's desks. Today, Marvin was seen by the teacher taking a handful of money in the prep room. The teacher phoned Marvin's mother and spoke to her about this. The teacher suspects that Marvin has been responsible for the other thefts, she phoned her one and assured the mother that she'll keep a close eye on Marvin. The best thing for you to do is:

Strategy	Score
1 please score each from 1= very inappropriate to 7= very appropriate	
2 talk about the consequences of stealing and what it would mean in relation to the students.	
3 talk about it, expressing her confidence in him and attempting to understand what he is doing.	
4 talk about scolding; stealing is something which cannot be tolerated and he should be punished.	
5 talk about it as wrong and have him apologize to the teacher and promise to do better.	
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7 talk about it as wrong and have him apologize to the teacher and promise to do better.	

Use the space below to comment about your feelings of personal autonomy if you wish.



The sample

- 2 500 letters sent out to English schools with 3 questionnaires enclosed.
- 126 schools and 299 teachers replied within 3 weeks.
- Two components:
 - demographic data and attitude scales
 - Problems in Schools Questionnaire

Attitudes

- Teachers strongly influenced by Schemes of Work.
- They like to plan their own lessons and fear becoming 'stale'.
- Limited unhappiness about lack of autonomy.
- Government announcements generate ambivalent feelings.

Free response

- “Freedom to develop your own ideas is essential for good teaching.”
- “The drive to achieve GCSE success can inhibit freedom.”
- “A few weeks into teaching I’m still needing guidance so don’t want too much autonomy!”

Problems in Schools

- Developed by Deci, Schwartz, Sheinman and Ryan (1981).
- Scores a teacher's 'motivating style' with a more negative score being more controlling (i.e. less autonomy for students).
- Range from -9.88 to 8.50, mean -0.94, sd 2.6

What to do?

- No relationships are very clear. No 'stand out' factor.
- Free responses suggested 'teacher confidence' as a key factor.
- What factors might give a view of 'teacher confidence'?

Time spent outside original discipline

Time outside original discipline / %	Mean	sd	N
< 25%	-0.61	2.54	118
25-50%	-0.92	2.72	83
51-75%	-1.46	2.28	73
> 75%	-1.00	3.20	25

Figure for Motivating style: more negative means more controlling

Status

Status	Mean	sd	N
Student teacher	-0.38	2.42	8
Qualified Teacher (QTS)	-1.01	2.41	161
Deputy Head of Department	-1.03	2.38	33
Head of Department (HoD)	-0.87	2.90	74
Senior Management Team	0.74	3.31	23

Figures for Motivating style: more negative means more controlling

Time in current school

Time in current school / years	Mean	sd	N
0-5	-0.98	2.62	186
6-10	-0.76	2.51	61
11-15	-1.21	2.74	19
16-20	-0.44	2.35	20
>20	-1.50	3.07	13

Figures for Motivating style: more negative means more controlling

Measuring confidence?

Domain	Possible measures?
Subject knowledge	D8: Time spent out of original discipline. D9: Status L4: 'I tend to plan my own lessons - I do not like using lesson plans provided by other teachers or published schemes.'
Classroom management	D6: Years at current school
Student response	L3: 'Students have a clear view that examination success is very important and this constrains my freedom to try new approaches to teaching and learning.'

