

GIFTED EDUCATION PRESS QUARTERLY

10201 YUMA COURT
P.O. BOX 1586
MANASSAS, VA 20108
703-369-5017

Amir Abo-Shaeer
Hero of Giftedness



FALL 2011
VOLUME TWENTY-FIVE, NUMBER FOUR

www.giftedpress.com

I highly recommend a book on teaching high school students about applied science and engineering – **The New Cool: A Visionary Teacher, His FIRST Robotics Team, and the Ultimate Battle of Smarts** (Crown, 2011) by Neal Bascomb. This is an exciting and engaging description of students' participation in robotics competitions which has many applications to all areas of gifted education, including the humanities and performing arts. The narrative takes place at the Dos Pueblos Engineering Academy which is a part of Dos Pueblos High School in Goleta, California, and at regional and international events. The genius behind this academy is the director, Amir Abo-Shaeer, a secondary level teacher who is also a mechanical engineer and MacArthur Fellow. He is the main inspiration for seniors who design exceptional robots. The book concentrates on how these seniors (the D'Penguineers, Team 1717) built a sophisticated robot for participation in the FIRST Robotics Competition, an organization founded by Dean Kamen (inventor of the Segway personal transporter) and Professor Woodie Flowers of MIT. In preparing for these competitions, both male and female students learned and applied knowledge of computer programming, engineering design, mechanics and electronics under the tutelage of Shaeer and mentors. **The New Cool** has considerable pedagogic value because it shows how a dedicated and knowledgeable teacher can meld students into an effective technical problem-solving team. It also shows how STEM education, as exemplified in **STEM Education for Gifted Students** (Gifted Education Press, 2011) by Harry T. Roman, can be used to elevate gifted students to high performance levels.

During the last six years, I have published many articles on educating gifted minority students. Now, I would like to recommend an excellent book by Joy Lawson Davis, Ed.D. – **Bright, Talented & Black: A Guide for Families of African American Gifted Learners** (Great Potential Press, 2010). This much needed book covers all areas essential to parenting gifted Black students. Among them are external and internal challenges, advocacy, public and private school options, and the power of books and storytelling. Joy and her publisher, Jim Webb, have done an important service for the gifted field by offering this book.

In this Issue – All articles emphasize expanding gifted students' understanding and problem-solving skills.

Dr. Sanford Aranoff has written extensively in **GEPQ** about teaching gifted students to think and solve problems. His current article has a new twist by asking what Bill Gates missed by not completing college. Drs. Stephen Schroth and Jason Helfer have also written many previous essays for this periodical on humanities and performing arts education for the gifted. They continue with their discussion of using classical music to develop gifted students' auditory thinking strategies. Dr. Robert E. Myers presents his latest article to appear in **GEPQ** with an essay on how creative thinking activities can be effectively used to develop problem solving skills. Dr. Michael E. Walters winds up this issue with an essay on Alfred Hitchcock, master Hollywood director of mystery and suspense films.

Maurice D. Fisher, Ph.D., Publisher

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Lessons We Can Learn from Bill Gates' Dropping Out of Harvard University

Sanford Aranoff

Adjunct Associate Professor of Mathematics

Rider University Lawrenceville, New Jersey

aranoff@analysis-knowledge.com

Bill Gates dropped out of Harvard University to work on his corporation, Microsoft, and succeeded in becoming the world's richest man for many years. Much has been written about his educational development. It is important that we fully study and analyze how people have succeeded in business after dropping out of college. The goal of such studies is to help us understand more about business success. We need to develop theories, that is, logical explanations based upon principles, and use the various case histories such as that of Gates to test these theories.

My personal interest is different. I am not a business executive, but a university professor. My interest is in the Harvard professors who failed to keep Gates enrolled. Harvard had this gifted student who could have contributed enormously to education at Harvard had the professors acted differently. We need to study what were the approaches the faculty had with Gates, what were their goals, and what were their attitudes. We need to read comments Gates made while a student. We can then develop a better theoretical understanding of the role professors play in education. This paper is an attempt in this direction.

