

*Moneyball and Public Schools*

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## Introduction

The statistics enabled you to find your way past all sorts of sight-based scouting prejudices: the scouting dislike of short right-handed pitchers, for instance, or the scouting distrust of skinny little guys who get on base. Or the scouting distaste for fat catchers.<sup>1</sup>

If you think you don't have enough money to prepare all students for post-secondary life, shouldn't you hire an economist? And why haven't you employed Brad Pitt to share important messages?

A review of Billy Beane's approach to cultivating talent for the Oakland A's baseball team uncovers several ideas that apply to the provision of public education in the United States. Michael Lewis chronicles Beane's methods in the book, *MONEYBALL* (2003) and a film version was produced in 2011. Beane's methods surely reached a broader audience thanks to Brad Pitt's portrayal of Beane in *Moneyball*.

Most local boards of education can relate to the fiscal straits in which Beane operated. Hopefully, all board members and district staff hate seeing students leave their care unprepared for postsecondary life as much as Beane hated losing. Like Beane, superintendents have constant talent shortages to address.

Though he wasn't given as much money as he would have liked, as general manager, Beane was allowed wide latitude to creatively meet the challenges a limited payroll created for the Oakland A's. Beane seemed to work according to the following principles:

1. Don't be afraid of getting results via different methods. Help everyone understand exactly what results you're seeking.
2. Find out who is making a difference (getting the results you seek) and get them on your team, regardless of their background.
3. Trust that adults (and youth) can learn new skills throughout their lives. If they're willing to try, provide the support they need to develop the skills your team needs to succeed.
4. Those adults who aren't able and/or willing to learn or change as needed to help the team succeed should be cut.

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<sup>1</sup> Michael Lewis *MONEYBALL: THE ART OF WINNING AN UNFAIR GAME* 38 (Norton & Co. 2004).

5. Retain fidelity to the model long enough to reliably critique its effectiveness.<sup>2</sup>

This paper provides examples of each of these principles, with suggested parallels in education. In the spirit of wanting to help students and adults read and think critically, this paper also includes and responds to arguments against applying some of the ideas (and their extrapolation by others) in Michael Lewis's biography of Beane to education. The paper concludes with a reminder to implement new approaches with fidelity and persistence.

### **I. What does this have to do with the law?**

“At the bottom of the Oakland experiment was a willingness to rethink baseball: how it is managed, how it is played, who is best suited to play it, and why.”<sup>3</sup> Beane's approach to creating and managing a baseball team defied the “laws” of baseball tradition. The scouts for the A's and other Major League Baseball teams had operated within those laws for over a century, and, as Lewis chronicles, seemed incapable or extremely hesitant to rethink either the ends they were pursuing or the means used to pursue those ends.

School leaders and teachers may feel similarly boxed in by laws or tradition masquerading as law. Presumably, the ability to rethink education: how it is conceived, how it is fostered, who is best suited to facilitate it, and why, is not prohibited by the law. Both the laws and the traditions are likely to have been created by policymakers or former leaders who are now (and may always have been) far removed from the education business of current leaders and teachers. We should do everything we can to help students succeed, within the statutory and regulatory space we have inherited. Then, when we have demonstrated success and find ways that amendments to applicable laws and regulations will help us expand that success, we should pursue them. Local boards of education probably can't afford to have Pitt portray the superintendent in public meetings. But local boards could do several things to motivate more people to contribute their knowledge, skills and passion to the board's work of educating the children of the community.

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<sup>2</sup> “‘Reforms are like London buses,’ one public servant told me in the 1990s: ‘It doesn't really matter if you miss one because there'll be another one along in a minute.’” Michael Barber, INSTRUCTION TO DELIVER 72 (2008).

<sup>3</sup> MONEYBALL at xiv.

## II. Great. Another education trend, marketed by a celebrity!

Data analysis is so trendy these days that Brad Pitt is getting millions of people to sit through a movie about quantitative methodology. . . . A lot of education reformers are calling for a similar approach to evaluate teachers and improve student performance. . . . But there are some significant strikes against a *Moneyball* approach to education.<sup>4</sup>

Applying *Moneyball* themes to public education requires peeling some fruit to ensure the comparison is apt and honestly useful. Andrew Rotherham's comments, blog posts by RiShawn Biddle,<sup>5</sup> and a paper by Bruce Baker, Ken Libby and Kathryn Wiley<sup>6</sup> provide cutting and useful criticism largely focused on three issues:

- Data: availability, quality and comparability in baseball and education;
- Varying degrees of respect for evidence in each arena; and
- The fact that the technical challenge is not nearly the entire game.

