Developing creative thinking skills in adolescents through play-based pedagogic planning principles

Bridget Mawtus, Sara Rodriguez-Cuadrado, Karen M. Ludke & Roderick I. Nicolson

It is becoming clear that in the 21st century, a focus on skill development in education is necessary to complement the curriculum, particularly with regards to creative problem solving. The emerging Pedagogy of Play seems to provide a framework to facilitate this but is not easily applicable in the mainstream UK due to difficulties in empowering teachers to use it on an everyday basis. In response to this, a simple methodology was developed to encourage teachers to implement a Pedagogy of Play approach in the secondary UK classroom, and a control experimental Student Focused method was explored in a similar way. A classroom evaluation of the two methods was undertaken along with a control teaching as usual group. This was done in a classroom timeframe collecting pre-and-post measurements of creative thinking using the Widening, Connecting and Reorganising model of creativity, in addition to teacher generated attainment at the same time points. Results indicated that teachers showed clear appreciation of, and engagement with, the approach for both innovative methods. The use of Pedagogy of Play led to significant enhancements of creative thinking while the Student Focused method did not, although this group did show a significant improvement in subject attainment. This indicates it is possible to enhance creativity within the school curriculum and that Pedagogy of Play may be a way of doing this. Future research should focus on the exploration of a hybrid methodology to enhance both creative thinking and increase subject attainment.
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THE CHANGING PRIORITIES of the UK education system, and the shifting needs of the global employment market, place a great emphasis on flexibility in thinking in young adults today. This goal has become even more challenging as we try to prepare students for a future we cannot even imagine. We cannot provide students with curriculum based knowledge that does not yet exist, but we *can* teach them how to think in a way that is open to new ideas and enhances their ability to adapt the knowledge they do have to new situations – in short, to think more creatively, especially around using creative methods of solving problems.

It is therefore interesting to note that creative thinking as a skill seems to be on the decline (Kim, 2011). The Torrance Test of Creative Thinking (Torrance, 1962) has been in use since the 1960's and has been re-normed five times since then – in 1974, 1984, 1990, 1998, and 2008 (Kim, 2011). The scores have shown a decline in creative thinking during this period, despite a generalised increase in Intelligence Quotient (IQ) scores. Although this data is all based in the US and thus raises some questions around validity for a UK population, in some respects this might not be as relevant as it first appears, as we are in a global job market, often competing with overseas applicants for the same job. Recognising the need for creative thinking in business, General Certificate of Secondary Education (GCSE) specifications in business studies include 'non-routine thinking' in the 'transferable skills' element of their subject specification (Edexcel, 2017) although methods of assessing this within the specification are unclear. The tension created by the busi-

ness needs for creative thinking and the perceived importance of creativity (Lee, 2017), leaves educators and policy makers in a challenging position. Reported perception of the importance of 'academic basics' taking precedence over 'creativity' and 'independence' shows that public opinion is following that of educational policy. There seems to be a mismatch in the employability skills needed by industry and the education that parents seem to feel is best (Forrester Consulting, 2014; Lee, 2017).

The tensions that currently exist in the secondary education sector around work-life balance of teachers, workloads and curriculum requirements (Bubb & Earley, 2004), with ever more restricted budgets, mean that supporting the development of these skills is often seen as an addition to the teaching requirements, and one that perhaps falls by the wayside. It is therefore necessary to explore this in a different way, to look at the possibility of enhancing the 'hidden curriculum' – that which is not expressly taught but developed by teacher modelling, attitude and approach. The curriculum content is non-negotiable and knowledge is important, *what* we teach is defined, but the power of the teacher as an individual is refined in *how* we teach. The aim would be to replace the planning step in the teacher's preparation, and not to add to teacher tasks.

As Hiam Ginott noted in his book *Teacher and Child* in 1972, the teacher has power far beyond expressing the curriculum.

> *I've come to a frightening conclusion. I am the decisive element in the classroom. It is my personal approach that creates the climate. It is my daily mood that makes the weather. As a teacher, I possess tremendous power to make a child's life miserable or joyous. I can be a tool of torture or an instrument of inspiration.* (Ginott, 1972).

Harnessing this power that the teacher has over the mood and attitudes of their learners could unlock potential for creative thinking. Emerging from the research field in Denmark and the US is some suggestion that this could be achieved by influencing pedagogical viewpoints when planning lessons to encourage a more creative approach. There is growing evidence that a pedagogy identified by action research at the International School of Billund (ISB), is a possible way for doing that (Mardell et al., 2016). The Pedagogy of Play (PoP), based upon three key principles of Choice, Wonder and Delight, is changing the way that pupils at ISB approach their learning. With some adaptation to the needs of the UK's National Curriculum, it is hypothesised that planning lessons with this pedagogical approach can enhance the development of creativity in the classroom.

