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What is This?
Supporting creativity, inclusion and collaborative multi-professional learning

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Abstract
This article connects arguments in the field of integrated and multi-professional working concerning the need to promote a strengths-based approach to children, childhood and children’s services with writing about creativity in schooling. It utilizes strength-based and social justice approaches to encourage professionals who work with children and families to recognize the diversity of childhood and support children and families to collaboratively, creatively and flexibly develop solutions to their own life issues and their learning. It questions the extent to which schools are ready to be places that enable collaborative dialogue and considers whether targets and tests lead schools to stifle creativity. It draws from the CREANOVA project funded by the European Commission’s Education, Audiovisual and Culture Executive Agency (EACEA) to demonstrate the quantitative basis for the argument that flexibility stimulates creativity, and demonstrates that creativity flourishes in environments that value autonomy, openness, supportive structures and collaborative relationships. This finding enables the article to conclude that a culture shift can be achieved that stimulates creativity and innovation in childhood if organizations recognize the abilities of children to stimulate each other’s creativity, support children’s freedom to learn collaboratively and challenge barriers to learning such as targets and top-down performance indicators.

Keywords
Collaboration, creativity, innovation, integration, learning, social justice

Introduction
This article has three sections. The first section discusses recent arguments in the field of integrated and multi-professional working concerning the need to promote a strengths-based approach to children, childhood and children’s services. It contrasts strengths-based and social justice approaches with deficit model and standardized perspectives which tend to characterize children and families who do not meet developmental expectations as problems that need to be fixed by professionals. In so doing, this section of the article encourages professionals who work with
children and families to recognize the diversity of childhood and help children and families to collaboratively, creatively and flexibly develop solutions to their own life issues.

Section two questions the extent to which schools are ready to be places that enable collaborative dialogue and considers arguments which suggest that targets and tests lead schools to be rigid places that stifle creativity. This section draws from mainly qualitative examples of creativity in schools to argue that there is great potential for developing more flexible approaches to schooling. Section two concludes that more work could be done to show the quantitative basis of such arguments.

This issue is taken up in section three which draws from quantitative and qualitative research to demonstrate the need for flexible approaches to creativity. It discusses the methods of the CREANOV A project funded by the European Commission’s Education, Audiovisual and Culture Executive Agency (EACEA) before utilizing quantitative data from the CREANOV A project to support the argument that flexibility stimulates creativity. This section demonstrates that professionals working in companies in the creative and technical industries value autonomy, openness, supportive structures and collaborative relationships. This quantitative perspective is connected to qualitative data from creative learning experiments and interviews involving young people to demonstrate that there are similarities between professionals and young people’s views on the circumstances that support creativity. This finding enables the article to conclude that a culture shift can be achieved that stimulates creativity and innovation in childhood if learning organizations that are tasked with supporting children and young people build their practice on the recognition that children and young people flourish when they have freedom to learn collaboratively, stimulate each other’s creativity and are not restricted by barriers to learning such as targets and top-down performance indicators.

From deficit approaches to strengths-based perspectives: Creativity, childhood and multi-professional working

Deficit approaches to childhood have been critiqued for constructing children and families as abnormal, deficient, weak, vulnerable, incomplete, immature, irrational, inadequate, incapable and problematic (Davis, 2011; Davis & Smith, 2012; Moss, Dillon, & Statham, 2000; Smith & Davis, 2010). They have been contrasted with child-centred/client-focused strengths-based working which perceives children and parents to be complex people who have the capacity to be resilient, creative and aspirational (Davis & Smith, 2012; Foley, 2008; Leathard, 2003a, 2003b; Rixon, 2008; Stradling, Macneil, & Berry, 2008). Politically nuanced strengths-based approaches have advocated that professionals listen to children’s and family’s points of view, aim to support families in preventative ways before they reach a crisis stage, improve information sharing between services and reflect on the possibility that professionals themselves may practice in ways that alienate service users (Davis, 2011).

Proponents of strengths-based working have argued that children’s services lack a culture of creativity, collaboration and dialogue (Moss & Petrie, 2002). They have argued that those who wish to enable organizations to be creative need to consider the structural, cultural and relations issues that stifle adults’ and children’s creativity (e.g. rigid rules, an inability to talk to children about their life problems and lack of respect between different professionals; Davis & Smith, 2012). Collaborative notions of creativity can be connected to writing on childhood that has argued that it is possible in children’s services to move away from hierarchical and top-down approaches in order to establish ways of working that promote spaces of possibility where adults and children enter into dialogue about their hopes and aspiration (Moss & Petrie, 2002).
Various writers in the field of childhood studies have associated a lack of creativity with technocratic performance indicator cultures that impose short-term targets on professionals, children and families at the expense of developing spaces that engage with children and parents on their own terms (Dahlberg, Moss, & Pence, 1999/2007; Moss & Petrie, 2002). It has been suggested that a focus on governance in children’s services has led to the situation where workers no longer have the knowledge and skills to work with children and families and to situations where professionals fail to involve children in processes of integrated working (Davis & Smith, 2012; Munroe, 2011). Writing in the field of social work has encouraged us to recognize the complex interplay between ideological positions, political disputes and economic realities (Frost, 2005). Such writers have critiqued best practice/evidence-led approaches to children’s services for attempting to impose unicausal, static and rationalist ideas on public services (Frost, 2005; Seddon, 2008).

