

Creative Dimensions of Teaching and Learning in the 21st Century

Jill B. Cummings and
Mary L. Blatherwick (Eds.)

Foreword by Kieran Egan

**Creative Dimensions of Teaching and Learning in the
21st Century**

ADVANCES IN CREATIVITY AND GIFTEDNESS

Volume 12

Series Editor:

Bharath Sriraman, The University of Montana, USA

International Advisory Panel:

Don Ambrose, Rider University, USA

David Chan, The Chinese University of Hong Kong

Anna Craft[†], University of Exeter, UK

Kristina Juter, Kristianstad University College, Sweden

James C. Kaufman, University of Connecticut, USA

Kyeonghwa Lee, Seoul National University, Korea

Roza Leikin, University of Haifa, Israel

Peter Liljedahl, Simon Fraser University, Canada

Paula Olszewski-Kubilius, Northwestern University, USA

Larisa Shavinina, University of Quebec, Canada

Editorial Assistant:

Claire Payne

Scope:

Advances in Creativity and Gifted Education (ADVA) is the first internationally established book series that focuses exclusively on the constructs of creativity and giftedness as pertaining to the psychology, philosophy, pedagogy and ecology of talent development across the milieus of family, school, institutions and society. ADVA strives to synthesize both domain specific and domain general efforts at developing creativity, giftedness and talent. The books in the series are international in scope and include the efforts of researchers, clinicians and practitioners across the globe.

Creative Dimensions of Teaching and Learning in the 21st Century

Edited by

Jill B. Cummings

Yorkville University, Canada

and

Mary L. Blatherwick

University of New Brunswick, Canada



SENSE PUBLISHERS
ROTTERDAM/BOSTON/TAIPEI

A C.I.P. record for this book is available from the Library of Congress.

ISBN: 978-94-6351-045-5 (paperback)

ISBN: 978-94-6351-046-2 (hardback)

ISBN: 978-94-6351-047-9 (e-book)

Published by: Sense Publishers,
P.O. Box 21858,
3001 AW Rotterdam,
The Netherlands
<https://www.sensepublishers.com/>

All chapters in this book have undergone peer review.

Printed on acid-free paper

All Rights Reserved © 2017 Sense Publishers

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

TABLE OF CONTENTS

Foreword <i>Kieran Egan</i>	ix
Acknowledgements	xiii
Introduction	xv
Overview of the Book	xvii
1. Understanding Creativity <i>Philip A. Lambert</i>	1
2. Time to Learn with Creativity in Mind <i>Paul Syme</i>	23
3. Developing Creativity and Imagination by Accumulating Lots of Useless Knowledge <i>Kieran Egan</i>	37
4. Re-Imagining Relevance in Education <i>Gillian Judson</i>	47
5. Creative Development in Teacher Education: When You Dress Educators up, They Need a Place to Go <i>Robert Kelly</i>	59
6. Identity Text Projects: Generating Academic Power in Multilingual Classrooms <i>Jim Cummins, Burcu Yaman Ntelioglou, Gail Prasad and Saskia Stille</i>	69
7. The Art of Cultivating Clever Questions to Empower Students, Improve Teaching, and Open up the Curriculum <i>Samuel LeBlanc</i>	77
8. Creative Practices in the Observation of Everyday Life: The Crack in the Door That Invites a Creative Vision <i>Gerald C. Cupchik</i>	91
9. Back to the Garden: Coming to Our Senses <i>Mary L. Blatherwick and Jill B. Cummings</i>	99

TABLE OF CONTENTS

10. Enhancing Education: Material Culture, Visual Media, and the Aesthetics of Teachers' Lives <i>Adrian McKerracher, Anita Sinner, Erika Hasebe-Ludt, Carl Leggo, Kerri Mesner and Dustin Garnet</i>	107
11. Autobiographical Creation: A Powerful Professional Development Strategy for Teachers <i>Antoinette Gagné, Sreemali Herath and Marlon Valencia</i>	117
12. Art Matters: An Advocacy Experience for Teacher-Candidates <i>Elizabeth Ashworth and Kathy Mantas</i>	131
13. Integrating the "Human Feel" into Online Second/Additional Language Teaching Approaches <i>Geoff Lawrence</i>	139
14. The Zone of Proximal Development and the Twin Poles of Teaching and Assessing in Vygotsky's Developmental Education <i>Matthew E. Poehner</i>	151
15. <i>Digiart</i> and Human Rights: New Media Visual Art Integration for Teacher Candidates or Avoiding the Information, Communication Technology (ICT) Vacuity Using Visual Art Education Infusion <i>Joanna Black</i>	163
16. Card Tricks Discovery Learning and Flow in Mathematics Teacher Education <i>Peter Liljedahl</i>	175
17. Imagining Alberta's First Nations <i>Belinda Jamieson</i>	181
18. The Importance of Art in Children's Writing Education <i>Leslie Julia Brewster</i>	189
19. De-Constructing Cabinets of Curiosity: Learning to Think Historically in Community History Museums <i>Cynthia Wallace-Casey</i>	197
20. Cultivating Creativity <i>Susan Galbraith</i>	209
21. STEM and a Framework for Learning <i>Ian Fogarty and Christopher Lee Ryan</i>	219