Not only are demands on teacher time critical, but the constant updating of skills, compulsory ongoing training and possibility of using student results to index teacher performance, means that teachers are frequently disempowered to teach in creative ways due to concerns about a possible negative impact on attainment. This research seeks to provide evidence intended to encourage teachers to work with a creative framework without fear of negative attainment impact.

Research Objective

To determine whether it is possible to enhance creative thinking skills through a play-based pedagogical planning methodology.

Study Design

A total of 59 pupils (34 male) from a single year group (aged 12–13) in a UK secondary school were recruited along with their teachers. An evaluation of two experimental groups were included, one focused on Pedagogy of Play (PoP) and one on a Student Focused (SF) planning approach, in addition to a control group (no intervention, but Teaching As Usual (TAU)). An English version of the Widening, Connecting, Reorganizing (WCR) Creative Thinking test (Antonietti et al., 2011) was administered pre and post intervention and attainment grades generated for each pupil at both time points.

A teacher training intervention was administered, and teacher planning was supported for a unit of work lasting four weeks.

Tools: For effective measurement of creative thinking, a simple, ten minute, online English validated version of the WCR test designed for minimal impact to teaching time was administered. Attainment data was generated by the teachers as part of the usual reporting procedures at the school.

Interventions: Interventions took the form of teacher planning methods as this had the potential to provide the biggest impact for the smallest change: changing a teacher's approach then changes the learning experience of all the pupils in the classroom. The first intervention was based on the PoP approach which uses the focus of choice, wonder, and delight to identify playful learning opportunities and lessons are planned to incorporate all three foci in each lesson at key points familiar to teachers: starters, pupil tasks and plenaries. The second was based upon a SF technique that utilises heuristics to allow pupils to take responsibility for their own learning pathway.

Results

Results revealed a medium positive Cohen's d effect size in the PoP group, .48, a very large negative effect on the TAU group, –1.16 and a large negative effect of the SF group, –.90. This indicates the PoP intervention yielded a medium but significant increase in creative thinking in comparison with a significant decline demonstrated in both TAU and a SF intervention. Attainment was positive in all conditions and pupils made expected progress with a particularly positive outcome indicated in the SF condition.

Discussion

Even over this short timeframe, in this study the teacher's pedagogical focus and planning had an impact on creative thinking in the classroom. The PoP group was the only group that increased the creativity score during the study. In addition, there was a particularly positive impact on attainment in the SF condition. These changes are most likely to be attributed to the pedagogical attitude of the teacher when planning, as the curriculum was the same for all pupils. The TAU group and the SF group showed a similar decrease in creativity scores. The TAU group and the PoP group both made expected progress in line with school and personal targets while the increased attainment on the SF group requires further exploration. It is useful to identify the change in the thinking skills of the many – the pupils – with an intervention based on the few – the teachers.

The teacher influence on pupils as expressed by Ginott (1972) appears to extend to the development of the 'hidden curriculum' content, in this case creative thinking. In other words, in this study, the *how* of teaching seems to have as significant an impact as the *what*. Knowledge is important, and creative thinking is the ability to link disparate old ideas in new ways as well as generate new ones; but without the knowledge there is nothing to link together. *What* is taught is a key component and it is within this framework that this research sits. In addition, it is important to remark that this planning methodology is designed to replace existing planning methods and not be an addition to them. This is particularly relevant as research undertaken with already busy secondary school teachers needs to be monitored to ensure that their load is not significantly added to. The teachers felt the workload change in this project was negligible:

> *The workload as I said, I don't feel like it was that much different to what I'd do anyway, so I found that quite easy* (PoP Teacher).

On top of that, teachers also found that the project helped focus their planning:

> *…it did actually really help with planning, so it made me as a teacher think of my planning more thoroughly to extend the high ability students.* (SF Teacher).

Conclusion: The current research has helped us to understand how teacher planning can positively affect how students think. It has demonstrated that teachers can influence the development of student skills outside of the curriculum and that interventions with a teacher on pedagogical approaches can have implications for a whole cohort of pupils. The present results suggest that creative thinking, this important skill, can be 'taught' while teaching other things; it is not a separate subject and can be embedded in a mainstream secondary school without affecting subject learning. It paves the way for future research to investigate if these results can be repeated on a larger scale and what the impact of a consistent approach across a school might be.

Author

Bridget Mawtus, Edge Hill University,
Email: mawtusb@edgehill.ac.uk
Sara Rodriguez-Cuadrado, Universidad Autónoma de Madrid.
Karen M Ludke & Roderick I Nicolson, Edge Hill University.

Bridget Mawtus is a PhD Student in her third year at Edge Hill University working under the supervision of Prof. Roderick I Nicolson, Dr Karen M Ludke and Dr Sara Rodriguez Cuadrado. She has 10 years teaching experience and has been working to explore the potential of teacher planning methods to enhance creative thinking potential among learners.

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