Top-down approaches have promoted the need for economies of scale, centralized administration and benchmarking across organizations (Seddon, 2008). It has been argued that the target-based and standardized approach to children’s services has three main forms: structural standardization (e.g. size and content of service provision), procedural standardization (e.g. relationships between service user and staff) and outcome-focused standardization (e.g. service user satisfaction, etc.) (Dahlberg et al., 1999/2007). Such approaches remove complexity and diversity in the name of proceduralization, reporting, registration, standardization, regulation and accountability (Dahlberg et al., 1999/2007; Lawler & Bilson, 2010; Simmons, 2007).

The use of standardized approaches in children’s services results in adults, children, professionals and service users all becoming subjected to the gaze of performativity. It is argued that this often prevents people within children’s services from building clear, honest, strong and supportive relationships (Davis, 2011; Davis & Smith, 2012). That is, the developmental criteria that are used to mark children who fail to meet adult expectations as ‘other’ are very similar to the standardized criteria (e.g. league tables for schools, etc.) that are used to mark out professionals and their work places as ‘other’. They both come from the same conceptual starting point that diversity should be ironed out in the name of efficiency (Dahlberg et al., 2007; Davis & Smith, 2012).

Standardized approaches to children’s services were introduced on the basis that they would improve outcomes and reduce waste. Yet, writers such as Seddon (2008) have been scathing of standardized cultures because by promoting top-down and centre-out measures of performance they have failed to enable service users to define what a service’s outcomes should be. He argues that this has resulted in such cultures increasing rather than reducing waste. Others suggest that such cultures prevent dialogue in children’s services about workers’ actual abilities and capacities to deliver on the service plans they draw up with other professionals, children and families (Davis & Smith, 2012).

Those who utilize top-down management approaches (e.g. government ministers, local authority managers and head teachers) have been accused of centralizing power through the overemphasis of hierarchical responsibility, increasing scientific measuring/monitoring of work performance and removing opportunities for worker initiative (Harrison, 2002; Lawler & Bilson, 2010; Taylor, 1964; Weber, 1947). Proponents of performance measurement have been critiqued for arguing that all aspects of workers’ open should now open to quality indicator measurement by others, irrespective of the workers’ views (Cowan, 1996; Dahlberg et al., 1999/2007). Such ‘McDonaldization’ or ‘command and control approaches’ (Lawler & Bilson, 2010; Ritzer, 1992; Seddon, 2008) have particularly been associated with government ministries which have sought to cut costs under the guise of modernizing the public sector (Seddon, 2008) and have been contrasted with more participatory approaches to decision-making that raise questions concerning the types of environments that best enable human beings to be creative and effective in their everyday lives (Davis, 2011).
It has been argued that the problem with top-down impersonal approaches is that they deny the humanity of the people who work in and use public services, encourage managers to instigate punitive action when people fail to meet targets and lead unreflexive professionals to adopt deficit approaches to parents, children and other professionals (Lawler & Bilson, 2010; Seddon, 2008). It is also believed that hierarchical imposition of standardized criteria creates power barriers that prevent innovative collaboration in children’s services (Davis & Smith, 2012).

Several writers are critical of the statistical evidence that supposes that standardization, formalization and centralization actually works (Boyne, 2002; Cameron & Freeman, 1991). Other writers have highlighted the corrosive and corrupting nature of standardized criteria and argued that they create perverse incentives which encourage workers to ‘game’ the system (e.g. by manipulating locally established ‘facts’; Seddon, 2008). We can perhaps see this type of gaming in recent cases involving exam results in England and Wales where questions arose concerning inappropriate help to pupils, fake exam results and mismarked scripts, as well as system-level manipulation whereby easier tests were used to support ‘improvement’ claims (see Ravitch, 2010, for the USA; Wrigley & Kalambouka, 2012, regarding school privatization in England).

In contrast to standardized approaches, post-structural writers have called on us to recognize the limitations of those who make claims based on truth and authority (Corker & Shakespeare, 2001) and to more clearly cherish and value concepts of ambiguity, fluidity and contested truth (Davis, 2011; Parton, 2000). Research has demonstrated that different professionals, for example, in health education and social services have different starting points from which to promote more integrated, participatory and inclusive working, and therefore parents and children have not always experienced improved processes of planning and delivery because of professional uncertainty and conflict (Davis, 2011; Davis & Smith, 2012). This work has called for professionals to put uncertainty and conflict at the centre of their discussions when attempting to collaboratively plan and develop provision.