Every business has the responsibility to be aware of customer interest. Business leaders need to be aware of customers who reject the merchandise the business is selling. Businesses need to try to find out why some customers leave, with the goal of not losing other customers. Bill Gates was a customer of Harvard, and rejected what Harvard was selling. I am surprised at the lack of serious thought why Gates (and others) rejected Harvard's teachings. I am not aware of serious publications addressing the question why gifted students leave universities to succeed without the education the university provided. This paper is an attempt to address this question.

There is considerable literature on the education of special needs students. This is an important subject, as we educators need to do what we can to help all students, including special needs students. Literature on the needs of the gifted, on the other hand, is unfortunately not as extensive. We must understand the fundamental difference between the special needs student and the gifted student. Focusing our attention on the special needs student is good as we need to look at all of our students, and not ignore a group that we can help with a little extra help. Focusing on the gifted student, on the other hand, is not only an issue of fairness, but also a national priority. It is imperative for a society to focus on the gifted in order to advance and prosper. With the additional resources the society will have as a result of the contributions of the gifted, the society will be better capable of dealing with the special needs students. The paradoxical conclusion is that focusing on gifted students will do more to help special needs students than focusing on the special needs students. Look how much benefit our special needs students have received due to the accomplishments of the gifted student, Bill Gates!

In order to accomplish anything, we need to clearly state our goals. We must ask, "What is the problem?"¹ The problem, as I see it, is: What are professors supposed to do in the classroom? *The answer is to focus on understanding.*² This should be obvious and simple. It seems to me, however, the example of the Harvard failure to keep Gates was a result of the professors not having the goal of understanding, but other goals. Bill Gates rejected these other goals.

We need to clarify what "understanding" means. Rational thought begins with clearly stating and understanding the basic principles of the subject. We continue with logical conclusions. We then compare with evidence. If we do not find empirical verification, we try to modify the principles. Students need to understand how one can have different basic principles. An example of this is Euclidean geometry, which students learn in high school. Mathematicians have formulated alternative geometries based upon principles different from Euclidean principles. Indeed, due to Einstein's gravitational theory, these alternative geometries actually exist in the real world. Students need not only to understand basic principles, but also to realize that the introduction of additional evidence may suggest modification of the principles. It is a logical error to think that principles are unchangeable.

The Goal of an Orderly Classroom

Teachers can reasonably expect, over the course of their careers, to have students who are superior to them. Teachers can expect to occasionally find students who are smarter than they are, who are more knowledgeable, and more articulate. Teachers can expect to find themselves stumped by students' questions. In short, teachers can expect to find themselves embarrassed by some gifted students. Unfortunately, teachers have not dealt with the question of what to do with such students. Allow me to share some of my experiences.

I have spent some time as a substitute teacher in high school. I would follow the teacher's lesson plans, while focusing on the students to make sure they all understood the material. Since I am a physics and math professor, I felt it my obligation and responsibility to answer correctly any questions the students may ask, and to properly clarify the points. What has frequently happened is that students would bring up these discussions to the teacher when the teacher returned. Students would say things to the teacher in class differing from what the teacher taught. The experience of a university professor acting as a substitute teacher for a day is similar to having a gifted student in the class. The teacher would often be embarrassed, and complain.³ The fact that the teacher complained shows that the goal of the teacher was not understanding, for otherwise the teacher should be happy to hear a serious alternative explanation for the subject. What then is the goal of the teacher?

Teachers and administrators want things to be orderly. They want students to behave. They want to insure students know how to do things. If students did well on tests, this shows they know how to do the work, satisfying the teachers and administrators. This satisfies the government also, in satisfying the objectives of *No Child Left Behind*. When the gifted student asks a question that the teacher does not have an immediate answer, the teacher often views this as a disruption of the goal of having an orderly classroom. We need to get the message out to educators that the goal should not be order, but understanding. When a student stumps the teacher or professor, the honorable thing to do is to admit lack of understanding, and then, after class, to make a serious effort to get the proper understanding and pass it on to the class.