TABLE OF CONTENTS

22. Conceptualizing and Implementing Critical Filmmaking Pedagogies: Reflections for Educators <i>Matthew Rogers</i>	229
23. European Ideas in Education <i>Eleni Karavanidou</i>	239
24. Using Experiential Learning to Engage Aboriginal Students in the Visual Arts Classroom <i>Margaret Sadler</i>	245
25. Web-Based Arts Education: Creativity in the Classroom <i>Heather McLeod and Marlene Brooks</i>	253
26. Play and Learn: Build Your Robot and Learn Science, Technology, Engineering, and Mathematics (STEM) <i>Ahmad Khanlari</i>	261
27. Bringing Imagination and Literacy Circles into the Math Classroom: A Humanistic Approach <i>Sylvie Morice</i>	269
28. Glyffix Play: A Modern Image-Based Form of Language Play <i>Dale Vandenborre</i>	277
29. Tutoring Second Language Learners within Their Zone of Proximal Development: Recommendations for Changes in University Writing Center Pedagogy <i>Ally A. Zhou and Xiaomin Hu</i>	287
30. Assessing Creativity in the School Classroom <i>Robin Beyea</i>	295
31. Language Acquisition through Personal Story Writing: A Learner Book Project <i>Lorraine Lasmanis</i>	301
32. A Creative Process: Using Songwriting to Develop Creativity <i>Trevor Strong</i>	307
33. From Research Technique to Classroom Activity: Adapting Elicited Imitation as a Grammar-for-Speaking Task <i>Michael Busch</i>	315
34. Caring for the Whole Person in the EAP Classroom <i>Snezhana Harizanova</i>	321

TABLE OF CONTENTS

35. Strategies to Engage and Transform Teacher Learners in an Online Course <i>Antoinette Gagné, Sreemali Herath and Marlon Valencia</i>	331
About the Contributors	345

KIERAN EGAN

FOREWORD

In the late 1960s I was moonlighting from my studies at Stanford by working for the IBM Corp. This was a period when IBM was expanding hugely and seemed to have money to burn. One reason the company was so successful was tied to its attention both to its employees as well as its customers. Also, at this time of selling its huge mainframe computers into companies across the world, the company attended closely to details and cutting costs where possible. I was merely a consultant working in Los Gatos and San Jose one day a week, but I learned a lot about the company one way or another, especially as one of my jobs was to write a history of IBM using the new Structural Communication programming format. The attention to employees and to detail came together one day when I met a man who had been given a significant bonus for coming up with a simple suggestion. Even in big mainframe computers, space was crucial and, of course, costs were crucial. One component fixed firmly to the frame of their new System 360 was held in place with four small screws. The creative suggestion was to fix the component onto a smaller triangular base, which ensured it was no less secure, and required only three screws and freed up a small amount of space.

IBM's motto at the time was, and still is, "THINK." Most executives had a plaque on desks or walls with THINK shouting at them all day. Well, "think" was what the creative employee did coming up with the suggestion that saved one screw and a tiny amount of space in each System 360 computer. By giving him a bonus the company was not primarily concerned with how much this innovation saved – though that was hardly irrelevant. Mainly they were rewarding and trying to stimulate the daily activity of their employees, alertness to possibilities and creativity in thinking about them as part of their corporate culture. This focus on "Creativity" is still vivid for IBM, and is highly relevant today as the Introduction to this book indicates.

Well, this may be a somewhat lumbering way to make a point about what this book is centrally concerned with. We want administrators, teachers, and students in our educational systems to be alert to possibilities and to be creative in addressing them. The IBM motto was "think" and they meant by it what we might mean by "think creatively", "think imaginatively," "think critically", etc. etc. If we were to use a Venn diagram to chart the overlapping meanings of most of the slogans used in Education for the past century we would, I am sure, find a huge overlap among them. Basically, we want people not simply to go through life in some automatic way, responding to their environments at the least challenging

intellectual level required, but we want them to self-trigger their thinking into the higher level that all those slogans point towards. While learning, in particular, we want students to *think*. This simple attempt to engage students' imaginations in what they learn has also been described in endless ways, discouraging "rote-learning," (while having to carefully distinguish this from "learning by heart" which can be immensely valuable), discouraging "formal learning" (as distinct from "natural learning"—that's one of Dewey's distinctions), "filling a bucket" rather than "lighting a fire," avoiding "brain dumping," "banking," "irrelevance to students' needs," and so on. Occasionally, it can seem that there has been little educational thinking for the past century apart from struggling to come up with new metaphors for the same thing then making the same old arguments in terms of the new metaphor.

But, unfortunately, it does seem to be constantly necessary to make the case again and anew. One of the enemies of effective teaching and learning is simply the routineness of the classroom. Routine activity is one of the great enemies of creative thinking, and we are creatures who seek and rely on routine as often as possible. J. G. Bennett (in *Creative Thinking*, London: Coombe Springs Press, 1975) described what he called "The Law of Mental Declension," which stated that we perform every task at the lowest intellectual level possible. A corollary is that we try to make every task we are faced by as simple as possible as quickly as possible. Take driving a car. Initially, when we are learning to drive, we have to be extremely attentive to every movement and action. As we become more efficient we attend less and less at a conscious level until, eventually, much of our driving activity takes place at an automatic level that requires very little conscious attention. Bennett argues that this "law" operates for students in school as well, so that they will address any challenge at the lowest level possible. For many students much of the time, the greatest challenge they face is simply to be able to show the teacher they know what is going on in the classroom in case they are asked a question. Bennett uses his "law" to argue for presenting challenges that require students to attend and work intellectually at a high conscious level.