This paper will address each of these counterarguments in the discussion below.

## III. We just need more runs than the other team.

A run is a run is a run. In baseball, "everyone agrees that a run is when a player crosses home plate."<sup>7</sup> But, as Beane demonstrates, whether those runs come with one swing, two swings, or three swings and two walks ultimately doesn't matter. In education, Rotherham notes, "we still don't have common definitions about some really fundamental things. . . . Absent a consensus about what matters, faddishness prevails in public policy and the marketplace."<sup>8</sup> "What is clear," Biddle suggests, "is this: When you use data in a sophisticated way to shape instruction, curricula and the ability of families to be lead decision-makers in education, this allows for money to be spent more-wisely."<sup>9</sup>

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<sup>4</sup> Andrew J. Rotherham, *Can Education Be 'Moneyball'-ed?*, TIME Ideas (Oct. 14, 2011), available at <http://ideas.time.com/2011/10/14/can-education-be-moneyballed/> (last viewed Sep. 24, 2012).

<sup>5</sup> RiShawn Biddle, *Education's Sophistication Problem: Where "Moneyball" and Schools Meet*, (Sep. 29, 2011) available at <http://dropoutnation.net/2011/09/29/educations-sophistication-problem-where-moneyball-and-schools-meet/> (last viewed Sep. 24, 2012).

<sup>6</sup> Baker, B.D., Libby, K., & Wiley, K. (2012). *Spending by the Major Charter Management Organizations: Comparing charter school and local public district financial resources in New York, Ohio, and Texas*. Boulder, CO: National Education Policy Center, available at [http://nepc.colorado.edu/files/rb-charterspending\\_0.pdf](http://nepc.colorado.edu/files/rb-charterspending_0.pdf) (last viewed Sep. 24, 2012).

<sup>7</sup> Rotherham, *supra* note 3.

<sup>8</sup> *Id.*

<sup>9</sup> Biddle, *supra* note 4.

There are great schools that get around these challenges and use data in creative ways to serve students better. The examples run from low-tech “data walls” that use 3 x 5 cards to track student progress to New York City’s “School of One” that can instantly tell whether a student is ahead or behind the average for similar students in mastering a specific standard or skill. But improving data quality and the underlying culture of data and evidence in education is key to creating an environment where Moneyball-like tools can make a broad difference across our school system, not just in isolated pockets.<sup>10</sup>

States are improving—at different rates—in their collection of reliable, longitudinal data regarding individual student and school performance. However, as the Data Quality Campaign has documented,<sup>11</sup> state databases don’t always follow students through the system and into post-secondary education and work. Districts and states also rarely provide data in forms that are: useful for school leaders and teachers to improve instruction; for parents and students wanting to know how to progress and which setting is most likely to facilitate that progress; or for policy makers wanting to create an environment where excellence is identified and fostered.

Michael Lewis described the approach to building a team taken by Sandy Alderson, the A’s general manager for whom Beane first worked:

When Alderson entered the game he wanted to get his mind around it, and he did. He concluded that everything from on-field strategies to player evaluation was better conducted by scientific investigation—hypotheses tested by analysis of historical statistical baseball data—than by reference to the collective wisdom of old baseball men. By analyzing baseball statistics you could see through a lot of baseball nonsense.<sup>12</sup>

#### **IV. Who or what actually helps this student prepare for post-secondary success?**

Determining the factors of a player’s success or failure requires more than just watching. Not only do people “generalize wildly from [their] own experience,” and tend to be “overly influenced by a guy’s most recent performance,” Lewis explains, but they also suffer from a “bias toward what [they] saw with their own eyes, or thought they had seen. The human mind played tricks on itself when it relied exclusively on what it saw.”<sup>13</sup> Each time a team mistakenly

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<sup>10</sup> Rotherham, *supra* note 3.

<sup>11</sup> Data Quality Campaign, *Data for Action 2011*, available at [http://dataqualitycampaign.org/stateanalysis/executive\\_summary/](http://dataqualitycampaign.org/stateanalysis/executive_summary/) (last viewed Sep. 24, 2012). The DQC provides a helpful overview of what types of data are available, for whom it may be most useful, etc.: available at [http://dataqualitycampaign.org/files/dqc\\_ipdf.pdf](http://dataqualitycampaign.org/files/dqc_ipdf.pdf) (last viewed Sep. 24, 2012).

