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Rewards in Secondary Schools

Adults can support adolescents' learning by helping them define goals, by suggesting learning strategies, by creating positive incentives, and by delivering aligned rewards.[1] Economic and psychological research makes clear that reward systems can significantly raise academic achievement levels and high-school graduation rates for adolescents.

A review of the literature reveals many reward systems that have successfully motivated adolescents to stay in school and remain focused on academic achievement. Some of these techniques were described in previous chapters and need only be adapted to middle- and high-school classrooms, while others involving tests and digital learning will be described in Part 3. The remaining reward systems fall into four categories: successful classroom techniques, paying for achievement, strategies for self-teaching, and incentives for non-college-bound students to graduate.

Classroom Techniques

Interest in school often declines in adolescence,[2] perhaps due to the incentives described earlier by Simon, the influence of "adolescent culture" described earlier by Coleman, or the confluence of adolescent hormones and popular culture that parents cannot fail to notice. This decline in academic interest sometimes leads students into self-destructive behavior.[3] Schools can help counter this tendency with a variety of classroom techniques that reward students who stay focused on their studies.

Schools can use some of the reward systems we described in the previous chapter while recognizing that students' human and social capital

grows as they acquire knowledge, skills, personal possessions, and reputation. Since the power of incentives to prompt effort depends on their size relative to students' current capital, rewards may need to change.[4] Older children and adolescents are more likely than elementary students to appreciate less-tangible rewards such as honor and attention from people they admire; expressions of trust, such as being able to use the family car or stay out later than normal for special occasions; and longer-term rewards, such as passing Advanced Placement exams and admission to elite universities of their choice. Older children are more sensitive to having input into their learning goals and are inclined to resist incentives they perceive to be exercises of arbitrary authority by adults.

Pam Grossman and her colleagues identified eight features of instruction that create positive incentives for achievement by middle-school students. They are listed in the table on the following page.[5]

These techniques underscore how using rewards in classrooms isn't restricted to "carrots and sticks" that may or may not reflect the wants and abilities of students. Instead, many of these techniques involve getting students to share with teachers what their real interests and goals are and thereby revealing the best ways to motivate them. The best reward systems require discovering students' motivations, not assuming them.[6]

Paying for Achievement

Access to money, even play money, becomes increasingly important as students get older and discover that meeting many of their wants requires having money. Part-time jobs begin to compete with school and homework as students enter middle- and high-school, making pay for academic achievement one way to fight back. However, this is not the only way and can fail to produce the desired results unless done carefully.

A particularly intriguing example of paying middle-school students is the Knowledge Is Power Program (KIPP), a nationwide collection of open-enrollment college preparatory schools commonly located in urban and poor communities.[7] These schools rely heavily on financial and non-financial rewards to motivate students who might not otherwise experience a rigorous education. KIPP students typically receive 60 percent more instruction than students at other schools due to a longer school day and attend mandatory summer school and a wide range of after-school activities. Keeping students focused during these long school days can be a special challenge.

Effective Classroom Techniques for Adolescents

- Describe the purpose of each educational activity, giving students reasons to want to do it rather than just being told to obey instructions from an authority figure.
- Promote activities as intellectual challenges, lifting them above just another chapter or assignment to an opportunity for discovery, mastery, or a way to make future activities easier.
- Explain key concepts in several different ways, recognizing that by middle school students' bases of knowledge and skills have evolved differently, resulting in different abilities to grasp concepts based on how they are presented.
- Connect new information to prior knowledge or personal preferences, showing that acquiring the new information fits into and increases a student's store of knowledge and therefore his or her "wealth."
- Use their own behavior as a model, since adolescents are highly attuned to evidence of hypocrisy by adults and increasingly want to be viewed as grown-ups.
- Include guided and deliberate practice in order to achieve automaticity and stored memory.
- Provide clear and detailed feedback so students know what is expected of them and when they have performed well so they are persuaded that a grade or disciplinary action is fair.
- Generate classroom discussion since shyness or defeatism can discourage adolescents from speaking directly to an adult teacher or being first to ask a question during class.

Source: Pam Grossman, Susanna Loeb, Julia Cohen, Karen Hammerness, James Wyckoff, Donald Boyd, and Hamilton Lankford, "Measure for Measure: The Relationship Between Measures of Instructional Practice in Middle School English Language Arts and Teachers' Value-Added Scores," *Working Paper 16015*, National Bureau of Economic Research, 2010. See the source for original phrasing of these points.

