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BOOK REVIEW

Inquiry and Innovation in the Classroom: Using 20% Time, Genius Hour, and PBL to Drive Student Success

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Juliani, A. J. (2015). *Inquiry and Innovation in the Classroom: Using 20% Time, Genius Hour, and PBL to Drive Student Success*. New York: Routledge. 300 pp. ISBN-10 0415743168. \$34.95 (paperback).

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A. J. Juliani's *Inquiry and Innovation in the Classroom: Using 20% Time, Genius Hours, and PBL to Drive Student Success* was published by Routledge as a part of their *An Eye on Education* series. The book addresses K–12 practitioners who are willing to try new approaches in their classrooms. Even though the title includes project-based learning (PBL), the book's eleven chapters are mostly dedicated to the concept of 20% time.

So what is 20% time really about? Students are given this amount of designated time to work on their own projects and ideas, with the intention of sparking innovation in the classroom. According to Juliani this gives students “the freedom to explore, create, and possibly change the world” (p. 19). Allowing 20% time aligns with Bring Your Own Device (BYOD) initiatives, since students might need to access multimedia and internet resources in their problem-solving time.

In the first chapter, Juliani presents statistics from the US Department of Labor predicting that today's high school students will have had 10–14 different jobs by the time they reach their late 30s. Moreover, 65% of these students will be working in jobs that have not yet been invented. Companies in the future will no longer be hiring full-time permanent employees; instead they will outsource, with a preference for short-term independent contractors. People who are able to survive in this environment, Juliani argues, will be the ones equipped with skills such as innovation, creativity, inquiry, and exploration. Our students will need to be self-directed and able to brand themselves to show they are capable of success in this new corporate world. As companies evolve, today's workers will have to constantly improve by keeping their skills up to date.

Even though times have changed, schools have kept the logic of preparing factory workers as the basis of their existence. Juliani posits that our schools are not changing fast enough to keep up with the changes in the world and thus lack the ability to prepare students to succeed in the 21st century.

The call for inquiry in K–12 curriculums started with John Dewey in 1910 (Barrow, 2006). Building on Dewey's ideas, Bell (2010) discusses the benefits of project-based learning and inquiry as follows: “Students flourish under this child driven, motivating approach to learning and gain valuable skills that will build a strong foundation for their future in our global economy” (p. 39). Even though inquiry is recommended by many studies and policies, today, classrooms still lack it (Barrow, 2006).

After framing the issues in terms of future jobs, the first chapter continues to describe what a “real classroom” should look like. The real classroom is the classroom where the real world is modeled. Bell (2010) reports that real-world connections in classrooms benefit students by helping them become better researchers, problem solvers, and higher-order thinkers. Accordingly, Juliani believes in the importance of real-world connections in classrooms in order to raise children who can keep up with the demands mentioned above. He provides examples of how the real world functions and then explains the ways teachers could reflect it in their classrooms.

In chapter 2, we learn that Google originally developed the concept of 20% time in order to offer its employees the time and opportunity to work on ideas and projects that would contribute to their professional development. Google's promotion of innovation and collaboration, through 20% time, resulted in new product launches such as Gmail, Google

News, Google Talk, etc. Google's founders, Sergey Brin and Lerry Page, went to Montessori schools that offered students individualized learning, hands-on experiences, exploration, and time for students to work at their own pace. Juliani reports that Brin and Page credited their early Montessori education for their success in starting and running Google. Juliani makes a case for educators to implement 20% time in their schools and classrooms by showing readers how inquiry and innovation paved the way for the creation of one of the most important inventions in internet history. To summarize chapters 1 and 2, if we want to prepare our students for the future, inquiry-driven learning and 20% time are a must.

In chapter 3, Juliani gives examples of children developing and organizing successful projects without 20% time just to prove that there are children who achieve the impossible without being given the optimal settings, but he encourages us to imagine what these children could be capable of if they were given the right opportunities for innovation. For instance, 5-year-old Phoebe raised almost \$4 million to help homeless men in San Francisco. Phoebe had to complete a community service project before graduating from kindergarten, and when she saw a begging homeless man, she decided to raise \$1,000. Even though her teacher tried to convince her to do something more reasonable, her project seemed to grow before people fully realized what was happening. Juliani believes that there are many kids doing the impossible with no one forcing them or telling them what to do. His point is that innovation does not happen when forced; we cannot foster innovation in classrooms by having teachers telling students what to do. He promotes 20% time because he believes that it gives students the opportunity to innovate and the ability to achieve the impossible without being forced.

Chapter 3 offers a "framework for innovation in education" that includes a number of helpful concepts. One is the notion of failure. Juliani believes failure brings growth. Teachers need to allow their students to fail, since it leads to student inquiry and allows them to create solutions. He also talks about other important items for innovation in classrooms: collaboration, inquiry, reflection, sharing, critical thinking, and on-demand learning. While these ideas are commonly referenced in relation to problem-based learning, Juliani presents them clearly as contributors to innovative student thinking.

The logic behind 20% time paves the way for project-based learning as well. Juliani presents research findings indicating project-based learning can improve motivation, attitudes toward learning, and work habits. Project-based-learning projects can be seen as compatible platforms for 20% time, since they help build skills of collaboration and connectivity. Individualized learning also comes out of 20% time. In order to offer students individualized learning, teachers might benefit from a Learning Management System (LMS), which extends

the classroom and allows learning to happen anytime and anywhere. He believes that today's generation has constant access to what we used to wait for; limiting educational experience to inside classroom walls will needlessly inhibit students' learning.