Some students will reject the goal of an orderly classroom if understanding is made to place a second role to orderliness. This rejection may cause them to disrupt the class, to talk loudly, or even to drop out of school. If students feel that understanding is not primary, they may feel that education is an infringement on their freedom. Did Gates feel this way as he dropped out of Harvard? Remember, that America was founded by rebelling against authority. Although most Americans today conform to authority, some still have the original rebellious attitude for individual freedom, which includes freedom of thought and correct understanding of topics covered in school.

To summarize, if the primary concern of the educator is conformity and orderliness instead of proper understanding, we can expect educational failures such as dropouts and other forms of disruption to take place.

Stress on Certain Ways of Thinking

The majority of university faculty consists of progressives. A conservative student may feel threatened. In the business world, if a person disagrees with management, the person often leaves the company. A classic case in point is Seymour Cray. He worked as an engineer at CDC Corporation. After a dispute with management, he left the company to found his own company, Cray Research, which succeeded in building computers superior to CDC. Education must not be the same. We must not have the attitude that if a student has a fundamental disagreement with the professor, the student must leave. Conservative students feel that they are under pressure. They feel that their professors would like them more if they agreed with their liberal views. This makes sense for most organizations where people need to agree with the majority opinion. It does not make sense for universities where the focus must be on understanding. The fact that conservative students are under pressure means that the primary objective of the faculty is not on understanding.

Senator Joseph Lieberman recently gave an impassioned beautiful speech broadcast on television defending the overthrow of the military don't ask, don't tell policy. He gave clear reasons this policy must not continue. However, he failed to give any reasons why the policy should remain in force. His presentation was one-sided. This means the goal of Lieberman's speech was to convince people to his point of view, not to educate. The Senator was not interested in educating the people to the various complex aspects of the topic. The news media gave him a pass, never criticizing him for his one-sided presentation. It is not good enough to rely upon another speaker to present the opposing view. We must expect from a Senator to present a balanced view with the goal of educating the public, not only to influence people. Media outlets frequently slant discussions to one point of view, giving a cursory presentation to the other point of view. This means that the media are not interested in educating the public, but in selling a viewpoint.

We all know that when we see a commercial advertisement for a product, we will not see clear objective reasons the product is not good. We know this, for the purpose is not educational, but sales.

Since the current reality is that politicians and pundits give one-sided views, people tend not to pay too much attention to what they say, just as people tend not to pay attention to commercial advertisements. If people are not listening, then our politicians and pundits are failing to communicate properly.

Unfortunately, too many of our teachers and professors act like salespeople rather than educators. This is clear by observing their behavior. What this means is that the goal of understanding is not their primary goal. Students may tune out their teachers just as they tune out commercials.

When a student has a teacher who has goals other than education, the student may rebel. This may be a cause of juvenile delinquency. Bill Gates may have sensed this at Harvard, and left the university. Gates may have felt the professors were salespeople, and tuned out. Poor teaching may cause both weak students and gifted students to rebel.

Professors need serious self-examination to insure that their primary goal is understanding. *The integrity of university education must be to insure the primacy of understanding.* Universities must rise up to the challenge of determining how to check that professors keep the focus on understanding, and not drift towards other goals.

Busy Work

When we read about Gates' Harvard experiences, we see that he was challenged by difficult mathematics problems. People recognized Gates for the brilliant person he was. Harvard prides itself on its difficult mathematics courses, saying about one course that "This is probably the most difficult undergraduate math class in the country." In this sense, the challenge is similar to sports. The college athlete is challenged to work as hard as possible to succeed ahead of others. Harvard is challenging and rewarding students who work and succeed better than others.

Unfortunately, the university does not address the question if this approach helps understanding. This means that the university has substituted success for understanding in challenging courses. As an example, let us look at exercise. Regular exercise is vital for good health. This must be a goal of all of us. Being a sports champion is not a path to the goal of good health via exercise. Likewise, understanding subjects must be the goal of all students. Being a champion mathematics student is not a path to the goal of good understanding.