At the end of each week, each middle-school student receives a paycheck in "KIPP dollars" to reward effort, good behavior, and completed homework. KIPP dollars are not real dollars, can be used only within KIPP schools, and are used exclusively to reward effort and not for getting good grades or passing tests. Students' pay may be "debited" for misbehaving. The paychecks can be used to purchase notebooks, writing supplies, snacks, and more from a school store as well as the right to participate in field trips to such places as Washington, DC and the Grand Canyon.

According to one report on the reward system, "The Paycheck Program has achieved its primary goal, improving student behavior and communication between students and faculty. When the principal hands out the paychecks on Friday afternoon, positive conversations usually result. Reinforcement of the students' behaviors makes them think about consequences and better understand expectations, the staff members have said. Communication with parents has been amplified as well. Weekly feedback on a child's behavior prompts regular dialogue between parents and teachers."[8]

In an interview with PBS, KIPP co-founder Mike Feinberg explained why the schools use rewards and incentives. "Well, it goes back to the general premise that ... when you do the right thing, good things happen and when you do the wrong thing, bad things happen. I know it doesn't always work out that way in life but it usually follows that pattern and we want the kids to learn that valuable life lesson," Feinberg said.[9] He continued:

> [C]hildren who are at public schools ... don't feel the sense of earning things which we know exists beyond education out there in the real world. They're entitled to their desk, they're entitled to books, they're entitled to the breakfast and the lunch, they're entitled to have a teacher in front of them, they're entitled to be in a school building that's somewhere in their neighborhood. ... [W]ithout teaching the value that things need to get earned, you can create a situation where kids grow up thinking that this is going to keep happening, that they're going to be entitled to a college education, they're going to be entitled to become a lawyer, doctor, architect, engineer, whatever they want to do in this world.[10]

Strategies for Self-Teaching

When asked to determine the best ways to learn science, adolescents said they would learn more if teachers explained and showed the means of scientific inquiry and then let students try to conduct their own tests of theories.[11] Their interest in "self-teaching" is consistent with the economic theory of incentives since rewards can be smaller but still motivating if an effective strategy of learning lowers the cost (in time and effort) of acquiring something of value. Such self-monitoring and error correction will be quicker and more frequent than what a teacher, even a tutor, can provide.

Grossman and her colleagues, the source of the classroom techniques listed above, found students given explicit instructions on strategies for learning were most likely to experience boosts in achievement. The highest achievement levels were found among students whose teachers showed them how to plan their studying, monitor their own progress, and efficiently retrieve information that would be valuable for reviewing before tests or when tackling the next and higher level of learning.

Courses designed to teach young people the attitudes and habits necessary for high achievement include Brainology,[12] a set of classes for middle-school students developed by *Mindset* author and Stanford psychology professor Carol Dweck. The courses teach young people neuroscience focused on how their brains work and respond to certain study techniques, then outline and reinforce the study techniques themselves. Brainology is a blended learning class in which part of the instruction is conducted online through videos and interactive exercises and part is conducted in the classroom with a teacher and fellow students.

The popularity of robotic science programs such as Lego Mindstorms[13] illustrates the appeal of self-teaching. Students use kits containing gears, wheels, "servo motors with built-in rotation sensors," and other components to build robots. Schools and community organizations field Lego robotics teams that compete to see which team or individual can most quickly create a robot that can solve a particular challenge or set of challenges, such as navigating an obstacle course or swimming towards an underwater target.

Growing access to personal computers and the Internet is a boon for self-teaching. Several computer programs, for example, detect spelling and grammar errors. Regular use of these programs provides consistent and repetitive feedback to students to solidify correct writing practices. Students also can find and sign up for free online courses from organizations such as

Khan Academy[14] and circulate their work for comment and correction to teachers, students, and even newspaper editors and academics.

Teachers may recognize technology is transforming schooling but may not see how it is enabling a style of learning that rewards students who remain focused on academics. Students need to be steered away from mindless video games and other distractions and toward sites that help them accelerate their ability to learn new things, thereby making their time in school more likely to lead to graduation, post-secondary schooling, and a desired occupation. Chapter 10 addresses some of these new learning technologies in detail.

Incentives for Non-College-Bound Students

Chapter 3 summarized research showing the powerful effects of paying high-school students to pass Advanced Placement exams and providing college tuition for students who do well on rigorous curriculum-based examinations. But what about non-college-bound students who may be interested in working as soon as possible, some even before graduation? They may be sorely frustrated with their academic high-school experience. Their frustration can help explain dropout rates of 50 percent or higher in many big-city public high schools. Some dropouts may return to school later or pursue General Educational Development (GED) diplomas that require passing tests rather than regularly attending conventional high schools, but this may be a poor substitute for a regular diploma.[15]

Most Asian and European school systems assume some students will end their school careers after nine years, the end of "lower secondary school," to use the international term. Only college-bound students are expected to go on for three more years of upper secondary education before college. Some systems have two types of schools corresponding to student abilities and interests: the academic, featuring abstract and advanced work for the college-bound, and the vocational, featuring job knowledge and skills tracks for those working towards technical occupations, some highly paid such as optometry.

