

# **Myths and Misconceptions of Acceleration**

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Recently I attended a meeting composed of middle and elementary school principals and teachers. The purpose of the meeting was to disseminate registration information to elementary students from their respective middle schools. One of the teachers brought up an interesting question, “What about the kids who know the material, can solve anything in a snap, but never hand in any assignments? They won’t be able to pass if they continue that, will they?” Immediately I assumed these students would be placed in the higher classes and thought it a rather silly question. The principal surprised me, “Of course, if they never hand in any assignments, they won’t be able to pass the higher courses. That would be something worth noting in your teacher recommendations so we know to put them in the lower class.” I had a hard time digesting the response; yet as I delved into the issue more, I found it to be a common misconception. Teachers and principals believe students must be held accountable for the work they are assigned and would be therefore ineligible to advance regardless of ability. Somehow we have come to believe holding a student back will solve the problem. This paper will seek to put common misconceptions to bed by informing educators of the wide array of accelerative options and the successes they yield.

In 2004 a report was released entitled *A Nation Deceived*. This was a three year study conducted to determine the benefits and detriments of accelerating a student through school at a quicker than standard rate. The title was chosen because of the overwhelming misconceptions. The vast majority of Americans believe acceleration holds a negative outcome for students emotionally, socially, and psychologically. The belief is that even if the student may benefit from an advanced curriculum, not being with his or her age-mates could adversely affect the rest of his or her life. Few topics in education have been researched to the lengths of acceleration, and for decades it has shown positive results. Professor James H. Borland of Teachers College - Columbia University states (as cited in Colangelo, Assouline, Gross, & 2004):

Acceleration is one of the most curious phenomena in the field of education. I can think of no other issue in which there is such a gulf between what research has revealed and what most practitioners believe. The research on acceleration is so uniformly positive, the benefits of appropriate acceleration so unequivocal, that it is difficult to see how an educator could oppose it.  
(p. 16)

When one thinks of acceleration, the first form that comes to mind is often whole grade acceleration, meaning a student would skip a year of schooling, but this is far from the only option. Depending on the intensity of the acceleration, there are up to eighteen different implementation options, each of which can be modified for the needs of the individual student (Colangelo, Assouline, Gross, & 2004). In some cases a group of students is accelerated together through a cohort as in advanced placement (AP) classes, or early entrance programs.

The most common myth of acceleration states that students will not interact well with older students. People fear for the accelerants social and psychological adjustment. In 1992 Lupkowski, Whitmore, and Ramsay, conducted a study to see how well adjusted early entrant college students were compared with their college peers considering their younger age. The study compared early entrants with regular-age college students, National Merit finalists, and bright high school students who had elected not to enter college early. The researchers found, “Accelerants appeared as well adjusted as the students in all three of the comparison groups” (Lupkowski, Whitmore, & Ramsay, 1992, p.87).

The successes of early entrance programs to college have been well documented. Multiple studies have shown the academic benefits. The University of Washington has perhaps the most well established early entrance program, with students first attending a transition school. Many adults fear such a radical acceleration will cause a student to miss out on important social gatherings such as the prom and football games. A follow up survey showed this is not the case. Respondents confirmed “weighing the pros and cons, students who participated in this study were unanimous in their satisfaction with their choice to forego both high school and the senior prom” (Noble & Drummond, 1992, p.110). Every respondent stated he or she felt accepted by regular age college peers. Many stated that for the first time they had friends who were “on the same wavelength” (Noble & Drummond, 1992, p. 109). Although for some this was a humbling experience, it allowed many of them to realize how much was left to learn. For others it was the first time they had a friend who “got their jokes” (Noble & Drummond, 1992, p. 110).

During the same year of 1992, Rogers conducted a meta-analysis of 314 quantitative and qualitative studies. Meta-analysis consists of grouping a large number of individual studies together to establish a common answer. One must “locate studies of an issue by clearly specified procedures, characterize the features and outcomes of the studies in quantitative terms, and use

multivariate techniques to describe the findings and relate characteristics of the studies to study outcomes” (Kulik & Kulik, 1984, p. 411). The review by Rogers recognizes twelve forms of acceleration.