<sup>12</sup> MONEYBALL at 56.

<sup>13</sup> MONEYBALL at 18.

generalized, focused exclusively on recent performances or unblinkingly relied on observation “was a financial opportunity for someone who saw through the illusion to the reality.”<sup>14</sup>

In education, making these mistakes doesn’t present a financial opportunity for another team, but it does close a window of opportunity to help a student overcome obstacles to a relatively happy, healthy life. And some of those windows closed unwittingly now may never again open for students. According to Lewis, Bill James determined that “the statistics [baseball had relied on for nearly a century] were not merely inadequate; they lied. And the lies they told led the people who ran major league baseball teams to misjudge their players, and mismanage their games.”<sup>15</sup>

New Dorp High School in New York approached turning around the performance of its students in a manner Beane might have appreciated. As outlined in a recent article, a large majority of New Dorp students arrived below grade level and 40 percent dropped out.<sup>16</sup> Principal Deirdre DeAngelis conducted initial research to determine that poor writing skills were affecting students’ performance in most subjects.<sup>17</sup>

She and the teachers conducted more research and found specific skill gaps that needed to be filled. For example, many students didn’t even know how to use words like “although.”

A lightbulb, says Simmons, went on in her head. These 14- and 15-year-olds didn’t know how to use some basic parts of speech. With such grammatical gaps, it was a wonder they learned as much as they did. “Yes, they could read simple sentences,” but works like the Gettysburg Address were beyond them—not because they were too lazy to look up words they didn’t know, but because “they were missing a crucial understanding of how language works. They didn’t understand that the key information in a sentence doesn’t always come at the beginning of that sentence.”<sup>18</sup>

Just as Beane realized that scouting traditions were hindering a “poor” team’s ability to win games, DeAngelis and her team found that curriculum design and pedagogical traditions of

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<sup>14</sup> *Id.*

<sup>15</sup> MONEYBALL at 67.

<sup>16</sup> Peg Tyre, *The Writing Revolution*, The Atlantic (Oct. 2012), available at <http://www.theatlantic.com/magazine/archive/2012/10/the-writing-revolution/309090/> (last viewed Sep. 26, 2012).

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

the last two decades were based on faulty assumptions, and revisions to education laws shifted the focus away from writing.<sup>19</sup>

Scharff, a lecturer at Baruch College, a part of the City University of New York, kept pushing, asking: “What skills that lead to good writing did struggling students lack?” She urged the teachers to focus on the largest group: well-behaved kids like Monica who simply couldn’t seem to cobble together a paragraph. “Those kids were showing up” every day, Scharff said. “They seem to want to do well.” Gradually, the bellyaching grew fainter. “Every quiz, every unit test, every homework assignment became a new data point,” Scharff recalled. “We combed through their writing. Again and again, we asked: ‘How did the kids in our target group go wrong? What skills were missing?’”<sup>20</sup>

Finally, the leader and teachers looked in an unusual place for a solution: a small private school with a \$45,000 annual tuition. And the solution was actually an old one:

The Hochman Program, as it is sometimes called, would not be unfamiliar to nuns who taught in Catholic schools circa 1950. Children do not have to “catch” a single thing. They are explicitly taught how to turn ideas into simple sentences, and how to construct complex sentences from simple ones by supplying the answer to three prompts—*but*, *because*, and *so*. They are instructed on how to use appositive clauses to vary the way their sentences begin. Later on, they are taught how to recognize sentence fragments, how to pull the main idea from a paragraph, and how to form a main idea on their own. It is, at least initially, a rigid, unswerving formula.<sup>21</sup>

New Dorp’s students made dramatic strides in various subjects, participated in more dual credit or dual enrollment courses and graduated at higher rates following the implementation of this writing program.<sup>22</sup>

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<sup>19</sup> *Id.* Though the No Child Left Behind revisions to the Elementary and Secondary Education Act required testing in some areas but not in writing, the law did not require schools to devote less attention to writing.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> *Id.* “Pass rates for the English Regents, for example, bounced from 67 percent in June 2009 to 89 percent in 2011; for the global-history exam, pass rates rose from 64 to 75 percent. The school reduced its Regents-repeater classes—cram courses designed to help struggling students collect a graduation requirement—from five classes of 35 students to two classes of 20 students.