Bennett suggests that we aim to perform any task we are faced with by employing the least amount of intellectual energy possible; we strive to make every task as easy as possible, and engage it at that "Automatic" level. For other tasks, we have to be more aware, however, and so we need to remain at a "Sensitive" level of awareness and alertness to be able to handle any unexpected features of the activity at hand. For these tasks we need to be sensitive to what is going on. The next level is that at which we respond to challenges as synthetic thinkers or critical inquirers. Bennett calls this form of thinking and learning "Conscious" because we need a more complex and acute awareness of wider contexts and dimensions of the task at hand to deal with it adequately.

In classrooms, teachers ideally want Conscious learning – what in this book and in everyday discourse is usually called "creative" learning, in which new ideas and facts can be brought together with knowledge already grasped to form new

FOREWORD

combinations and spark new ideas. Using Bennett's model as a kind of heuristic, we can see the purpose of providing appropriate challenges to students, and ourselves as teachers, is what generates the degree of intellectual energy students will give to learning.

Well, this book addresses exactly this aim. The readings that follow provide a fantastic resource for administrators, teachers, and professors of education who want ideas for how to go about ensuring that classrooms much more commonly show creativity in action, and lead to greater creativity in students' thinking and behaviour, such that it becomes a habit of mind over the years and through their adulthood. The book deals with all curriculum areas, from arts to STEM, and contains a wealth of ideas for use in all grade levels. I think our schools would show a significant daily improvement if this book was a part of the library of all administrators, teachers, and professors of education and was regularly consulted.

Kieran Egan

ACKNOWLEDGEMENTS

There are many people to thank for their assistance in developing this book. It took a dedicated community of educators to whom we are thankful.

We particularly want to extend our appreciation to the contributors and authors of each of the chapters for sharing their creative ideas for teaching/learning and for their patience.

We are very grateful to Eleni Karavanidou for her attention to detail and dedication to this project. Eleni assisted with the editing process while completing her doctoral studies at the University of New Brunswick.

We also want to acknowledge the support of the team of Sense Publishers, particularly Jolanda Karada.

We are grateful to our universities, Yorkville University and the University of New Brunswick, as well as the Canadian Society for Education through Art (CSEA), for their recognition and funding support of the proofreading and final phases of publication of our book.

We are particularly appreciative of Dr. Kieran Egan, Professor Emeritus, Simon Fraser University, for his foreword explaining the significance of this work and his recommendation of this book to educators and administrators.

INTRODUCTION

Creative Dimensions of Teaching and Learning in the 21st Century will appeal to the many educators across disciplines who want to develop teaching practices that promote creative and critical thinking.

During our extensive experience in teacher education we have experienced “first hand” the need for a current and engaging scholarly text which will facilitate critical discussion of innovation in teaching, as well as share a wide range of creative approaches and practical strategies.

Creativity and critical thinking are 21st century challenges for educators. They are addressed in this book by educators who have designed and implemented solutions that have worked with learning groups at every level of education.

In the thirty-five original chapters that follow you will hear from experienced educators – mainly from across Canada and the United States. They focus creatively on conceptual and practical solutions for contexts ranging from mathematics to music; aboriginal wisdom to arts education; and, social justice to STEM. These approaches and projects facilitate deep learning connected to issues vital in education today – engagement, creativity, identity, relevance, collaborative learning, dynamic assessment, learner autonomy, multi-modal literacy, sensory learning, aesthetics, critical thinking, digital tools, teacher education, online learning, and more.

As editors, we have invited contributions by experienced educators and researchers who share their passion for teaching and learning in a collection that critically examines innovations in today’s K-12 schools, post-secondary programs, and adult and community learning.

To teach creatively the educator needs to think, discuss, and act creatively. By examining, discussing, implementing and adapting the approaches presented in this book, we believe that you as educators will develop your own creative thinking and pedagogies. And your creativity and innovations will transform teaching and learning in the 21st century.

OVERVIEW OF THE BOOK

SECTION I FRAMEWORKS AND ISSUES

Chapter 1

Understanding Creativity by Philip Lambert (University of New Brunswick – UNB). Lambert explains frameworks for understanding creativity, seeing different approaches to creativity as pieces of a whole, rather than separate and conflicting points. The author addresses a question fundamental to this book: “Can we teach and learn *creativity*?”

Chapter 2

Time to Learn with Creativity in Mind by Paul Syme (UNB). The author explains temporal and spatial conditions that influence creative thinking and learning. Syme highlights that creative processes always need *space*, and discusses why these spaces need to be treated differently in our digital era. He proposes how curriculum and schooling need to be refocused to optimize creative thinking and learning in this digital age where our temporal and spatial spaces differ from previous times.

Chapter 3

Developing Creativity and Imagination by Accumulating Lots of Useless Knowledge by Kieran Egan (Simon Fraser University – SFU). Challenging the division between imagination and rationality in the curriculum, Egan recommends and explains an innovative approach, *Learning in Depth*, by which learners accumulate a great deal of detailed knowledge about a specific topic to shape the mind and fuel their creativity.