Since innovation cannot be forced on students, figuring out how to assess students' learning can get confusing. Juliani suggests looking at the growth of the students and their critical thinking abilities, rather than just assessing their final products. Critical thinking skills can be measured by observing the student's ability to find answers and create solutions. The GRIT (Guts, Resiliency, Integrity, and Tenacity) tool, first developed by Professor Angela Lee Duckworth at the University of Pennsylvania and later modified by College Track Program in San Francisco, is offered as a method for assessing students.

While 20% time is a promising method, there may be challenges when it comes to applying it to schools and classrooms. Chapter 4 examines these challenges. As a former teacher who used 20% time in his classroom, Juliani acknowledges these struggles and breaks them down into categories, offering solutions for each possible problem. He classifies teachers into three groups according to their possible reactions to 20% time and analyzes these each group separately.

The first group is identified as the "That's awesome" group. This is the group of teachers who are enthusiastic about learning how to implement 20% time in their classrooms without having any hesitations. For this group, Juliani gives tips for explaining 20% time to stakeholders and offers a rubric called the "Genius Hour Rubric," by Denise Krebs, a K-8 teacher.

The "That sounds great, but..." group consists of teachers who have many questions and are not sure if 20% time could really work. Juliani attempts to eliminate their concerns one by one. He explains why 20% time supports curriculum, is good for all students, and aligns with Common Core Standards, and he gives reasons why administrators and parents would want to get on board. As identified by Marshall, Horton, Igo, and Switzer (2007), teachers' perceived support for inquiry instruction can affect its implementation in their classrooms. To overcome the possible issues with support, Juliani gives tips for how to explain 20% time to students, parents, and administrators, while including his own experiences.

The last group includes those who think "That's crazy." This group includes teachers who think this project could never work. They believe that implementing 20% time in classrooms means lowering the bar for students. For teachers in the "That's crazy" group, Juliani suggests just finishing the book to see how 20% time has worked in other classrooms. Chapter 4 might be useful if you are a teacher considering using it in the classroom, but are not quite sure how it will fit.

Chapter 5 is geared toward elementary teachers and chapter 6 toward secondary teachers. In chapter 5 Juliani explains how to implement 20% time step by step, from preparing the

classroom, parents, and administrators, to collecting data and sharing the finalized products. The best part of this book might be the documents and case studies offered to teachers in these chapters. Juliani reports the experiences of teachers who used 20% time, as well as sample parent letters, rubrics, checklists, lesson plans, unit plans, handouts, and research reports showing outcomes. Teachers can benefit from the sample documents and step-by-step guides to apply 20% time in their classrooms.

Secondary students begin to think about life after school, and many struggle to find their passions. So in chapter 6, Juliani focuses on using 20% time to help these students to explore their true passions before graduating from high school. He also motivates teachers to participate in and benefit from 20% time along with their students. Juliani recommends that teachers use this opportunity to find their own passions in life, and he provides useful tips for helping students find these passions in life.

Chapter 7 is about how important it is for teachers to create connections. Building a professional learning network (PLN) is crucial to making changes in the world. Connecting with other teachers and educators is invaluable, and also results in the motivation to keep trying innovative methods. Juliani is a very resourceful and connected educator who is aware of the importance of being part of a PLN. He emphasizes how PLNs can keep teachers constantly improving and up to date in today's world. He shows how to build a network through social media and communities like Edcamp, which he also defines as "un-conferences" that "have agendas created by the participants at the start of the event" (p. 79). In addition, he also offers a guide on how to start an Edcamp-style in-service in Chapter 7.

Chapter 8 is reserved for guidance, in the form of tips and case studies, on preparing a school environment for 20% time. Juliani allocates chapter 9 to Common Core Standards and how they complement personalized learning. Common Core Standards do not dictate a specific curriculum but are generally supported by 20% time, and he shows how they can be used to support inquiry and innovation in classrooms. This chapter provides direct quotes from the Common Core Standards and coordinates them with specific features of personalized learning and eliminates any excuses imaginable that might keep teachers from jumping on board. In Chapter 11, Juliani offers various research reports that support the use of PLN and 20% time in classrooms for teachers who want to justify their cases.

Juliani's own experience enables him to offer insights from a practitioner's perspective. Speaking as an experienced school and district leader, he recommends that teachers just give it a try with less talking, more action.

Overall this book does a good job encouraging educators to start innovating from the bottom up instead of waiting for innovation to come from the top down. The book is a

valuable resource to practitioners seeking a way to bring innovation into the classroom and to change the way students learn, with substantial resources for teachers looking to enact 20% time in their classrooms. On the other hand, there is a lack of critical perspective. Juliani lists all kinds of reasons why we should use inquiry and innovation in classrooms but overlooks any opposite views or contrasting research such as Kirschner, Sweller, and Clark's (2006) critique of minimally guided instruction. These authors review the research findings in this area and argue for stronger student guidance. Critical theorists like Popkewitz (1998) place constructivism within a sociocultural context, with privileged schools adopting project- and problem-based learning more readily than schools serving disadvantaged populations. Juliani's lack of critical perspective stands in contrast to the book itself, which seeks to promote critical thinking in the classroom.

Inquiry and innovation in classrooms can in principle pave the way for greater achievement. On the other hand, presenting inquiry and innovation as the only solutions to our existing problems may not be the best way to solve them. As critical thinking would suggest, we need to approach all potential solutions with caution, considering all angles, constraints, and research perspectives as we adopt specific practices and teaching methods.

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