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Creativity, Technology & Education: Exploring their Convergence

With Contributions by The Deep-Play Research Group

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Our history begins before we are born… our ancestors virtually live in us

~ James Nasmyth

For our grandparents
Jeje Bapa & Jeje Ma;
Aja & Aai

Elizabeth & Ralph Wargo
Jean & Christian Henriksen

The foundation of who we are today

Foreword

Creativity and technology are to blame for most of the world's current problems. Every new discovery can potentially lead to disaster. Without cars, for example, there would be no car accidents, far less pollution, and no deaths in wars over oil. Without Twitter and Facebook, there would not be demagogues elected into high offices through the use of "alternative facts," received through the echo chambers of carefully crafted social media feeds.

Actually, creativity is the sole source of disasters, disruptions, and damages to the environment and humanity, for it is human creativity that has led to the development of technology, which led to the disasters, disruptions, and damages that humanity suffers from today. Creativity is very bad. It should be banned.

But creativity cannot be easily banned because creativity is what makes humans human. It is a gift or a punishment, from either evolution or God (depending on who you ask). Every human is born with creativity, so that they learn to survive—just as every fish is born with the capacity to swim. So unless we can renegotiate the deal with evolution or God, human beings will always be creative. It cannot be banned in nature.

Creativity, however, can be suppressed. Though it is part of our nature, creativity can be suppressed, like all innate potentials, through *nurture*. Without water and light, an acorn's potential to become an oak tree is seriously reduced. Suppressing creativity in others has always been the goal of a few powerful and wealthy individuals in order to perpetuate their own power and wealth in human history. A variety of means, some very creative, have been employed to suppress creativity in the populace. Those who refuse to be suppressed can be silenced or exterminated through expulsion, jailing, crucifixion, or other extreme measures.

The most effective means to suppress creativity in modern days is schooling. In the name of education, which is supposed to help every individual grow their potential (including the creative potential), modern schools have been tasked with stunting creativity and reducing individual differences. Frederick the Great let out the secret intention of education: "An educated people can be easily governed" (cited in Jones, 2012, p. 87).

To effectively stunt creativity, modern societies have developed a sophisticated system of schooling that utilizes such features as uniform curricula, standardized testing, mechanized teaching, and dehumanized teachers, to ensure that the compliant are rewarded and encouraged and the ones who refuse to conform purged. Operating as and for a flawed meritocracy (Zhao, 2016), educational institutions reward the obedient with good grades, high scores in tests of prescribed subjects, admissions to (elite) colleges, and ultimately employment opportunities. The less compliant and perhaps more creative children, those who do not turn in their homework exactly the same way as expected by the teacher or those who cannot read by third grade, are labeled as students needing remediation, which literally means "the correction of something bad or defective" (according to Dictionary.com[1]).

Technology has often been employed to perfect this vision of suppressing creativity through schooling. Modern schooling is in essence a web of technology. In fact, schooling has continuously and constantly sought to improve itself with technological advances. With big data, cloud computing, artificial intelligence, and globally connected smart devices, technology can now help schools to do their job more effectively and efficiently. Uniform curriculum can be more easily imposed on all children across the globe. Standardized tests can be more efficiently scored for single correct answers and processed so children can be more easily labeled and sorted. More precise actions can be taken to spot deviation and deliver remediation as early and soon as possible through sophisticated tools such as learning analytics. It is becoming harder and harder for creativity to survive in this technology-centered educational system.

Ironically, creativity is the only thing human beings have to get out of the mess made by creativity. To solve the problems facing humanity today, human beings must be creative. The genie of creativity has escaped the lamp and cannot be put back. Thus we need more creative geniuses to mitigate the damages—to make cars safer, to power them with cleaner fuel, and to discover new ways to repair the environment. We also need more creativity to make better Twitters and Facebooks. But more importantly, we need more creative education to develop more creative people who can think independently and critically.