“The number of kids enrolling in a program that allows them to take college-level classes shot up from 148 students in 2006 to 412 students last year. Most important, although the makeup of the school has remained about the same—roughly 40 percent of students are poor, a third are Hispanic, and 12 percent are black—a greater proportion of students who enter as freshmen leave wearing a cap and gown. This spring, the graduation rate is expected to hit 80 percent, a staggering improvement over the 63 percent.”

## V. Learning to play first base is really easy.

Scott Hatteberg was a catcher with a bum knee headed toward retirement when Billy Beane offered him a role as the A's first baseman. He was not Jason Giambi – his predecessor at first base. But, he was a piece of the puzzle that Beane put together and that manager Art Howe used on the field to produce wins. As RiShawn Biddle put it, “there is no silver bullet for the nation’s education crisis. It will take a myriad of solutions — including better and more sophisticated use of data — in order to improve the quality of instruction, curricula and leadership in order to help all of our children write their own stories. There is no need to denigrate one tool or particular focus. . . . [S]chool reformers will need all kinds of solutions and players in order to build schools fit for our kids.”<sup>23</sup>

Team and player chemistry matter on the field, and in the classroom. “Addressing the technical issues still only gets us halfway there.”<sup>24</sup> Watching this year’s Boston Red Sox, Rotherham was reminded that “better metrics won’t relieve managers of the need to manage in the education world any more than they will on the baseball field.”<sup>25</sup> Biddle explained that using data to spend more wisely and improve student achievement requires “overhaul[ing] how we recruit and train principals . . . and how we recruit and train aspiring teachers . . . [and] giving principals the ability to make tough decisions.”<sup>26</sup>

## VI. Show us the money!

There is money in front of the ball and a person behind it. For Beane to use different data or existing data in new ways, he had to have money and talent. If he had had more money, the A's might not only have led a revolution in the use of data for evaluating, selecting and deploying talent, they might also have a few more World Series trophies. RiShawn Biddle noted, “As seen in the case of Oakland, using data in sophisticated ways to identify talent and structure work can yield some success — and when used by a big-market franchise, can lead to even greater success.”<sup>27</sup>

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<sup>23</sup> Biddle, *supra* note 4.

<sup>24</sup> Rotherham, *supra* note 3.

<sup>25</sup> Rotherham, *supra* note 3.

<sup>26</sup> Biddle, *supra* note 4.

<sup>27</sup> Biddle, *supra* note 4. Since Beane’s approach started spreading around the league, teams with much higher payrolls continued to win the World Series. And Beane’s payroll stayed among the league’s lowest.

But as Beane illustrated, success doesn't only happen in large markets: large, urban systems or other systems with the most per pupil funding. Schools and districts willing to rethink how they pay teachers and school leaders can, in fact, use money as a means of attracting and retaining the best players, while simultaneously extending the impact of those teachers. Working with several partners, Public Impact recently compiled research on current practices and suggestions for other models of staffing and pay that could provide dramatically higher salaries without increased funding.<sup>28</sup>

In a paper comparing expenditures in chartered and non-chartered public schools in three states, Professor Bruce Baker, along with doctoral students Ken Libby and Kathryn Wiley, looked at what data was currently available, critiqued its comparability and reliability, and then proposed ways to move forward with the goal of improving allocation of resources to raise student achievement. Though their analysis was based on comparing spending in charter v. non-chartered public schools, their suggestions seem applicable to comparisons of any schools (regardless of governance type):

The road to painting a clearer picture of charter school spending and the “costs” of charter models should take two different but concurrent paths forward. First, we must continue to make strides in improving the precision with which we are able to compare marginal spending differences across organizational units like schools or districts. Put simply, we need more comparable spending measures. We need such measures in order to make more accurate judgments about the relative efficiency of charter schools and about the relative equity of their available resources. One cannot accurately compare the relative efficiency in producing student outcomes, of one set of schools to another, where the spending measure for one set of schools is incomplete or where the spending measure for the other set of schools may include expenditures on the children in the first set. Similarly, one cannot make reasonable judgments about resource equity across children attending different types of schools where resource measures are incomplete and beneficiaries of resources are unclear.