Chapter 4

Re-Imagining Relevance in Education by Gillian Judson (SFU). Judson advocates for revisiting the notion of “what is relevant in learning” in terms of “emotional” significance in order to engage students’ emotional and imaginative lives in our teaching.

Chapter 5

Creative Development in Teacher Education: When You Dress Educators Up, They Need a Place to Go by Robert Kelly (University of Calgary). Kelly aims to enhance teachers’ creative capacities as an underlying issue in education. This chapter explains ways to refocus teacher education to facilitate creative development.

OVERVIEW OF THE BOOK

Chapter 6

Identity Text Projects: Generating Academic Power in Multilingual Classrooms by Jim Cummins (University of Toronto – UT), Burcu Yaman Ntelioglou (Brandon University), Gail Prasad (University of Wisconsin), Saskia Stille (York University – York U.). These authors bring “identity” to the forefront as an issue for education, engagement in learning, and creativity. Their chapter examines the use of technology as an amplifier of “identity texts” to empower students from social groups whose languages, cultures, and backgrounds may have been previously devalued, often for generations, in the wider society, and to help project their identity back to them in an affirming light through their creative writing and texts.

Chapter 7

The Art of Cultivating Clever Questions to Empower Students, Improve Teaching, and Open Up the Curriculum by Samuel LeBlanc (UNB). LeBlanc discusses the benefits of asking quality questions to “flip the classroom” and produce challenging learning situations. He explains how he implements this questioning approach in the post-secondary classroom.

Chapter 8

Creative Practices in the Observation of Everyday Life: The Crack in the Door that Invites a Creative Vision by Gerald Cupchik (UT). The author explains how he provokes students in a university Social Sciences course to think critically about their discipline and the professional and cultural standards that “bind it”.

Chapter 9

Back to the Garden: Coming to Our Senses by Mary Blatherwick and Jill Cummings (UNB and Yorkville University). The authors examine how sensory experiences enhance imagination, play, and creativity. They explain this through the lens of sociocultural theory-based approaches featuring sensory activities and aesthetics for enhancement of creativity in learning and teaching.

Chapter 10

Enhancing Education: Material Culture, Visual Media, and the Aesthetics of Teachers’ Lives by Adrian McKerracher (University of British Columbia – UBC), Anita Sinner (Concordia University), Erika Hasebe-Ludt (University of Lethbridge), Carl Leggo (UBC), Kerri Mesner (UBC), Dustin Garnet (UBC). This chapter examines how material and popular culture communicated through the arts (film, television, literature, photography, life writing) contribute to critically advancing discourses that improve practice in teacher education.

Chapter 11

Autobiographical Creation: A Powerful Professional Development Strategy for Teachers by Antoinette Gagné, Sreemali Herath, and Marlon Valencia (UT).

Applying forms of autobiography creates multiple spaces for teachers to reflect on who they are and how this impacts their practices along the teacher education continuum.

Chapter 12

Art Matters: An Advocacy Experience for Teacher-Candidates by Elizabeth Ashworth and Kathy Mantas (Nipissing University). The importance of the advocacy of arts education is featured in this chapter. Ashworth and Mantas present Art assignments used in their teacher education courses to reach out to and promote thinking about the value of “the Arts” amongst the academic community.

SECTION II CREATIVE APPROACHES

Chapter 13

Integrating the “Human Feel” into Online Second/Additional Language Teaching Approaches by Geoff Lawrence (York U.). The author explains how educators may create engaging language learning environments in blended and online settings where connectivity amongst students becomes a catalyst for learning. Approaches and examples of e-learning strategies to build engaging language learning communities are explained.

Chapter 14

The Zone of Proximal Development and the Twin Poles of Teaching and Assessing in Vygotsky’s Developmental Education by Matthew Poehner (Pennsylvania State University). Dynamic assessment brings the Zone of Proximal Development (ZPD) into focus in learning to diagnose and promote learner abilities while making use of the social dynamics within the group to change classroom practices across the curriculum. Illustrative examples from the field of second language (L2) education are discussed.

Chapter 15

Digiart and Human Rights: New Media Visual Art Integration for Teacher Candidates by Joanna Black (University of Manitoba). Black explains human rights issues in art education explored through digital technologies and activities in teacher education. She presents powerful examples of creative work bearing witness to teacher candidates’ sensitivity to social challenges such as women’s right to education.

Chapter 16

Card Tricks Discovery Learning and Flow in Mathematics Teacher Education by Peter Liljedahl (SFU). The author explains how to implement discovery learning to create a “flow” experience which fosters creativity in learning and teaching mathematics.

OVERVIEW OF THE BOOK

Chapter 17

Imagining Alberta's First Nations by Belinda Jamieson (UNB). Employing storytelling “re-enchants” teaching and learning. The author discusses how telling stories and aboriginal myths engage learners.

Chapter 18

The Importance of Art in Children's Writing Education by Leslie Julia Brewster (New Brunswick). Encouraging children to tell their stories with pictures before they write enhances art and writing in teaching 21st century literacies.

Chapter 19

De-Constructing Cabinets of Curiosity: Learning to Think Historically in Community History Museums by Cynthia Wallace-Casey (University of Ottawa). A series of creative activities in museums develops an active learner community of inquiry amongst middle school learners.