In the U.S., the widespread assumption among educators and policymakers is that every student should graduate "college ready" and immediately advance to college. This assumption is noble, as it shows high expectations and the traditional American faith in egalitarianism. But slower students may deter the progress of other students. Many students who pursue four-year college degrees never finish and receive little if any return

on their investments of time and money for tuition. In fact, many are worse off since they are saddled with student debt.[16] Those who graduate from inferior institutions and programs may not recover through higher wages the full cost of their college education, particularly given a four-year or longer delay in entering the workforce.

In 2012, some 40 percent of recent college graduates were working in jobs that did not require a college degree and 40 percent reported working in jobs that were not closely related to their degrees.[17] According to U.S. Department of Labor data, more than one million retail sales staff and 115,000 janitors and cleaners are college graduates.[18]

There is growing concern over the large debts many students and their families incur while pursuing, often unsuccessfully, college degrees. Total student debt exceeded $1 trillion in 2010, more than the nation's total credit card debt.[19] The median average student debt was $20,000 in 2011, about four times the average debt load of 20 years ago. "A sizeable number of the recession cohort, having graduated between 2009 and 2011, remain dependent on their families for some significant help in meeting daily financial obligations."[20]

Although it may be difficult for many parents and educators to admit, four-year college degrees are unnecessary for many occupations, for starting a business, and even for some high-paying jobs. Career and technical education in high school and college and apprenticeships may be better choices when they reflect a student's abilities, goals, and incentives. Two-year associate degrees and certificate programs are the fastest-growing areas of higher education not because they represent a lowering of expectations, but because they more closely correspond with the interests and genuine needs of many students.[21]

Students in a nine-month manufacturing training program near Chicago, for example, are quickly snapped up by employers, sometimes months before graduation, for starting salaries of $40,000 and likely jumps to $55,000 and $65,000 in less than two years.[22] Students who entered the program say they did so after comparing the cost of training against the cost of college as well as their likely starting salary after graduation.

Florida is adapting its curricula, tests, and graduation requirements to the needs of non-college-bound students without lowering standards or expectations. In 2013 the state adopted a plan giving students three ways to earn a high-school diploma: the "standard" diploma requiring 24 credit hours and passing end-of-course exams in language arts and Algebra I; a

"scholar" diploma requiring at least one college-level course, a foreign language, and passing end-of-course tests in Algebra II, biology, and history; and a "merit" diploma requiring all the coursework for a standard diploma plus industry certification in one or more fields. Students seeking merit diplomas may take career education courses or enroll in work-related internships in place of advanced science and math classes.[23] The new plan marked a retreat from legislation passed in 2010 that added Algebra II, chemistry, and physics to basic graduation requirements. That law was subsequently seen as unfair to students not planning to go on to college and failing to prepare students with the skills and industry certifications they need to get jobs.

Florida Senate President Don Gaetz, who supported the new law, told reporters at the time it passed that the law did not make graduation requirements any less rigorous, but made them more appropriate to different types of students. "I'm a great believer in high standards. ... I also believe because students learn differently and have different aptitudes ... we have to devise curriculum that touches students where they are. ... We have to prepare students for real jobs in a real economy."[24]

Whether college-bound or not, high-school graduates are likely to be successful if they have strong communication skills. To succeed later in life in the workplace or college, adolescents must learn how to read and comprehend written instructions, solve problems, make decisions, resolve interpersonal conflicts, negotiate with others to achieve common goals, and actively listen. These skills are necessary to become a trustworthy colleague in the workplace, a reliable friend or spouse, and a good citizen. It is incumbent on K–12 schools, not the nation's colleges, to teach these skills before young adults graduate from high school.

Conclusion

Research has shown consistent and often substantial positive effects of properly designed reward systems on adolescent students' learning and high-school graduation rates. Teaching practices that have proven to motivate middle- and high-school students to learn include presenting lessons as opportunities for discovery and mastery rather than just following instructions, showing how new information and skills increase the student's "wealth," and making special efforts to show how a grade or disciplinary action is fair. These practices take student interests seriously and create rewards that are aligned with them.