Ideas concerning fluidity and ambiguity have filtered into policies on integrated and multi-professional working in the countries that make up the UK. These include Every Child Matters (England), The Ten Year Strategy for Children and Young People (Northern Ireland), Getting It Right for Every Child (Scotland) and Core Aims for Children and Young People (Wales). These new policies have promoted notions of integration, flexibility, diversity and inclusion and have highlighted the need to: adopt participatory approaches to address issues of conflict during service transition; develop co-ordinated local planning; increase information sharing; and improve issues of education, learning, and community development (Davis, 2011; Smith, 2009). A central aim of these policy initiatives has been to create more joined up outcomes based approaches underpinned by specific processes of earlier referral, recording, information sharing, assessment, management, planning, delivery, monitoring and evaluation (Davis & Smith, 2012; Munroe, 2011; Walker, 2008).

These polices have been introduced at the same time as writers have argued that within multi-professional children’s services we need to break down professional barriers and question standardized approaches if we are to achieve the outcomes that children, families and other service users desire (Anning, Cottrell, Frost, Green, & Robinson, 2006; Bertram, Pascal, Bokhari, Gasper, & Holtermann, 2002; Fitzgerald & Kay, 2008; Frost, 2005; Gilbert & Bainbridge, 2003; Glenny & Roaf, 2008; Harker, Dobel-Ober, Berridge, & Sinclair, 2004; Lawler & Bilson, 2010; Leathard, 2003b; Milne, 2005; Scott, 2006; Stone & Rixon, 2008; Walker, 2008). At the centre of such writing has been the idea that we can develop more creative and inter-relational approaches to problem solving in childhood (Aldgate & Tunstall, 1995; Davis & Smith, 2012; Glenny & Roaf, 2008; McGhee & Waterhouse, 2002; Tisdall, 1995; Walker, 2008). Inter-relational ideas of childhood can
be connected to writing on schooling and social justice that has called for more diverse and creative approaches to learning. They also raise questions about the nature of schooling within the context of integrated services and how well placed schools are to be part of creative, interrelation and multi-professional processes that seek to reduce standardization and enable innovative approaches to childhood.

Social justice, flexibility, creativity and schooling

Theories of equity and social justice promote a complex approach to people’s lives. They connect the idea of equity to practical concerns about redistribution (e.g. of rights, duties and resources) and recognition (e.g. of culture, respect, capacity, etc.) (Gewirtz, 2006; Griffiths, 2003; Konstantoni, 2011; Vincent, 2003). Such writing connects social justice to localized stories as well as grand narratives in a way that suggests that equity is dynamic, flexible and temporal (Fraser, 1997; Griffiths, 2003; Konstantoni, 2011; Vincent, 2003). This concept is used to encourage professionals to promote fairness, recognize discrimination and question power relations (Brown, 1998; Derman-Sparks, 1989; Konstantoni, 2011; MacNaughton, 2000; Robinson & Jones-Diaz, 2006). In family support studies writers have drawn from Honneth (2000) to connect social justice to issues of treatment, regard, care, legal rights, attributes and strengths (Davis, 2011; Dolan, 2006; Thomas, 2009). This work has argued that we cannot assume a one-size-fits-all approach to children’s service and we need to recognize that people require a range of forms of provision including financial support (redistribution of money), the removal of structural barriers (e.g. poor transport, play facilities or housing), legal recourse (e.g. mediation and tribunals), and for their rights to be upheld (e.g. in relation to discrimination) and/or to be included in decision making processes that recognize their abilities (e.g. to collaboratively plan outcomes; Davis, 2011; Davis & Smith, 2012). Such perspectives place a duty on professionals to be open to a range of solutions, to avoid assuming they know best and to engage with creativity and diversity (Davis & Smith, 2012). They also suggest that a learning community can have a focus on equity when staff, parents and community members collaborate on enabling creative change and recognize the need and ability of all the stakeholders within a setting to learn from each other (Wrigley, 2000, 2003).

It has been argued that such collaborative learning environments should not always lead to consensus and indeed that consensus often denies difference (Young, 1990). It is proposed that we should view consensus and diversity, not as opposites, but as flexible frameworks of thought that have the potential to produce diverse solutions to daily life issues (Bauman, 1993; Lawler & Bilson, 2010). This argument suggests that we can utilize consensus and diversity in different ways in the same social space and that different children and families do not always have to have the same service solutions in order to be or feel equal. This means that people do not have to be the same to experience equity and people do not have to begiven the same provision to be viewed as having being treated in an equitable manner (Davis & Smith, 2012; Durrant, 2012). Sometimes the idea of equity and diversity can be a difficult idea for professionals to grasp, particularly those who have connected their professional identity to the ability to tick boxes, to play by the rules and to use notions of neutrality as a veil from which to avoid engaging with the politics of their own decision-making (Davis & Smith, 2012; Young, 1990).