Chapter 20

Cultivating Creativity by Susan Galbraith (New Brunswick). Critically examining practices for developing creativity, Galbraith invites teachers to use Art as “another way of seeing” in order to bring out students’ innate creative abilities in a classroom setting.

Chapter 21

STEM and a Framework for Learning by Ian Fogarty and Chris Ryan (New Brunswick). Fogarty and Ryan present an innovative assessment model for high school physics classes. In addition to bridging the gap between research and practice, their implementation of this approach highlights how 21st Century learning goals can be integrated into public education classrooms in a way that is individualized.

Chapter 22

Conceptualizing and Implementing Critical Filmmaking Pedagogies by Matt Rogers (UNB). Rogers addresses social justice issues with youth in schools through participatory filmmaking. This chapter exposes critical perspectives and issues involved in participatory film-making pedagogy. Rogers recommends questions to be incorporated to implement reflection on critical arts-based activities.

Chapter 23

European Ideas in Education by Eleni Karavanidou (UNB). Karavanidou explains an award-winning project by European school libraries working with print and digital materials to create a cross-cultural bridge between students’ countries that revitalizes the love of reading.

Chapter 24

Using Experiential Learning to Engage Aboriginal Students in the Arts by Margaret Sadler (UNB). Sadler proposes a collaborative model in a multicultural classroom context where educators work alongside their students within their First Nations communities to engage all students.

Chapter 25

Web-Based Arts Education: Creativity in the Classroom by Heather McLeod (Memorial University) and Marlene Brooks (Thompson Rivers University). Aesthetic design and multimodal experiential learning are featured in this account of an award-winning online Master's course that engages graduate student participants in deep learning and professional growth.

Chapter 26

Play and Learn: Build Your Robot and Learn STEM by Ahmad Khanlari (UT). Khanlari showcases innovations in using robotics to create authentic learning environments where difficult STEM subjects become a game and students are knowledge-builders.

SECTION III EXAMPLES FROM THE CLASSROOM AND BEYOND

Chapter 27

Bringing Imagination and Literacy Circles into the Math Classroom by Sylvie Morice (New Brunswick). With the help of Egan's storytelling framework, Morice brings imagination into classrooms to successfully merge the curriculum with the interests of students and their multiple intelligences.

Chapter 28

Glyffix Play: A Modern Image-Based Form of Language Play by Dale Vandendorre (UNB). In his modern version of pictorial hieroglyphics, the author – as “A.J. Funn” – combines technology and “gamification” to wrap language play into a modern visual puzzle language where “readers” and “writers” alike communicate, enjoy, and learn creatively.

Chapter 29

Tutoring Second Language Learners within Their Zones of Proximal Development: Recommendations for Changes in University Writing Center Pedagogy by Ally Zhou and Xiaomin Hu (Oklahoma City University). An innovative pedagogical approach based on sociocultural theories of learning is explained for university writing centres and their tutoring of second language learners. This entails assessing learners' ongoing needs dynamically and incorporating graduated and contingent

OVERVIEW OF THE BOOK

assistance within their zone of proximal development to help them self-regulate and to become independent writers.

Chapter 30

Assessing Creativity in the School Classroom by Robin Beyea (UNB). The author identifies gaps in old and new ways of assessing creativity, and proposes a task-specific system of assessment that incorporates both product and process, metacognitive skills, and qualitative observation.

Chapter 31

Language Acquisition through Personal Story Writing: A Learner Book Project by Lorraine Lasmanis (Waterloo). Lasmanis explains a creative project for adult learners of English as a Second Language (ESL) and Adult Literacy that empowered students to make their own course book.

Chapter 32

A Creative Process: Using Songwriting to Develop Creativity by Trevor Strong (Queen's University). An experienced musician and art-educator, the author describes techniques of song-writing for students that may unlock creativity in other domains as well.

Chapter 33

From Research Technique to Classroom Activity: Adapting Elicited Imitation as a Grammar-for-Speaking Task by Michael Busch (Saginaw Valley University). The author proposes an innovative way to make use of elicited imitation in teaching post-secondary learners of a second language. This strategy is based on research teaching methodology.

Chapter 34

Caring for the Whole Person in the EAP Classroom by Snezhana Harizanova (York U.). This educator uses *Suggestopedia*, G. Lozanov's alternative language teaching method, in a North American setting to engage the postsecondary L2 language learner holistically by taking into account facets and needs of the person that other language methods may ignore.

Chapter 35

Strategies to Engage and Transform Teacher Learners in an Online Course by Antoinette Gagné, Sreemali Herath and Marlon Valencia (UT). An online environment supports teacher learners in becoming more creative and reflective through completion of innovative activities such as blogs, videos, and cartoons dialogues that push them to "stretch" beyond their comfort zones.

PHILIP A. LAMBERT

1. UNDERSTANDING CREATIVITY

INTRODUCTION

Over 40 years ago, Paul Torrance (1970) commented that “Children are so accustomed to the one correct or best answer that they may be reluctant to think of other possibilities or to build up a pool of ideas to be evaluated later” (1970, p. 86). Despite his best efforts, and the efforts of many others, creativity scores are declining in the United States (Kim, 2011). Could North America be losing a creativity race? A race we may not even know we are in? A race that may be more important than most of us realize?