Rogers review showed the net positive or negative effects for each accelerative option. A table\* (Appendix) compares results for academic, social, and psychological outcomes. Rogers’ criteria stated that any number with an effect size (defined as the difference between the means of two groups divided by the standard deviation of the control group) of .3 or greater has “practical significance”. The results found only early admission to college and combined accelerative options to show any negative social outcomes (-.06 and -.03 respectively), however, they are far from the realm of “practical significance”. Grade telescoping and subject acceleration showed slight negative psychological outcomes (-.06 and -.16 respectively), yet, again, did not come close to the .3 cutoff. These negative outcomes are indeed so insignificant, they are statistically analogous to zero. All other methods showed positive outcomes both socially and psychologically. Yet even if one looks at those methods which did show slightly negative results, the good far outweigh the bad. Early admission had a positive .44 academic outcome and an insignificant positive of .11 psychologically. Grade telescoping showed a vast academic positive of .56 and a social positive of .22, and subject acceleration showed a positive 1.02 (note: one study may have overly influenced this net positive, yet even when removed, subject acceleration still shows a net positive .49) academic outcome and was neutral socially. While these may not all meet the .3 cutoff socially or psychologically, their effect size is statistically significant academically. Combined accelerative options was the only method that showed no practical significance in any area with a .15 positive academic outcome and .16 psychological (Rogers, 1992). It is also important to note that although two methods did not meet the .3 cutoff (concurrent enrollment .16, advanced placement .29) none of the accelerative options showed negative academic outcomes.

According to *A Nation Deceived*, “The myth says that students who skip will rarely fit into society, the reality shows that those very students tend to lead American Society to greater heights” (Colangelo et al., 2004, p. 13).

Another myth of acceleration states that it puts excessive pressure on the student. This belief can lead to students taking action on their own and asking for it explicitly. Stories of students marching themselves into the principal’s office and demanding to move ahead are not as

rare as one may think. In *A Nation Deceived Volume 1*, a letter from a third grade student named Jenny is transcribed, asking her teacher if she can accelerate (Colangelo, et al., 2004, p. 19). The spelling and conventions are hers.

*Dear Mrs S.*

*I find that the work I'm being given is very discouraging because its much to easy. Most of it I know so I do the work catch on and I have to wait for the others to catch on. the grade I'd like to go to best would be college but since I can't could I have something more challenging. Say for instence I could go to any grade I want as long as long as its in Lincoln Elementary or Lincoln Middle School. I like to trie 5<sup>th</sup> grade I dout it but it would be nice to go ther and see what its like. I don't care if I leave Lincoln Elementary cause I really don't have any thing really imporntant or true friends that I'd miss*

*Sincerely, Jenny*

This letter sparked a discussion to accelerate Jenny. It is obvious she realized the concerns some hold. She asks for “something more challenging”, which seems to imply she desires the added “pressure” and demanding curriculum. Jenny also tries to dispel the myth that accelerants are not well adjusted when she states, “*I really don't have any thing really imporntant or true friends that I'd miss*”. Jenny may not have felt she had any “true friends” in part because she was forced to be with her age-mates and not necessarily her peers. One’s peers are positioned more upon intellectual capacity than intellectual age. If Jenny were in a class where every student was significantly below her intellectual capacity, it would make sense that she would have a hard time relating to them. This would mean that if Jenny were accelerated, there is a good chance she would be able to truly relate to her classmates and be able to form real friendships. There are decades of research in acceleration, and the results consistently show positive results academically, and either positive or neutral results socially, and emotionally.

One must also take into account the potential deterrments of not accelerating high-ability students. According to Benbow (1992), “Students who are not given the opportunity to accelerate exhibit lower achievement and behavior problems, feel less comfortable in school, and have poor attitudes” (p. 6). One student who accelerated reported that prior to his acceleration school was, “like going through every day in a slow motion movie” (Noble & Drummond, 1992,

p.106). It is a very real possibility that had this student's talents and abilities not been nurtured through acceleration, they may have atrophied as he became further dissatisfied with his education.