Universities encourage sports in order to keep students interested in the university education. Harvard encourages difficult mathematics for the same reason. It is fine to do things to encourage student interest. It is not fine when we lose sight of the primary goal, which is understanding.

Gates, a very gifted student, did well with the difficult mathematics. However, he felt he found a more interesting challenge in building computers, and so left the university. The failure of the university was to give the impression that the university was there to challenge the student. Gates may have looked at this like busy work. The university is giving students difficult tasks in order to keep them busy. The university feels that the really good students know all the material in most of the courses, and challenges them to prevent them from being bored. Well, they failed with Gates, who was bored.

I submit that the focus was not on understanding basic mathematics ideas. I am not qualified to make this statement, as I do not know enough about these courses. However, when the stress is on mastering a lot of complicated material and being capable of using it to solve complicated problems, without the contemplative time to see how these ideas are related to basic principles, it seems that it looks like challenging students but not trying to make them understand. Some of these courses were three-week courses, much too short to permit creative contemplation.

We need to know what we mean by understanding. Just to be able to memorize ideas, theorems, and being capable of solving problems is only part of understanding. The main idea is knowing what the principles are, the structure of the logic, with the ability to use this understanding to develop the memorized theorems. General liberal arts courses are very helpful towards this aim.

Harvard prides itself that very few students succeeded in these challenging courses, and feels this proves the superiority of Harvard education. In this, I respectfully disagree. The proof of a superior education is the extent to which the graduates genuinely understand what they have learned. Sometimes it may take decades for this understanding to mature. If this does happen, even after decades, we can say the education succeeded. If the graduate simply remembers what was learned and knows how to use it as a craftsman, without a full understanding and appreciation of the principles, we cannot say the education succeeded. University educators need to investigate the long-term results of their education. The question of what Harvard could have done differently is discussed in the next section.

Bill Gates dropped out of Harvard. Many other students did not, and succeeded to become professors at Harvard and other prestigious institutions. It is an open question to the extent that these professors properly teach students with the goal of understanding. Since their training did not have understanding as a primary focus, we can imagine that their teaching would also stress challenging tasks rather than deep understanding.

What Gates Could Have Learned Had He Not Dropped Out

We need to discuss what Gates could have learned and how Microsoft could have succeeded better had Gates remained in Harvard, and had the professors been truly focused on understanding and basic principles. Let us look at the history of Microsoft.

For the first decade or so of Microsoft, the company succeeded in marketing by dishonesty, claiming that products were about to be sold when development did not actually begin. People called this “vaporware.” I doubt that Harvard professors would teach students that in order to market products, it is necessary to lie. Instead, university professors usually teach the importance of honesty and integrity in business.

It took Microsoft about a decade to design a useful product better than others. Contrast this with Google, which took only about two years to become big. The reason is that the Google founders received a proper education. Google began in 1996 as a research project by Larry Page and Sergey Brin, Ph.D. students at Stanford. The fact that they were Ph.D. students means they received a proper education for their undergraduate degrees. Instead of a decade of struggle, Gates could have accomplished the same with two additional years at Harvard and two years of work. Of course, we do not know this, but the Google story does suggest it. Most professors believe that their teaching has great value in helping students reach their goals. If this is true, then Gates’ professors believe that their teaching could have helped Gates. The professors’ silence indicates the opposite.

What Gates could have learned had he remained at Harvard was the importance of basic principles. Microsoft ignored basic principles of software engineering.⁴ This caused lasting harm to computer users worldwide. Professors need to focus on basic principles, for this is what understanding means. An educated person understands this idea. Had Gates received a proper education, Microsoft would have developed Windows without the problems it has, such as being subject to viruses, crashes, and loss of data. The problems Windows has had are due to the design teams not paying enough attention to basic principles of software engineering.

Let us look at Gates’ current activities. He and his wife are very active in using their vast fortune to help starving and sick people in Africa and other places. The idea is very noble. Gates has money, and wants to use this money to help others. However, if we focus on the goal, namely, helping others, we will see that direct charity is not the optimum way. Gates could do far more good in helping disease and poverty by helping Africans to learn how to build factories and businesses in order to help themselves. I think that Gates would have learned this fact had he continued his higher education at Harvard. Jews knew this fact two millennia ago and wrote it in the Talmud. Gates did not know this, as he did not continue his education.