Writers on education and schooling have utilized qualitative and narrative research to suggest that ideas of social justice and creativity can promote more interrelational approaches to learning in schools (Durrant, 2012). They have promoted social justice approaches as an antidote to the blanket reforms of schooling and target-driven regimes which they believe have threatened creative pedagogical processes, weakened the ability of teachers to enable a diverse curriculum and
neglected the vital purpose of schools which is to work towards equity. It is believed that despite
the policy rhetoric that emphasizes the need for creative education in schools the reality of central
administration, regimes of control and the need to comply with performativity has often prevented
the development of innovative learning environments (Burnard & White, 2008). Specific criticism
is made of learning that focuses on exam outcomes at the expense of learning processes (Best &
Thomas, 2007). In contrast, it is suggested that we need a counter culture to the standardization,
universalism, individualism and deficit-based nature of recent educational reforms (Durrant,
2012). In particular, writers in the field of creativity and schooling believe that greater backing is
required for teachers who wish to creatively support children and/or families who do not fit into
statistically driven approaches to schooling.

A cultural shift in schools has been argued for that utilizes informal and formal pedagogies to
promote adult–child interaction that is based on flexible and collaborative approaches to learning
(Craft, 2005; Moyles, 2010a, 2010b). Such writers have promoted the notions of creative learning
and suggested that we need to move beyond individualized ideas concerning creativity that view
it as the preserve of the arts-based curriculum. It is argued that a shift to a more interactive learn-
ing environment can be achieved if we recognize that all curriculum topics have creative pro-
cesses within them, for example, science subjects involve creative planning and design and all
topics can involve peer interaction, problem solving and language play (Craft, 2005, 2011; Sefton-
Green, 2000).

It is argued that creativity is often stifled in childhood because parents and teachers over-
control the spaces within which children play and because play is not valued by adults
(Montgomery, 2009; Moyles, 2010a, 2010b; Papatheodorou, 2010). Playful, problem solving and
interactive learning has been connected to the idea of ‘possibility thinking’ which encourages
learning through the imagination of new ideas and the posing of questions (Craft, 2000, 2011).
Possibility thinking is believed to flourish in environments where teachers utilize flexible peda-
gogy, enable children to develop ownership of their learning and where learning involves an
emergent process of improvisation and co-creation (Faulkner & Coates, 2011). Such writing
breaks down the notion of children as the only learners, encourages us to view teachers as still
growing human beings who can learn with the children, and urges us to investigate the collabora-
tive potential of learning spaces (Faulkner & Coates, 2011). They associate creative learning
environments with supportive frameworks, cross-curriculum learning, collective knowledge pro-
duction, autonomy and diversity (Popkewitz & Bloch, 2001). They also pose questions for adults
of how schools can better become learner-led spaces where children situate learning in their own
life contexts (Davis, Aruldoss, McNair, & Bizas, 2013).

Writers on creative schooling have also drawn from literature on creativity to promote the con-
cept of creative flow (Best & Thomas, 2007; Corner, 2012). This writing draws from
Csikszentmihályi (1992) to suggest that when learning moves beyond rigid boundaries it is possi-
ble for participants to become engrossed to the extent that learners take intense ownership of the
learning process, feel excitement and perceive the learning experience to be rewarding in itself
(Corner, 2012; Csikszentmihályi, 1992). Such learning is believed to be transformative and to
enable learners to change their conceptions of self (Corner, 2012; Holly, 1989). Corner (2012)
demonstrated the possibility for teachers and pupils to share this experience of ‘flow’ when analys-
ing the processes involved in designing a ‘personal learning box’. She argued that this process
enabled teachers to share personal stories with pupils concerning their hopes and fears and this in
turn enabled pupils to become more active and collaborative learners. Corner (2012) concluded
that creative learning has the capacity to raise standards in learning beyond the limits set by the
teacher or the school because it enables a diversity of behaviours and outcomes to occur.
The previous section posed the question, ‘how well placed are schools to engage with the ideas of creativity and change enshrined in such policies?’ The answer appears to be that creative pedagogies exist but structures of standardization create barriers to their use. Yet Corner (2012) argues that creativity can be achieved even within standardized structures. This raises a key question that will be answered in the final section of the article as to whether creativity flourishes best in conditions where people have complete freedom or whether structures can also support creativity.

Learning from other sectors: The CREANOV A project

In Scotland ideas of creativity and participation relating to children’s services are promoted in the Getting It Right for Every Child (GIRFEC) policy which has encouraged changes in children services’ cultures, structures and practices. This is connected to Scotland’s new curriculum framework, Curriculum for Excellence, as both policies share similar aspirations for childhood. Curriculum for Excellence seeks to change the culture of schooling to focus on achieving a transformation in education providing a coherent, more flexible and enriched curriculum. Yet, the Curriculum for Excellence was developed after a drawn-out national debate concerning the role of education in Scotland and there is some uncertainty concerning the evidence that underpinned its development. Similarly, writers in the field of creativity and schooling have tended to utilize qualitative approaches to research that are not well placed to provide the types of statistical evidence that are required to convince proponents of standardization that change is required. However, it is possible to draw on work in other fields to gain insight into the environments that foster creativity and innovation.