In *A Whole New Mind* Daniel Pink (2006) argues that the “advanced” world is undergoing a shift from the information age to a conceptual age and that it is inventive, creative, and empathetic people who will thrive in this new world. “The most creative among us see relationships the rest of us never notice. Such ability is at a premium in a world where specialized knowledge work can quickly become routinized work – and therefore be automated or outsourced away” (p. 135). James Kaufman and his colleagues (2008) noted in *Essentials of Creativity Assessment* that “because creativity, specifically the ability to solve problems creatively, is so universally useful, its relationship to any construct or aspect of human life is worthy of study” (p. 126). It seems to be universally acknowledged that creativity is a desired trait; it is the most used – over used? – word in LinkedIn profiles. According to Erick Schonfeld in *The Rise of the ‘Creative’ Class* (2011): “In a time of high unemployment when traditional skills can be outsourced or automated, creative skills remain highly sought after and highly valuable. We all want to be part of the creative class of programmers, designers, and information workers. The term used to mean artists and writers. Today, it means job stability” (in Florida, 2011, n.p.).

Most mainframe computer manufacturers disappeared in the space of about a year; the entire life cycle of the video rental business was barely more than two decades¹; publishers of printed works have either reinvented themselves, or died; the music industry has been transformed, seemingly overnight; commonplace products, such as the thermostat and the smoke detector, are being given a new lease on life through enhanced functionality, coupled with an improved user interface and attention to aesthetic appeal, and they’re commanding amazing price premiums for getting it right²; the once proud Canadian technology giant – Nortel – is now but a memory, and Blackberry seems destined to follow; cars are becoming entertainment centres and communication hubs that can also get you where you want to go, while

P. A. LAMBERT

looking great doing it. “Innovate or die” isn’t just a catchy slogan. It seems that everywhere you look these days the business landscape is littered with the burned-out hulks of those companies that didn’t see change waves coming – even when they were tsunamis – or couldn’t move quickly enough, or just weren’t innovative enough. Their death and decay stands in sharp relief, starkly contrasting with their high-flying slayers; the rising stars – or, possibly, shooting stars... time will tell – of the corporate jungle. So, it should come as little surprise that an IBM survey of 1,500 CEOs from around the world found that creativity was the number one factor that had to be instilled throughout an organization in order to be successful (IBM, 2010). These CEOs valued creativity over management discipline, integrity, even over vision.

In *Rise of the Creative Class – Revisited* Richard Florida (2012) suggests that we are undergoing a change at least as dramatic as the industrial revolution:

It wasn’t just the Internet, or the rise of new technologies, or even globalization that were upending our jobs, lives, and communities, though all those things were important. Beneath the surface, unnoticed by many, an even deeper force was at work – the rise of creativity as a fundamental economic driver, and the rise of a new social class, the Creative Class. (p. vii)

But it’s not just corporations and the economy that need and value creativity. The human race faces global issues unprecedented in scope, scale and complexity. Complex political, social, resource, and environmental issues demand our most creative solutions, or entire societies – if not the entire human race – may go the way of the mainframe computer. Karpova, Marckett, and Barker (2011) concluded that “Creativity becomes the focus when preparing current students and future citizens to deal with uncertainty and to adapt to continuous change both personally and professionally” (p. 53), and Csikszentmihalyi (1996) noted that “for better or for worse, our future is now closely tied to human creativity” (p. 4). Arnold Toynbee in *Is America Neglecting her Creative Minority?* said:

This is all-important, because the outstanding creative ability of a fairly small percentage of the population is mankind’s ultimate capital asset... the work of creative spirits is what gives society a chance of directing its inevitable movement along constructive instead of destructive lines. (in Taylor, 1988, pp. 112–113)

So much of what makes life worth living are creative pursuits. Csikszentmihalyi (1996) found in his research that “When people are asked to choose from a list the best description of how they feel when doing whatever they enjoy doing most... the answer most frequently chosen is ‘designing or discovering something new’” (p. 108). He went on to conclude that “Even though personal creativity may not lead to fame and fortune, it can do something that from the individual’s point of view is even more important: make day-to-day experiences more vivid, more enjoyable, more rewarding” (p. 344). In summing up their conclusions about creative endeavours Scott,

Leritz, and Mumford (2004) stated that “Few attributes of human performance have as much impact on our lives, and our world, as creativity” (p. 361). In discussing beliefs and misconceptions about creativity Sawyer (2012) noted: “Creativity is a healing, life-affirming activity. This belief is supported by the research” (p. 409).

If creativity could be the factor that keeps us all alive, and figures prominently in making life worth living, it follows that we should want more of it. But, is creativity a genetic gift bestowed upon some fortunate souls while others are left wanting, or is it something that can be nurtured in all of us? Can creativity be taught? Can it become, for each of us, an endless renewable resource that can be tapped into at any time? These are the questions that this review seeks to explore.

This review purposely took a broad view, casting a wide net in order to, perhaps, allow previous attempts at practical application to inform the theoretical. That is, to see if the research concerned with implementing creativity enhancement techniques paints enough of a picture for an existing creativity theory to emerge from the partially completed brush strokes, or if another picture may be emerging on creativity’s canvas.