Imagine a gifted student at Harvard who has a goal to help reduce poverty and disease in Africa. This would be discussed in class, either by the initiative of a professor or the student. Once the subject is discussed, optimal methods of accomplishment become clear. In short, the professor needs to understand the goals of the student, and to use the student’s gifts to help the student towards the goals. These goals would be met by understanding the basic principles relevant to the situations.

Of course, the brilliant gifted student will have novel ideas and disagree with the professors. A proper education means the student can fully articulate these ideas and have them properly discussed. This is the Socratic method of inquiry. Let us perform a thought experiment. Let us imagine Gates continuing at Harvard. He would discuss his idea of vaporware as a marketing tool. The professors would then show him historical examples where this has been unsuccessful and counterproductive. Gates would discuss his ideas of simply writing code, focusing on getting the task done. Professors with experience with major computer firms would show him that the primary time-consuming task in the real world is detecting and fixing errors, and so Gates would learn to put more automatic error testing in the code. It would be an interesting exercise for the reader to continue this thought experiment. Professors need to study the history of Microsoft in order to get insights into what and how to teach.

This helps clarify what the professor can teach the student who is intellectually superior to the professor. The professor has wisdom based upon experience and knowledge of historical events relevant to the subject. The professor can use this wisdom to engage the gifted student in discussing a subject, which would give the student a more mature understanding. In addition, the professor can confer with his colleagues to arrive at good responses to challenges from students. The university environment is very beneficial as long as the main focus is understanding.

The Aim of Teaching WITHOUT the Focus on Understanding

The primary aim of education must be understanding. The student must know what the basic principles of the subject are, know how to apply rules of logic to arrive at conclusions, and be capable of creative thought and originality in this understanding. Teachers must give examples and counterexamples. As the good teacher that I claim to be, here are some counterexamples, which will clarify the meaning of teaching with the focus on understanding.

I was sitting in the teacher's room in a high school. A senior math teacher came in with a student. The teacher was trying to explain something to the student, who seemed not to grasp the idea. Frustrated, the teacher yelled at the poor boy, "Get it through your head!" This is an established method of instruction. It consists of being emotional and forceful. The student then learns to submit and to memorize what the teacher wants. Such a student does not understand the material. In my university freshman math class, I teach, among others, the *Fundamental Principle of Counting*. This says the number of ways of doing several independent tasks is the product of the number of ways of doing each task. Although students learn this in middle school, it is challenging for university students. How can we explain the difficulty university students have with something they learned in school, unless the prior learning was not based upon understanding but rote?

Many religions teach their doctrines using powerful emotions. Christianity tells students they must accept the existence of God or else they will go to Hell after they die. Students, responding to these strong emotions, mouth their acceptance of the existence of God, without understanding what this means. Muslim students learn the Koran by rote, and are able to recite by heart the Koran. No one is permitted to question anything, and so the learning is memorization, not understanding.

This rote approach to education is venerable, having been practiced by many different cultures over the millennia. Another example is ancient Chinese learning.

A scientist examines the empirical results of a theoretical approach to establish the veracity. We need to examine the results of the emotional approach in the various cultures to establish the veracity of the approach. We note that there are few devout Christian scientists today, suggesting that the emotional training youngsters receive hampers their creativity and scientific interest. The situation is even more extreme among Muslims. The consequence is that gifted children in Muslim schools do not stand out as successful role models, as is the case in Western schools. Islam is failing its gifted students. President Obama may praise Islam for its past glory, but cannot praise Islam for present intellectual glories. The Muslim student responds to emotions, and so lacks understanding.

Many express anger with Muslim nations like Saudi Arabia for its treatment of women. Women are not treated like men. Women cannot drive a car. We need to express anger with Muslim nations for their treatment of their gifted youth. We need to be angry with them for stunting their intellectual development. The harm and danger to Muslim countries for their neglect of their gifted is far greater than the harm for neglect of women. Many people say Muslim terrorists are angry at their unfortunate situation. This may indeed be the case, with the anger at the stifling of intellectual development.