The final section of this article draws from the CREANOV A project which was funded by the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission (Project Number 143725-LLP-1-2008-1-ES-KA1-KA1SCR) to consider the sorts of environments that foster creativity. The CREANOV A project utilized different methods to establish a conceptual basis, test various hypothesis and examine taken for granted assumptions concerning creativity and innovation. Methods included:

- a review of international literature in the field that examined written documentation including policies, academic journals/books and practitioner publications to gain an insight into intrinsic understandings, social realities and norms (Atkinson & Coffey, 2004; Rapley, 2007) concerning creativity and innovation. This review was published in a report entitled Discovering Visions (Ibáñez et al., 2010).
- an online statistical questionnaire of people in creative and technical sector organizations with varying levels of creativity to establish the conditions that enabled creativity. Some 1200 individuals in companies in the technical and creative industries were contacted in four locations including the UK, Basque Country (Spain), Finland and Estonia to participate in an online questionnaire. Some 507 respondents completed the questionnaire from the 1200 invitees providing a response rate of 42.25 percent; 148 respondents worked in the public sector, 309 worked in the private sector and 22 worked in the voluntary sector; 268 respondents were male and 239 respondents were female; 229 were managers or team leaders and 278 were workers or trainee workers. Participants were asked to respond by way of a five-point Likert scale to a series of questions concerning themselves, their colleagues and their organizations and issues of creativity, innovation and learning.
four experimental case studies carried out in Scotland (UK), Basque Country (Spain), Finland and Italy that piloted innovative and creative learning tools and enabled the project to qualitatively examine the learning contexts that support creativity and innovation.

qualitative interviews with key experts and creative people who had developed innovative business designs, practices and strategies. This involved 45 key respondents who were identified as having led innovative processes or organizations in the Basque Country (Spain), Estonia, Finland, Italy and the UK.

This section presents a summary of the aspects of the statistical findings that enabled us to define creative work environments and creative learning environments and utilizes qualitative data from the experiments and interviews to define the conditions that foster creativity and to discuss specifically what the findings mean for those wishing to enable a culture shift in children’s services and schooling.

**Research findings**

Qualitative findings from the CREANOVA project suggested that respondents valued working together in environments that were creative, innovative and (crucially) designed around intrinsic rewards such as the common good. These findings supported the work of writers who have critiqued the idea that workers needed extrinsic rewards (e.g. Seddon, 2008). Creativity and innovation were not seen as individual traits, they were connected to emotional skills such as inter-relational sensitivity, generosity, compassion and recognition (Davis et al., 2011).

Respondents on the CREANOVA project connected diversity and tolerance to creativity and innovation. They believed that innovation thrived when workers challenged traditional approaches, embraced difference, were open and respected each other. Respondents highly valued risk taking, ambiguity and dialogue. In particular, they connected innovation and creativity to learning from different cultures and argued that a combination of individual and structural factors enabled individuals and groups to stay focused, be positive and enable creativity.

For example, one of the experiments involved a youth centre project in Italy where young people were supported to develop a documentary about a local open-air cultural festival. This involved adult professionals with experience of making documentaries supporting young people to make a documentary through a process of ‘learning by doing’ that utilized interactive discussions and planning to enable participants very quickly to develop their learning. The process involved a getting to know you storytelling sessions, collaborative mapping of the open-air spaces, pre-event interviews with local people and playful games to develop skills in camera use regarding handling, lighting, sound and focus. Qualitative evaluation of the process demonstrated that the young people highly valued the opportunity to interact with other learners, to work in a process where they were free to pose questions, to learn in an untraditional way, to work in a playful environment, to have time for reflection, to connect the task to their own interests, to solve work related problems, to build trust with educators/learners and to express themselves.

The Basque experiment involved collaboration between groups of young people and young adults aged 16–29 years who were involved in a vocational education entrepreneurial project which sought to develop new, creative and marketable ideas. In a similar way to the Italian experiment it utilized self-questioning methods, storytelling, non-traditional learning environments, etc., to enable creative flow. Participants highly valued the interactive nature of the project and the non-traditional relationship between teachers and learners.
In a normal class we are all more inhibited. Here we have been allowed to go to another classroom, to move, to change activity . . . (Basque participant)

Working in the Gym has placed students and teachers at the same level. Some relations have been matched and barriers broken. The atmosphere was very relaxed, all of us were equal. (Basque participant)

The techniques have forced me to imagine. We do not usually use imagination. I have also seen the imagination of others which makes yours wider and richer… (Basque participant)

It helped me to give free rein to the imagination and to change the perception that I had of myself as I did not think that I was able to create anything. (Basque participant)