The reluctance to implement acceleration could partially be attributed to a selective memory. There are exceptions that support the popular myths. William James Sidis is often cited as an example of erroneous acceleration, feeding the myth of "burn out". Sidis was pushed into public attention by his father for his astounding abilities and accelerated educational program. He entered Harvard in his early teens, performed well and graduated *cum laude* with his bachelor's degree at the age of 16. But as the media continued to buzz about his precociousness, Sidis began to collapse. He dropped out of law school and began bouncing around different jobs. Sidis never married, lived alone, and ended up dying on July 17, 1944 at the age of 46. Stories resembling Sidis's garner much attention and shed a negative light on acceleration. Opponents believe Sidis accelerated at such a rapid rate that he eventually crashed from an overload of academic pressures. These are the "news-worthy" stories.

A colleague of Sidis, Norbert Wiener, has a far less known story. Wiener had a very positive result to his acceleration. While intellectually similar, the two boys came from distinctly different backgrounds. Wiener attended both home school and public school, while Sidis was completely home-schooled; Wiener's father stressed his normalcy while the media bombarded Sidis relentlessly. Wiener was supported and challenged immensely by his father, while Sidis was driven not by his own desires, but his fathers. Wiener was popular among teachers and fellow students, while Sidis struggled. Wiener married a very supportive wife and transitioned easily into adulthood. He never showed any signs of burnout and led a rewarding life as a pioneering scholar.

Stories such as Sidis's seem to be the ones that stick with us. Reservations arise when acceleration is mentioned because the ostensible failures of Sidis's education seem too immense to risk on other great minds. Many believe he was one of the most intelligent individuals the world has known yet his achievements far from reflect these apparent abilities. Sidis's story seems to suggest that acceleration is harmful and should not be practiced regularly. It is important to understand however, that Sidis is an exception to nearly seven decades of literature and research which has shown overwhelmingly positive results when a well planned acceleration process is implemented. If one's memory draws from a selective sample when making important

decisions about America's youth, the implications could be enormous. Opponents of acceleration feel that had Sidis not been pushed so rapidly, he would have been more successful. The vast majority of members inside the gifted community who have studied Sidis, however, believe his problems came not from his acceleration, but from being raised in an emotionally painful environment (Stanley, Muratori, Ng, Ng, Tao, & Tao, 2006).

Similar to Wiener, Terrence Tao benefited immensely from his acceleration and never showed a hint of burnout. Terrence is currently in his eighth year as a full professor at the University of California Los Angeles (UCLA) and is only 32 years old. He graduated with his bachelors of science at the age of 15, earned his masters of science at 17, and his doctor of philosophy degree shortly before turning 21. Terrence has truly an amazing mind. At only 8 years old he took the math section of the Scholastic Aptitude Test (SAT) and scored an astounding 760. At 25 years old he solved a math problem that earned him the Bocher Prize for Mathematics, which is only awarded once every five years. In 2006 he was awarded the Fields Medal, which is on par with the Nobel Prize (Stanley et al., 2006). Terrence continues to push the boundaries of mathematics. His work ethic has never faltered because he's always been presented with challenging material. He never had to endure endless hours of boredom in a regular classroom. If anything were to affect his drive, certainly it would not be the presentation of a challenge, but rather the lack of one.

A very important part of Terrence Tao's accelerated curriculum dealt with mentoring. This is a form of acceleration where the student is paired with an expert in a specific field. This person then works individually with the student on advanced levels appropriate for him or her. While mentorship may not always be an option, it has shown some of the most positive benefits of all forms of acceleration. Along with grade skipping, it showed the most positive socialization effects. It also showed the most positive psychological effects of all options, along with concurrent enrollment (Rogers, 1992).

Terrence and many students like him have also benefited from talent searches such as the Study for Mathematically Precocious Youth (SMPY). Since its initiation in 1971, SMPY has not only identified and helped many gifted young students, but also benefited the entire field of education through studies done on these children. SMPY accelerates curriculum for students a significant amount. During a three-week period in 1982, twenty-five students aged 11-15 studied high school biology through a grade-telescoped curriculum. At the end of the three-week period

the students took the College Board's biology examination. On average the students scored in the 95<sup>th</sup> percentile with a 727. The range ran from one 590 to two perfect scores of 800. Similar results were presented from students who participated in the chemistry section.

SMPY is among the most prominent of talent search programs, but is by no means the only of its kind. Many different versions of talent searches exist across the United States, yet they are far from able to identify all those in need. Those who are discovered are granted a challenging summer program and for some, the first chance to meet same-age peers with similar abilities. As noble as the efforts of these talent searches are, there remains a plethora of high ability students who go unrecognized each year.