Challenges

“Solomon (1990), drawing from survey data, found that 25% of the organizations employing more than 100 people offer some form of creativity training” (in Scott, Leritz, & Mumford, 2004, p. 361). The perceived need for creativity has led to a proliferation of creativity enhancement programs, yet the research has not kept pace, leading to the potential for creativity “snake oil salesmen” and wasted time and resources (Puccio, Firestien, & Coyle, 2006). Some creativity enhancement methods have become quite popular, even with little research to support their use; for example, de Bono’s *Parallel Thinking and Lateral Thinking* (Sternberg & Lubart, 1999, p. 5). On the other hand, many approaches that appear to offer a great deal of potential are virtually unheard of outside of academic circles, and some with great potential are rarely discussed even amongst creativity researchers.

One of the reasons that research on the enhancement of creativity has not kept pace with the rise in the number of programs may be the challenges inherent in the study of the enhancement of creativity. Particularly troublesome have been the definition of creativity and the assessment of creativity.

Definition

While most creativity researchers agree that the standard definition of creativity requires both originality and effectiveness, this definition leaves open the definition of the terms *originality* and *effectiveness*. It also does not address the question of who is to judge *originality* and *effectiveness*, or how (Runco & Jaeger, 2012).

Many creativity researchers differentiate levels of creativity by categorizing people or their creative products as either Big C or little c. But creativity is not a

dichotomy, being either big or little – any more than it has three states – none, a little bit (little c), or a lot (Big C). There is a wide range of creativity unaccounted for between these dichotomies. The addition of “Pro c” and “mini c” (Kozbelt, Beghetto, & Runco, 2010) only confound the matter, resulting in more definitions of creativity. Creativity exists on a continuum (Amabile, 1996). If it were to be assigned an absolute scale from 0 to 100, 0 might represent the creativity of a rock, while 100 might represent the creativity of the primordial intelligence (or whatever conception of ‘god’ one may have... or whatever next best concept of the ultimate creative force one’s less-than-100-on-this-creativity-scale creative brain can come up with...) and creative theorists could spend countless hours discussing where the likes of Michelangelo, Da Vinci, and Einstein should fall on this scale – or, for that matter, where Big C, little c, pro c and mini c should land on this ultimate creativity scale. But this paper was written with more practical matters in mind. So, while I agree with Amabile’s (1996) definition:

A product or response is creative to the extent that appropriate observers independently agree it is creative. Appropriate observers are those familiar with the domain in which the product was created or the response articulated. Thus, creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something so judged is produced. (p. 33)

There is also value in Plucker, Beghetto & Dow’s definition (2004): Creativity is “the interaction among *aptitude, process, and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*” (p. 90).

It should be clear that, if a definition of creativity cannot be agreed on, it makes it challenging to assess. And if you can’t assess creativity, how can you tell if a four-hour seminar on parallel thinking, or a two-semester course covering meta-cognition and creative problem-solving, along with other cognitive techniques and real-world exercises, actually do what they claim to do – enhance creativity?

Assessment

While there are issues related to the definition of creativity, many researchers have agreed that a creative idea or product is one which is *novel* or *original* and *useful, adaptive* or of *value* (Carson, 2010, p. 5). However, even if this definition of creativity is accepted, assessment remains an even more contentious issue. Torrance and Guilford have been advocates of simple tests that can be easily administered in a classroom setting and evaluated by anyone who takes the time to become familiar with the evaluation method. Other approaches have included personality inventories, biographical inventories, and behavioural tests.

Creativity research has been hampered by what is referred to as the criterion problem. “An absolute and indisputable criterion of creativity is not readily available

(there is no one, single magic number or test)” (Kaufman, Plucker, & Baer, 2008, p. 53). This led Amabile (1977, 1996) to develop the Consensual Assessment Technique (CAT). The CAT consists of a number of judges, familiar with the domain in question, independently evaluating and ranking creative works.

While Amabile originally felt that the assessors did not have to be experts in the domain, they merely needed to be familiar with it (Amabile, 1977), years later she concluded that experts were required (Hennessey & Amabile, 2010). However, it seems that, in practice, CATs were being performed with domain experts all along (Kaufman et al., 2008), presumably because other researchers always felt there was a need for the assessors to be experts.

Amabile’s CAT is considered one of the most effective means of assessing creativity (Kaufman et al., 2008).

This particular method has been used extensively in creativity research. Because (a) it is based on actual creative performances or artifacts; (b) it is not tied to any particular theory of creativity; and (c) it mimics the way creativity is assessed in the ‘real world,’ the CAT has sometimes been called the ‘gold standard’ of creativity assessment (Carson, 2006, p. 55).

While the CAT may mimic the way creativity is assessed in the real world, it does not mimic the way creative products are developed in the real world. The laboratory-like conditions and/or approach to these studies leaves little room for intrinsic motivation.

With respect to application of the CAT, Kaufman et al. (2008) state that “if you really don’t care about the domain, then the choice of task is especially easy. You want a task that anyone can do at some level and that will not favour any group of subjects inappropriately” (p. 72). In this review of the literature, it appears that the creative efforts being asked of the participants (most often poetry writing or collage making) would typically favour groups of students inappropriately. The creative math or science student may not perform well on either of these common CAT tasks, and while some participants may be intrinsically motivated by these tasks, others would not be.