These comments highlighted the value of being able to freely express one’s self. However, participants also believed there were benefits when this expression was interactive and involved collaborative spaces/structures. These qualitative findings can be related to research discussed in section one of this article that highlighted the need for collaborative approaches to multi-professional children’s services. This research has suggested we need to create local forums for dialogue between children, parents, schools, health, social work and other services and that such forums can act as spaces where different stakeholders collaboratively develop flexible and creative solutions to children’s life issues (Smith, 2009; Smith & Davis, 2010). This writing has argued that forums can be utilized to stimulate collective reflexivity where different people analyse their perspectives on the same issue (Davis & Smith, 2012) and that through collective reflexivity local forums can become flexible structures that enable joint understanding to be established through the building of significant and creative relationships (Davis & Smith, 2012; Ford & Lawler, 2007; Lawler & Bilson, 2010; Ochberg, 1994). The findings of the CREANOV A project suggest that creativity will be stimulated if children’s services and schools work together, following the suggestion of Wrigley (2003) to redefine learning as collaborative activity involving all of the participants in a local community (Davis & Smith, 2012; Lawler & Bilson, 2010).

The quantitative aspects of the CREANOV A project aimed to understand the factors and conditions that promoted creativity and innovation, to investigate whether learning enhanced creativity and to consider whether the project findings were transferable from the Creative and Technological sectors to other fields (e.g. multi-professional children’s services; Davis et al., 2012). The literature review enabled the project to pose a number of hypotheses including the proposition that formal and informal learning stimulated creativity, that creativity was related to freedom, and that creativity was dependent on interrelation working, diversity and socio-cultural exchange (Davis et al., 2012). The survey enabled us to examine the key factors involved in creativity and innovation as set out in Appendix Tables 1, 2 and 3.

Appendix Table 1 demonstrates that the CREANOV A project found a relationship between environment, learning, freedom and interaction. It was concluded that creativity was stimulated by opportunities to: experience supportive organizational structure; participate in formal and informal learning; interact with colleagues and to attempt new things without fear of repercussion (Davis et al., 2011). Two kinds of supportive environments were identified: Environment 1 which involved organizational characteristics including work spaces design, goals, managerial styles, rules/frameworks, etc.; and Environment 2 which involved perceived organizational creativity, that is, workers’ perception of the extent to which their organizational culture was creative and the extent to which they were able to collectively put into practice their ideas, learning and knowledge.
The findings contradicted the idea that creativity is an individual act associated with especially intelligent individuals (Misztal, 2007; Saracho, 2002; Sawyer, 2012; Sternberg, 2003). Indeed, they supported the contrary idea that creativity is a collaborative activity that is dependent on context (Csikszentmihalyi, 1996; Misztal, 2007; Sawyer, 2012; Sefton-Green, 2000). The finding that creativity is a collaborative activity could be used to support the qualitative opinion of several authors identified in section two who have argued that creativity flourishes in schools when learning is collaborative, involves co-creation and enables collective knowledge production (Corner, 2012; Faulkner & Coates, 2011; Popkewitz & Bloch, 2001).

Linear regression (a statistical approach that enabled us to explain the relationship between variables and causal explanations) enabled a multiple correlation coefficient ($R = 0.629^a$, $R^2 = 0.396$). This suggested that, when looking across all the variables together (environment, training, interaction freedom, etc.), the variables were highly related and could be used to predict how creative and innovative an environment would be. Our statistical tests also suggested that we may have missed out some important variables. Comparison of the survey questions with the qualitative findings indicated that our literature review had missed out some important factors that foster creativity such as ‘stickability’ (the individual and collective determination to get the job done) and collaborative design processes (which one respondent explained was the glue that brought creativity and innovation together and ensured that an idea led to an outcome). These factors appear to support the suggestion that creative ‘flow’ is an intense process and that there is much to be gained (e.g. sense of self-confidence, esteem and interconnectedness) from children and young people being involved in creative planning and design processes.

Various statistical tests (e.g. ANOVA significance test of whether the findings were random or not, coefficient analysis and correlation scores; Table 3) showed social interaction was a key component of creativity and that the higher the social interaction in an environment, the more creative and innovative it was. Correlation scores also illustrated the complex web of interrelationships between factors. It was found that Environment 1 organizational structure was not strongly correlated with freedom or learning on innovation. This suggested that some factors co-existed without influencing each other and it was concluded that you could have freedom to be innovative even when your organization had formal rules.

There at first appeared to be a tension between the finding that the more freedom that exists in an environment the more social interaction, creativity and innovation occurred and the finding that collaboration was stimulated by organization frameworks, rules and structures. However, we realized that this finding answered the question set out in section two of this article that queried whether structures can support creativity and whether freedom was more important than structures. It suggested that creativity will occur as long as the structures (e.g. rules) are flexible enough so as not to suppress people’s opportunities to think and act creatively. We concluded that both freedom and structures can support creativity and that we should not assume that one can exist without the other.