In 1985 a myth surfaced from Uphoff and Gilmore (as cited in Southern et al., 1989) stating that entering elementary school early puts students at a significant disadvantage because of their age. In some states, such as Ohio, districts are allowed much authority on policies. As a result, numerous districts have implemented strict regulations that greatly hinder anyone wishing to enter school early. This begs the question, what would a district such as this have done with a student similar to Terrence Tao? According to Uphoff and Gilmore, "No child should enter school before 5 years and 6 months, regardless of ability" (as cited in Southern, Jones, & Fiscus, 1989, p. 30). Terrence, however, being born in Australia and free of these restrictions, entered school at three years and six months. He withdrew after only a few weeks from the traditional school because, academically he was far superior to his five year old classmates, yet socially behind. Instead he started enrichment classes offered by the Gifted and Talented Children's Association of South Australia. The fact that Terrence withdrew may suggest that Uphoff and Gilmore were correct in their judgment, but attempting to start Terrence at such a young age helped all involved learn more about him and his abilities. Pulling him out of the traditional school did not hurt him in any way, and he was able to find classes where his needs could be met. Many children each year enter kindergarten and first grade early with overwhelmingly positive results, and although Terrence withdrew it does not mean his early entrance was a failure.

According to multiple leaders in the field of gifted education, the sooner a student is accelerated, the better. The longer acceleration is delayed the more likely a student will become involved in a social group. If the acceleration takes place before he or she enters school, there is no social adjustment period.

Uphoff and Gilmore's suggestions are based on studies that contain multiple confounding factors. These studies were reviewed by Jones and Southern and found to be "fraught with severe methodological deficiencies... In two frequently cited school readiness studies children who had high intelligence test scores were intentionally eliminated" (p. 30). Despite these flaws in the studies, Uphoff and Gilmore were published in periodicals such as *Young Children*, and *Educational Leadership*. *Young Children* is even peer reviewed, yet somehow it managed to slither its way in, misinforming thousands. There are hundreds of studies whose findings are antithetical to Uphoff and Gilmore, several of which were carried out in a meta-analytical fashion. Many leaders in gifted education consider the controversy surrounding acceleration to be solved (Southern et al., 1989, p. 35). Benbow (1992) states, "[There] should be no question as to whether special educational programs for gifted students, whether in the form of acceleration, enrichment, or preferably both, makes a difference. It does" (p. 7).

In 1984 the results of the most influential study on acceleration to date were released. The study was the first meta-analysis of acceleration, conducted by Kulik and Kulik. They found twenty-six studies that met their criteria. Thirteen compared the accelerated group to a same age similar aptitude control group that had not been accelerated. Kulik and Kulik (1984) found that in each study the accelerated group showed greater achievement, and in nine the disparity was significant. An effect size of .88 was found for accelerants over same age non-accelerants. This means accelerants were approximately one full year ahead of similar aptitude non-accelerants. Overall, approximately 81% of accelerants outperformed non-accelerants. The other thirteen studies found for analysis compared accelerants to older students with similar aptitudes. These results were vastly different with five showing the accelerants outperformed their older counterparts, and the remaining eight showing a higher level of achievement for the older non-accelerants (Kulik & Kulik, 1984). This study therefore shows that students who have accelerated are generally working on a level much closer to their actual abilities than those of non-accelerants, because the accelerated students achievements are matched closely to those of non-accelerated students with similar aptitudes and more schooling experience. Accelerated students showed an effect size of .05 when compared to older students. No meta-analytical review of any educational implementation has shown as positive results as acceleration.

Practitioners' objections to acceleration could be due to a lack of experience. In 1989 a survey to teachers showed 73% of respondents with no personal experience in acceleration felt

early admission was harmful. Conversely only 38% of those who did have personal experience felt it was harmful. When the same question was asked about grade skipping, 75% with no experience felt it was harmful, compared to 52% with experience. The strangest part of the data comes when the question is asked, “Is keeping the bright student with same age peers potentially harmful?” (Southern, et al. 1989, p.33), to which 73% with no experience said yes and 52% with experience said yes. This shows there is a good portion of teachers who believe keeping a bright student with age peers could potentially be damaging, but also believe that grade skipping could be damaging.