Amabile’s research has indicated that extrinsic constraints tend to lower creativity scores, while intrinsic motivation tends to lead to increases in creativity. Yet there does not seem to be any CAT-based creativity research where the participants are given a choice in the task. Why not allow most (or more) participants to be intrinsically motivated by giving them choices; not just on the task performed, but also on the time when the task is completed and how long is spent on the task? Allowing for a choice in domain and choice regarding time should reduce any possible confounding effect of intrinsic motivation.

The CAT has been used with a diverse range of tasks, but Kaufman et al. (2008) conclude that “the artifacts still must be of the same kind, however (e.g., poems, or all collages, or all stories). You cannot mix different kinds of artifacts and have expert judges produce meaningful comparative ratings of creativity. (To do so would be rather like asking which is more fruity, apples or oranges.)” (p. 67). I disagree.

Of course, we can compare apples and oranges – the former tend to be red or green, while the later are usually orange. We could compare apples and oranges on many different levels: colour, acidity, texture, sweetness, growing environment, etc. Similarly, the creativity of van Gogh's *Starry Night* could be evaluated and compared to the creativity of Walker's *The Color Purple*. One may question the validity and reliability of such a survey, but the comparison is possible.

Amabile's approach can be more time consuming and challenging to implement. The studies employing this approach use simplistic creative products which may not be representative of real-world creativity, and the subject only has the opportunity to be creative in one domain, which may not be the domain in which they feel most comfortable expressing their creativity. While the Torrance Tests for Creative Thinking (TTCT) give subjects multiple ways to express their creativity, the exercises do not require real-world creativity and many authors claim that TTCTs are only tests of divergent thinking, which may be a necessary, but not sufficient, ability for creativity. The TTCT also does nothing to evaluate usefulness, or value. While Amabile's approach doesn't explicitly evaluate usefulness, there is an implied *value* when a panel of independent judges evaluates a product as creative.

Regardless of the pros and cons of various approaches, the TTCT is the most commonly used measure of creative potential. Having a history of over fifty years, it has been used in many thousands of studies and it has a norms database based on tens of thousands of subjects. It is also the basis of a large longitudinal study spanning fifty years.

Given the popularity of this approach, its evaluation categories are referred to frequently in the literature and therefore they are defined here. Torrance, Ball and Safter (2008) provide the following:

- Verbal: the verbal TTCT is composed of written responses to questions posed about an illustrated scene in the response booklet.
- Figural: the figural TTCT consists of constructing pictures based on partially completed pictures, lines, or shapes, and giving the completed picture a title.
- Fluency: "the number of ideas a person expresses through interpretable responses that sue the stimulus in a meaningful manner" (Torrance, Ball, & Safter 2008, p. 5).
- Flexibility is a measure of the subject's tendency to "break-set" or resist inertia in thinking and is scored based on the number of categories used in responses.
- Originality "is based on the statistical infrequency and unusualness of the response" (Torrance, Ball, & Safter, 2008, p. 7).
- Elaboration is a measure of the tendency to go beyond the minimum required.

Cognitive Approaches

Given the wide range of factors that have been shown, or theorized, to have an effect on creativity, it is not surprising that a multitude of programs have been developed to

enhance creativity; however, the vast majority of these have been cognitive programs related to the creative process. Some of the more popular of these are reviewed here, while less common cognitive approaches, and those lacking in research studies, are briefly discussed at the end of this section.

Brainstorming

In 1938, Alex Osborn began developing techniques to enhance idea generation at his advertising firm. He had found that, on their own, individuals were not coming up with the quantity, or quality, of ideas he felt they were capable of, and that conventional meetings seemed to be hampering idea generation (Amabile, 1996; Osborn, 1952, 1963).

Osborn formalized his observations as a set of rules for an idea generation technique and coined the term *brainstorming*. Osborn (1952, 1963) published his set of rules for the now-famous technique in his seminal work *Applied Imagination*:

- Criticism is ruled out. Adverse judgment of ideas must be withheld until later.
- “Free-wheeling” is welcomed. The wilder the idea, the better; it is easier to tame down than to think up.
- Quantity is wanted. The greater the number of ideas, the more the likelihood of useful ideas.
- Combination and improvement are sought. In addition to contributing ideas of their own, participants should suggest how ideas of others can be turned into better ideas; or how two or more ideas can be joined into still another idea (Osborn, 1963, p. 156).

In 1954 Osborn founded the Creative Education Foundation and in 1955 he began a collaboration with Dr. Sidney J. Parnes, which led to the Osborn-Parnes Creative Problem-solving Process (see next section). Osborn (1963) cites many examples of success with brainstorming, but he does not cite any scientific studies that specifically focused on brainstorming, largely because he viewed brainstorming as just one step in a larger process:

In summary, let’s put group brainstorming in its place. For one thing, it is only one of the phases of idea-finding which, in turn, is only one of the phases of the creative problem-solving process. And let’s bear in mind that group brainstorming is meant to be used – not as a substitute – but as a supplement. (p. 191)

On the other hand, Stein (1975, p. 37) notes that brainstorming is the most researched technique for creative problem-solving. The research clearly supports the notion that brainstorming results in more ideas than techniques that allow or encourage judgment or evaluation during idea-generation. However, in terms of the quality of ideas resulting from brainstorming, the results are less conclusive, with some research supporting brainstorming, while other research shows no improvement