Teaching students to "teach themselves" also has been shown to produce high achievement levels. Students can be shown how to plan their studying, monitor their progress, and seek out sources of information on their own. By making learning faster, self-teaching lowers the cost (in student time and effort) of learning, making it more attractive to students who are increasingly aware of the value of their time. New technologies make possible classes such as Brainology that blend online courses, videos, and classroom instruction to motivate students to solve problems or, in the case of Lego Mindstorms, to build something (robots) with their new knowledge and skills.

Finally, many high schools have been too insistent on academic college preparation for all students and have neglected career and technical education. This is understandable given the liberal arts background of most educators and the high hopes of many parents, but it is unfair to students who are not college-bound. An emphasis on practical knowledge and skills is likely to lower dropout rates and better prepare those students for certification training or job opportunities following graduation from high school. Florida's recent adoption of three paths to a high-school diploma is one way to achieve this without lowering academic standards.

Notes

1. Barry J. Zimmerman, "A Social Cognitive View of Self-Regulated Academic Learning," *Journal of Educational Psychology* 81, no. 3 (September 1989): 329–39.

2. Jacquelynne S. Eccles, Carol Midgley, Alan Wigfield, Christy M. Buchanan, David Reuman, Constance Flanagan, and Douglas Mac Iver, "Development During Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families," *American Psychologist* 48, no. 2 (February 1993): 90–101.

3. Laurence Steinberg, "Autonomy, Conflict, and Harmony in the Family Relationship," in S.S. Feldman and G.R. Elliott, eds., *At the Threshold: The Developing Adolescent* (Cambridge, MA: Harvard University Press, 1993), pp. 255–76.

4. Julian L. Simon, *Effort, Opportunity, and Wealth* (New York, NY: Basil Blackwell Ltd., 1987).

5. The summary in the box incorporates our thoughts on why these features are effective and not necessarily the authors' thoughts or specific words.

6. Goal-setting, on the other hand, sometimes involves putting into students' heads things that weren't there before. We addressed that in Chapter 4.

7. Erin Macey, Janet Deckera, and Suzanne Eckesa, "The Knowledge Is Power Program (KIPP): An Analysis of One Model's Efforts to Promote Achievement in Underserved Communities," *Journal of School Choice* 3, no. 3 (2009).

8. Center on Educational Governance, University of Southern California, "KIPP Bayview Academy: Paycheck Program," http://www.uscrossier.org/ceg/products-and-services/promising-practices-compendium/education-programs-of-charter-schools/kipp-bayview-academy-paycheck-program/.

9. Interview with Mike Feinberg, co-founder of KIPP, "Making Schools Work with Hedrick Smith," PBS, undated, http://www.pbs.org/makingschoolswork/sbs/kipp/feinberg.html.

10. *Ibid.*

11. Theresa A. Thorkildsen, Algis Sodonis, and Lisa White-McNulty, "Epistemology and Adolescents' Conceptions of Procedural Justice in School," *Journal of Educational Psychology* 96, no. 2 (June 2004): 347–59.

12. See http://www.mindsetworks.com/, viewed on March 10, 2013.

13. See http://mindstorms.lego.com/en-us/Default.aspx, viewed on March 10, 2013.

14. http://www.khanacademy.org/.

15. James J. Heckman, John Eric Humphries, and Nicholas S. Mader, "The GED," *NBER Working Paper No. 16064*, June 2010, http://www.nber.org/papers/w16064.

16. It also is wrong to ignore the adverse effects on the nation's colleges and universities from the flood of academically unmotivated students unqualified for college studies. See

Richard K. Vedder, *Going Broke by Degree: Why College Costs Too Much* (Washington, DC: American Enterprise Institute for Public Policy Research, 2004).

17. Charley Stone, Carl Van Horn, and Cliff Zukin, "Chasing the American Dream: Recent College Graduates and the Great Recession," John J. Heldrich Center for Workforce Development, Rutgers University, May 2012, p. 7, http://www.heldrich.rutgers.edu/sites/default/files/content/Chasing_American_Dream_Report.pdf.

18. Richard Vedder, "The Wages of Unemployment," *The Wall Street Journal*, January 15, 2013.

19. Charley Stone *et al.*, *supra* note 17, p. 10.

20. *Ibid.*, p. 21.

21. Caroline Porter, "Seeking a Shortcut to a Job," *The Wall Street Journal*, July 16, 2013, p. A3.

22. Parija Kavilanz, "Nine months in trade school. Job guaranteed," CNN Money, March 14, 2012, http://money.cnn.com/2012/03/14/ smallbusiness/trade-schools/index.htm.

23. Danny Valentine, "Blavatt Expresses Concerns Over Different Designations for High School Diplomas," *Tampa Bay Times*, April 27, 2013.

24. Katie Tammen, "New Law Changes High School Graduation Standards," NWFDailyNews.com, April 22, 2013.