A common argument against acceleration states that it is undemocratic to grant one student special exceptions over others. People get confused as to the purpose of acceleration and feel it is only for the wealthy. The purpose of education, however, is not to grant an identical education to each student, but to grant equal educational opportunities. Where a normal student may get a tremendous education in the normal classroom, a gifted student may learn very little. This is not equal. Gifted students come from every background imaginable. Acceleration benefits those from a lower social economic status the most. Wealthy parents can often provide supplemental opportunities for their child. These may not be available to those without the means. It is the responsibility of the public school system to grant students equal educational opportunities. This is not possible if acceleration is ignored.

The most accepted form of acceleration lies with AP classes, which have become widely available across the United States. In 2004 1.9 million AP exams were taken, granting many students college credit while still in high school. Passing these exams meant students avoiding gymnasium filled general level classes as freshmen. These students quickly get into more advanced level classes leading to graduating early, saving money, and giving options with saved time. Generally the public has a very positive outlook toward AP classes due to experience, or knowing people who have experienced these classes.

Another highly beneficial accelerative option is grade telescoping. It’s called such because it works the way the world looks through the wrong end of a telescope. A student completes work from multiple years in just a few. For instance, a student might complete all four years of high school in just one or two. Similarly, a student could graduate early from high school, or complete college work concurrently while still in high school through dual enrollment.

Again this has shown very positive results, yet unlike AP classes, both grade telescoping and dual enrollment are met with skepticism of their effectiveness.

Acceleration comes in many forms and is widely successful in all areas of development. Misconceptions run rampant that it is deleterious to students overall well-being. The implementations of American practitioners go against the grain of what research has revealed. For decades it has shown nearly uniformly positive results. Those studies which did not show positive outcomes could potentially be called into question due to the specific research design. Dr. Van Tassel-Baska, former president of the National Association for Gifted Children, stated, “Of all the interventions schools provide for the gifted, acceleration is best supported by research” (as cited in Benbow, 1992, p. 7). Dr. Benbow states in the same article that “acceleration, an often neglected resource, is a program option difficult to criticize” (1992, p.7). The literature supporting acceleration spans such a range, it is hard to find any area in education that matches it. Yet much of this research has gone to waste, as many school districts are still reluctant to implement such a strategy. It would be easy to say that the reason acceleration is often not seen as an option for a highly able student is due to the recalcitrant teachers who seek a traditional schooling for all students. Benbow contends such a proposition, stating, “The classroom teacher is in a difficult if not near impossible situation” (Benbow, 1992, p.3). When a teacher has thirty or more personalities, learning styles and speeds, all in the same classroom, it is very easy to give the gifted child an enrichment worksheet and focus on those who are behind. There is also a severe lack of knowledge among teachers on how to identify a student who may benefit from acceleration. The majority of teachers know who in their class may be gifted, but this does not necessarily warrant acceleration. In order for a significant reform to take place in our public schools I believe districts must be equipped with highly knowledgeable people in the field of gifted education. These people could in turn help educate teachers and make well-informed decisions as to when a student should be accelerated. America simply cannot remain a leader in the academic world by making laymen out of our potential leaders.

## Appendix

### Effects Table of Academic, Socialization, and Psychological Outcomes for 12 Forms of Acceleration for Gifted Students.

Option	Academic ES	Socialization ES	Psychological ES
EE	.36	.12	.14
GS	.78	.46	.12
NG	.38	.02	.11*
CC	1.48 (.45)**	-	-
GT	.56	.22	-.06*
CE	.16	.05	.74 (.36)**
SA	1.02 (.49)**	-	-.16
AP	.29	.24*	.07*
ME	.42	.50 (.01)**	.48
EX	.75	-	-
EA	.44	-.06	.11
CB	.15	-.03	.16*

- Based on 1 study \*\* 1 study may have overly influenced outcomes. 2nd # has study removed.
  
- EE – Early Entrance to School, GS – Grade Skipping, NG – Non-Graded Classrooms, CC – Curriculum Compacting, GT – Grade Telescoping, CE – Concurrent Enrollment, SA – Subject Acceleration, AP – Advanced Placement, ME – Mentorship, EX – Credit by Examination, EA – Early Admission to College, CB – Combined Accelerative Options
  
- Table and information from Rogers, 1992

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