This conclusion leaves us in an interesting position with regards to performance indicators and outcomes in children’s services and schools. Seddon (2008) argues that you can set targets and aims as long as it is the people who use the service that define the targets and as long as you adapt targets based on incoming management data. The CREANova project findings suggested that such flexibility won’t hinder creativity but that rigid rules, top-down policies and technocratic approaches might. This finding is supported by writing on children’s learning that has argued that structures don’t always prevent play and in fact can sometimes stimulate
opportunities to experiment with, invent and create, different ways of knowing (Brooker & Edwards, 2010).

The CREANOV A project encourages us to ensure that the frameworks around childhood are flexible enough to enable creativity and innovation. Recent developments regarding the Curriculum for Excellence in Scotland give a hint that it may be possible to develop a curriculum framework that is flexible enough to support childhood confidence, creativity and innovation. The CREANOV A project findings suggest that if that framework remains as flexible as is intended in the policy document then its potential to deliver positive change will be high.

Conclusion

The CREANOV A project involved governmental partners from Scotland, The Aquitaine and The Basque Country and culminated in a collaborative conference in Bilbao which examined the implications for various contexts and sectors. A central aim of the project was to connect learning from the survey concerning the creative and technical sectors to learning from the experiments concerning how to stimulate creativity and innovation in informal and formal educational settings. A further aim of the project was to consider the projects implications for other sectors such as schooling and social care. This article has sought to connect writing on creativity and schools to the findings of the CREANOV A project to encourage professionals in schools who seek to be more creative in their practice to question the power dynamics in such settings. Its findings can give support to people involved in schooling who have always resisted rigid, performance, test-based and hierarchical approaches to education. The CREANOV A project findings have been utilized in this article to demonstrate the benefits of adopting approaches that value diversity, promote dialogue and foster flexibility/complexity. Ironically, the article has utilized statistics to challenge those who use performance statistics to oppress others. In doing so, it has demonstrated the need to be just as open to different types of research as to different forms of education and learning. This article has sought to demonstrate a connection between writing on multi-professional working that promotes strengths-based working, literature on creative pedagogy that is concerned with social justice and the CREANOV A project findings which challenge top-down risk averse hierarchies within an organization. It has posed questions concerning the extent to which freedom, structures, rules and frameworks enable creativity and concluded that creativity will flourish as long as we adopt flexible approaches to learning that are adaptable to everyday occurrences, cultural diversity and the aspirations of learners.

Acknowledgements

The research which underpins this article was supported by the European Commission’s Education, Audiovisual and Culture Executive Agency (EACEA) Grant 143725-LLP-1-2008-1-ES-KA1-KA1SCR. Professor John M. Davis led the research analysis work package on this project and one of his roles involved identifying the implications of the project findings for learning institutions. He wishes to acknowledge the support he received from Nic Bizas and Stephen Farrier when leading the research and report writing aspects of this project and recognize the input of the other CREANOV A project partners to the research process.

Appendix

In Appendix Table 1 the score for each question is drawn from a ‘principle component analysis’ technique that gives a weighting for how strongly a specific question (e.g. how innovative would you rate your organization) correlates to a factor e.g. (organizational innovation – Environment 2). Hence, a high number (close to 1.00) next to a question suggested a strong correlation.
## Appendix Table 1. Principle Component Analysis