Confidence measures

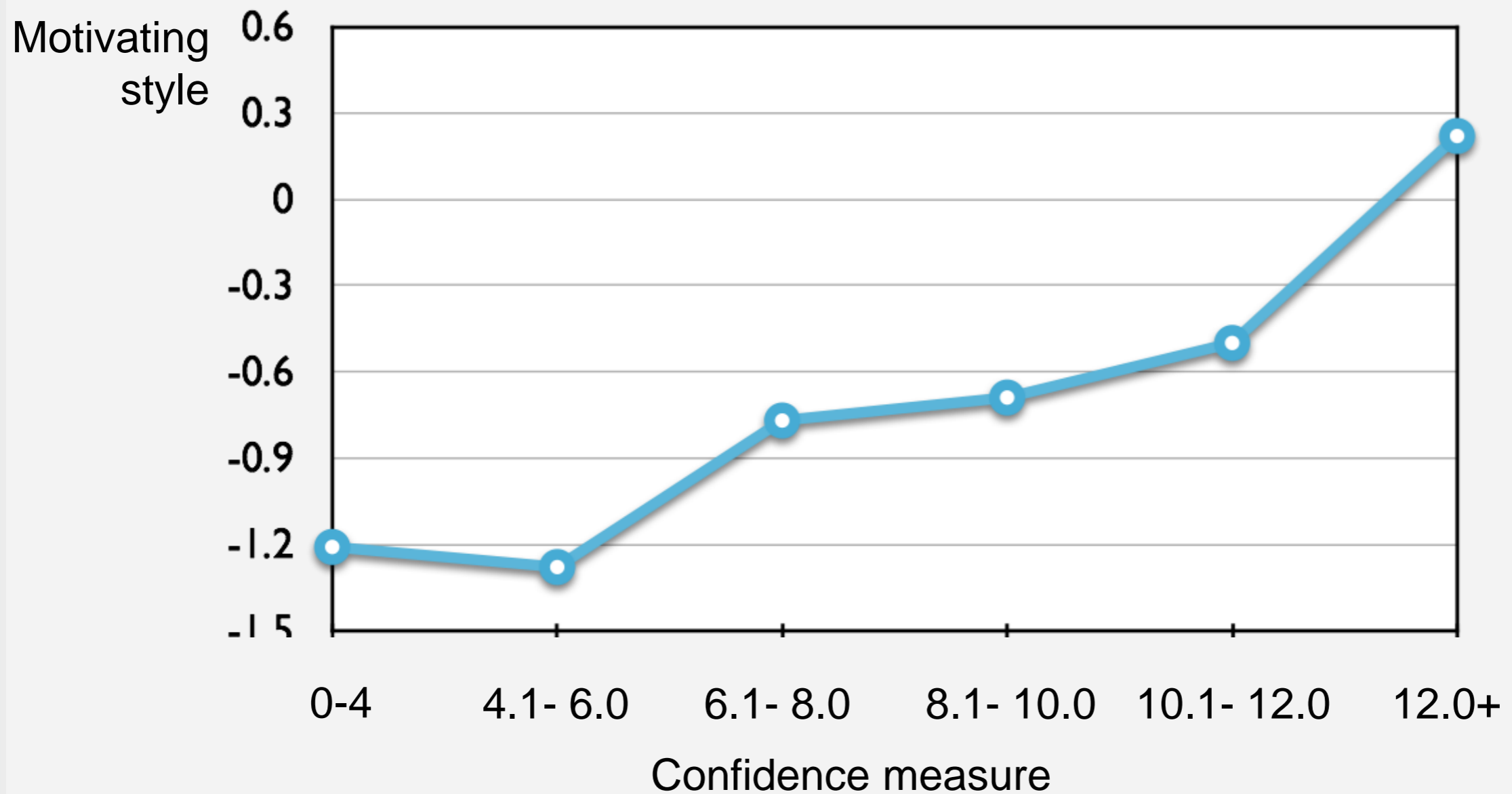
- Each domain rated from 1 to 5 and summed to give a possible range from 3 to 15.
- Actual range from 3.2 to 13.93.
- Mean 7.07, sd 1.93.
- Remove teacher with less than 5 years experience.

Teacher confidence...

Confidence measure	Mean	sd	N
0-4	-1.21	2.1	3
4-6	-1.28	2.37	96
6.1 - 8.0	-0.77	2.56	118
8.1 -10.0	-0.69	2.64	59
10.1 - 12.0	-0.50	2.33	8
12.1+	0.22	3.9	4

Figures for Motivating style: more negative means more controlling

Teacher confidence...



Where next?

- Develop a more rigorous measure of teacher confidence and see how this relates to support for student autonomy.
- Review the creative outputs from students in classes taught by confident, autonomy-supporting teachers.
- Consider strategies to build ‘teacher confidence’.