Second, beyond looking at average expenditure differences by schools we must also begin to dig deeper into understanding the cost structure of providing specific programs and services—most notably, those programs and services that *work*, or that make *successful* charter schools tick. Determining cost structure requires: breaking the expenditures down into their parts, rather than viewing them as a whole; figuring out which programs, strategies or reforms are *causing* improved outcomes; determining the ingredients of successful strategies—the people, materials, supplies, equipment, physical space, and time it takes to

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<sup>28</sup> Public Impact, *Building an Opportunity Culture for America's Teachers: Extending the Reach of Excellent Teachers*, available at <http://opportunityculture.org/> (last viewed Sep. 27, 2012).

implement these strategies; and then, calculating the cost of each factor and the cumulative cost of putting it all in place.<sup>29</sup>

## **VII. Cutting teachers isn't the same as releasing ballplayers.**

Consider the following example:<sup>30</sup>

The majority of students in the district's schools are achieving at impressive levels. But, the students at one school continue to languish, despite the hard work of the principal. The principal decided to keep most of the teaching staff despite being given authority to completely change the staff when she was hired to lead the school's turnaround three years ago. The school culture has improved dramatically. Students and their parents are supportive of the school's discipline policy, and instances of misconduct have been virtually eliminated. Parents and other community leaders were involved in the selection of the school leader and are currently very satisfied with her work. Unlike past years when leadership vacancies occurred, there are a number of strong candidates working in leadership residency programs at other district schools.

What do you do? Can you just walk into the school leader's office and say, "we have to release you," like the assistant general manager does in the movie version of *MONEYBALL*? She apparently is able to create an environment conducive to learning, but she appears not to have been able to lead the students, through their teachers, to academic success.

Teachers and school leaders are usually required by law to have employment contracts. Many states require that school leaders have performance contracts, and that all human capital decisions be made—at least in part—on the basis of performance. Assuming the school leader in this hypothetical had a contract that clearly articulated what was expected of her, and why (with student achievement being paramount), releasing her from her contract should be easier than in a situation where no such agreement exists. And, just as Beane illustrated by keeping Scott Hatteberg on the team because of his strength (getting on base), you could keep the school leader employed at the school level (as an assistant or co-principal) in charge of school culture, while hiring another leader with demonstrated ability as an instructional leader. You could even help the leader transition to a district role, helping all schools improve their learning environments.

Perhaps the way we work with other adults in public education is clouded by generally accepted modes of operation just as the assumptions we may have made about students has been

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<sup>29</sup> Baker, Libby & Wiley at 32.

<sup>30</sup> This example was adapted from a hypothetical question posed to school leaders applying for an Investing in Innovation grant in Tennessee in 2012.

separated from actual historical data. When Sandy Alderson arrived in Oakland and began requiring minor league teams to help players take more walks, he initially did not take the same approach with the major league manager, Tony LaRussa. Because he didn't, players who had become more disciplined hitters in the minors started swinging away once they got to the majors.<sup>31</sup> "There was," Lewis wrote, "no very good reason" that Alderson didn't march into LaRussa's office and say that if walks didn't increase, LaRussa would be fired. "It's just the way it was, because the guys who ran the front office typically had never played in the big leagues."<sup>32</sup>

"The hardest thing," Beane said, "is there is a certain pride, or lack of pride, required to do this right. You take a guy high [in the draft] no one else likes and it makes you uncomfortable."<sup>33</sup> It's rare that you find someone like the senior A's scout, Dick Bogard, who "had no visceral attachment . . . [to his] vast experience. He'd been in the game for nearly fifty years. He'd seen a lot, perhaps everything, *and he was willing to forget it*, if asked."<sup>34</sup>

### **Conclusion: Keep trying and don't be afraid of Jeter.**

Alderson and Beane's new approach to building a team took a while to pay off. As depicted in the movie, early in the season, critics saw the A's losing record as evidence that the model had failed. In education, new approaches are not always implemented consistently or for long enough to be fairly evaluated. By the end of the regular season, however, the results vindicated Beane.

Thankfully, in public education, there are no five game division series to kill the law of averages. In the playoffs, models built to prevail over the course of a 162 game season may not have enough time to play out to the team's benefit. Public education leaders, however, have years to help students be prepared for postsecondary success. But, if they don't have the staff with the right tools or working environments that cultivate the sought after results, even 13 years won't be enough to prepare many students for success.

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<sup>31</sup> MONEYBALL at 60.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.* at 39.

<sup>34</sup> *Id.* at 41 (emphasis added).