<table>
<thead>
<tr>
<th>Environment 1 Goals, policy &amp; management</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 To what extent is your work place influenced by organizational goals?</td>
<td>0.759</td>
</tr>
<tr>
<td>23 How influential are managers in your work place?</td>
<td>0.653</td>
</tr>
<tr>
<td>24 To what extent is your work place influenced by policies, rules and regulations?</td>
<td>0.581</td>
</tr>
<tr>
<td>43 To what extent is your work influenced by deadlines?</td>
<td>0.524</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment 2 Perception of how creative/Innovative:</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>52 How innovative would you rate your organization?</td>
<td>0.868</td>
</tr>
<tr>
<td>22 How creative would you rate your colleagues?</td>
<td>0.863</td>
</tr>
<tr>
<td>53 How innovative would you rate your colleagues?</td>
<td>0.862</td>
</tr>
<tr>
<td>21 How creative would you rate your organization?</td>
<td>0.847</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning 1 Learning on creativity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 How experienced are you with training on team/group creativity, e.g. CARE, innovative team profiling, joint problem solving, etc.?</td>
<td>0.907</td>
</tr>
<tr>
<td>17 How experienced are you with training on individual creativity, e.g. thinking skills, self-expression, self-evaluation, motivation, communication, therapy, art, etc.</td>
<td>0.893</td>
</tr>
<tr>
<td>19 How experienced are you with training on the management of creativity?</td>
<td>0.849</td>
</tr>
<tr>
<td>16 How much experience have you of training on creativity?</td>
<td>0.845</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning 2 Learning on Innovation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 How experienced are you of training on the theory of innovation?</td>
<td>0.909</td>
</tr>
<tr>
<td>49 How experienced are you of training on management of innovation?</td>
<td>0.906</td>
</tr>
<tr>
<td>50 How experienced are you of training on individual innovation?</td>
<td>0.898</td>
</tr>
<tr>
<td>51 How experienced are you of training on team/group innovation?</td>
<td>0.892</td>
</tr>
<tr>
<td>46 How much experience have you of training on innovation?</td>
<td>0.849</td>
</tr>
<tr>
<td>47 How experienced are you of training on the theory of innovation?</td>
<td>0.909</td>
</tr>
<tr>
<td>20 How experienced are you with training on the theory of innovation?</td>
<td>0.786</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Freedom</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 How autonomous (free to make choices) are you at work?</td>
<td>0.858</td>
</tr>
<tr>
<td>40 How influential is personal initiative in your work place?</td>
<td>0.787</td>
</tr>
<tr>
<td>42 How much influence do you have over your timetable?</td>
<td>0.657</td>
</tr>
<tr>
<td>45 To what extent is your work place hierarchical (involve top down decision-making)?</td>
<td>0.617</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 To what extent do workers share the same values in your workplace?</td>
<td>0.795</td>
</tr>
<tr>
<td>37 To what extent does humour, fun and enjoyment influence your work place?</td>
<td>0.698</td>
</tr>
<tr>
<td>30 To what extent is your work place influenced by processes of staff review and feedback?</td>
<td>0.675</td>
</tr>
<tr>
<td>35 How influential are issues of equality and diversity in your work place?</td>
<td>0.661</td>
</tr>
<tr>
<td>31 How usual is team work where you work? e.g. shared goals, aims, solutions etc.</td>
<td>0.634</td>
</tr>
<tr>
<td>36 To what extent do workers participate in shared social activities?</td>
<td>0.623</td>
</tr>
<tr>
<td>34 How influential is communication in your workplace?</td>
<td>0.605</td>
</tr>
</tbody>
</table>

Factor analysis was conducted on the survey data. Table 2 demonstrates the sampling adequacy, e.g. a score of .50 or above for the Kaiser-Meyer-Olkin test demonstrates that factor analysis can go ahead. A low score in the Bartlett’s test means that the variables are correlated. The Total Variance Explained column indicates whether the survey analysis explains all the potential variables or whether other questions could have been asked to establish other variables.
**Appendix Table 2.** Factors for creativity and innovation, environments, learning, freedom and interaction

Tests of sampling adequacy, sphericity and variance by factor

<table>
<thead>
<tr>
<th>Factor</th>
<th>Kaiser-Meyer-Olkin</th>
<th>Bartlett's test (p &lt; 0.05)</th>
<th>Total variance explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment 1 organizational goals, policy and management</td>
<td>.603</td>
<td>.000</td>
<td>40.414%</td>
</tr>
<tr>
<td>Environment 2 perceived creativity and innovativeness of organization and colleagues</td>
<td>.666</td>
<td>.000</td>
<td>73.970%</td>
</tr>
<tr>
<td>Learning 1 Training on creativity</td>
<td>.815</td>
<td>.000</td>
<td>76.381%</td>
</tr>
<tr>
<td>Learning 2 Training on innovation</td>
<td>.909</td>
<td>.000</td>
<td>76.442%</td>
</tr>
<tr>
<td>Freedom</td>
<td>.667</td>
<td>.000</td>
<td>54.166%</td>
</tr>
<tr>
<td>Interaction</td>
<td>.826</td>
<td>.000</td>
<td>45.238%</td>
</tr>
</tbody>
</table>

**Appendix Table 3.** Correlation scores between factors

<table>
<thead>
<tr>
<th></th>
<th>Environment 1 Goals etc</th>
<th>Environment 2 Creative</th>
<th>Learning 1 on Creativity</th>
<th>Learning 2 on Innovation</th>
<th>Interaction</th>
<th>Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment 1 Goals etc</td>
<td>–</td>
<td>0.24</td>
<td>0.13</td>
<td>–</td>
<td>0.28</td>
<td>–</td>
</tr>
<tr>
<td>Environment 2</td>
<td>0.24</td>
<td>–</td>
<td>0.36</td>
<td>0.32</td>
<td>0.56</td>
<td>0.46</td>
</tr>
<tr>
<td>Learning 1</td>
<td>0.13</td>
<td>0.36</td>
<td>–</td>
<td>0.80</td>
<td>0.35</td>
<td>0.20</td>
</tr>
<tr>
<td>Learning 2</td>
<td>–</td>
<td>0.32</td>
<td>0.80</td>
<td>–</td>
<td>0.32</td>
<td>0.12</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.28</td>
<td>0.56</td>
<td>0.35</td>
<td>0.32</td>
<td>–</td>
<td>0.39</td>
</tr>
<tr>
<td>Freedom</td>
<td>–</td>
<td>0.46</td>
<td>0.20</td>
<td>0.12</td>
<td>0.39</td>
<td>–</td>
</tr>
</tbody>
</table>

**References**