Human society, at this moment, cannot rely on just a few creative individuals. The challenges are too big and daunting. They require all members of the human race to be creative. Mass creativity is a necessity.

It is encouraging to see the rapidly growing interest in cultivating creativity for all. But it is disappointing to see governments continue to make schools improve its capacity for killing creativity, often using the most advanced technologies.

We need to rethink creativity, rethink schooling, and rethink technology in schools. This is precisely what Punya Mishra, Danah Henriksen, and their colleagues set out to do here. In a collection of beautifully written essays, Mishra, Henriksen, and the Deep-Play Research Group challenge myths about technology and creativity, debate time-honored instructional practices, and play with new ideas for schools to care for and nurture, rather than constrain, creativity. These essays are

[1] http://www.dictionary.com/browse/remediation

provocative yet solidly grounded in rational reasoning and sound evidence. They are refreshing and insightful and provide alternative interpretations of facts, but not alternative facts.

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Reference

Jones, C. D. (2012). *Inspirational Being*. Raleigh, NC: Lulu Publishing.

Acknowledgments

Other people and other people's ideas are often better than your own

~ Amy Poehler

Teamwork means never having to take all the blame yourself

~ Anonymous

If there is one thing that the study of creativity has taught us, it is that diverse perspectives, viewpoints, and collaboration are essential to the creative process. This book is no exception. There are a wide range of people without whose support, time, and creativity this book would not have existed.

First and foremost are the members of the *Deep-Play Research Group*—an informal group of faculty members and graduate students which originated at *Michigan State University* and now also include faculty and students at *Arizona State University* and *Iowa State University*. The chapters in this book are based on articles written by members of the group (under the leadership of the two authors) that appeared in the journal *TechTrends*, as part of a series titled *Rethinking Technology and Creativity in the 21st Century*. We have provided the names of specific authors of these original articles and a complete citation at the end of each of the chapters. For the record, the authors, in alphabetical order, are William Cain, Chris Fahnoe, Danah Henriksen, Megan Hoelting, Rohit Mehta, Punya Mishra, Carmen Richardson, Sandra Sawaya, Colin Terry, and Aman Yadav.

The editors at *TechTrends* deserve our gratitude for their support. This series was initiated under the editorship of Dr. Abbie Brown and has continued under the editorship of Dr. Dan Surry and Dr. Charles Hodges. We have greatly appreciated the freedom and support they have given us to explore and promote our thoughts and ideas in the pages of their journal. Thanks also to Dr. J. Michael Spector, Dr. M. J. Bishop, and Dr. Dirk Ifenthaler, series editors of the *SpringerBriefs in Educational Communications and Technology*, for agreeing to include this book in this series.

We also owe a debt to Dr. Yong Zhao, longtime friend and thought leader, for writing the foreword for this book. Readers of the foreword will immediately see why Zhao is so highly regarded for his refreshing independence of thought.

We would be remiss if we did not thank editors and others at *Springer Publishing* for all the work and effort they put into making this book a reality. What we naively thought was an easy task—taking our published articles and making them into a book—was anything but easy. This book would not have happened without their efforts. In particular, we owe a deep debt of gratitude to our project coordinator, Brinda Megasyamalan, for her efforts, grace, and perseverance.

A very special thanks to the latest member of the Deep-Play Research Group, Melissa Warr. Melissa read (and reread) each and every word of this book and brought both a persnickety attention to detail and a sense of the whole, helping convert this collection of articles into a coherent book.

One of the pleasures of academia is the opportunity it provides to work with colleagues and friends on ideas, large and small. The debt that the two of us (Punya and Danah) owe to each other cannot be put in words. Talking, ideating, writing, and editing the ideas that went into these chapters have been some of the best moments of our intellectual lives. That said, we, Punya and Danah, would also like to let readers know that any errors that can be found in these pages (and we are sure there are more than a few) are the responsibility of the other person.

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