The emotional approach, with understanding being downplayed, is also evident in politics. Although there were many intellectuals during the French Revolution, they failed to analyze and communicate a proper analysis that would have prevented the many deaths during the reign of terror. One can say that this failure was due to the terrorists using powerful emotions that prevented clear understanding of what the best thing to do should be. Today we see something similar. During the Obama election campaign, dissenters were branded as racists. This means that strong emotions replaced rational thinking based upon proper understanding.

Political discussions are frequently heated. This means they use emotions, with the consequence of failing to clarify understanding. We need to object to this type of irrationality, and demand clarity and clear understanding based upon proper principles.

How to Teach with the Focus on Understanding

Having discussed the need to be focused on understanding, we must discuss how we accomplish this aim. At first blush, don't we all try to be focused on understanding? What happens is that other secondary goals rise up, and we focus on these secondary goals and tend to ignore the primary goal of understanding.

The first step in achieving a goal is the clear statement of the goal. I tell my math students that the first step in solving a problem is to clearly state the problem. While preparing the lecture, and when walking into class, we must keep foremost in our minds the goal of understanding the topics of the day. We ask students to explain back what we discussed to be sure they understand. We ask students to do problems on the board, and insist they write the reasons for the various steps. Take an idea and ask a student what this means. We instruct students how to think logically: Define the problem, translate into expressions relevant to the subject, start from the beginning, go step by step using the correct principles, and finally check the work.

If a professor simply gives an excellent lecture, and then proceeds to the next topic, the professor has not achieved the goal of proper understanding. Unfortunately, this is how serious issues are often discussed. Speakers discuss an issue the way a good professor gives a lecture, without checking if the audience properly understands the details. Teaching with a focus on understanding mandates that the speaker ask listeners to repeat back, explaining the ideas. The speaker then listens to insure that the listener has grasped the basic ideas without too much distortion. Unfortunately, many adults resent questioning, a necessary aspect of explaining and understanding.

Speakers accept questions from the audience, but do not challenge the audience with questions. Today's adults need to understand the critical need for questioning.

What teachers do is send students to the board to do problems. This is very good, but before doing that, they should ask students to repeat the message to the class. The teacher must be prepared for a gifted student, who will repeat the message to the class and say more than the teacher thought or planned, as well as being prepared for the weak student.

Other Examples of Billionaire College Dropouts

When we discuss Bill Gates, let us not ignore others: Paul Allen, Ralph Lauren, Steve Jobs, Larry Ellison, Michael Dell, Mark Zuckerberg, Craig McCaw, and others. One can find this list at <http://www.twincommas.com/billionaire-college-dropouts>.

One comment on this site is this:

“The education bureaucracy’s mission is not to promote the kinds of learning most valuable to those in the Achievement Meme. Education = Conformism, political correctness, suppression of freedom and dissent. Business success = Maverickism.”

This comment reflects the idea of this paper. Education tends to focus on goals other than understanding. This is something we educators must be on guard about.

Here are some more critical comments about education. Note that all these criticisms can be resolved if educators focused on the primacy of education.

“Eventually I came to conclude that I could not find real knowledge in academic life, only hierarchies of knowledge that led, ultimately, to more hierarchies, not to more knowledge. I began to see university learning as limited, human, and relative. What was seen as absolutely up-to-date did not consider the infinite and timeless.” — Sharon Daniels, author, *The World of Truth* (2007).

“Schools teach children to obey. They espouse the things we—the ruling generation—want kids to know. No wonder most schools are pressure cookers where bored teachers meet bored children... Modern education is a wasted investment. It doesn't deliver what we need the most: creative answers to the challenges of our times... It isn't a surprise that many of the people who've had the greatest influence on our times were—from the perspective of education—failures.” Jurriaan Kamp, *Ode* magazine editor.

What is very interesting is the paucity of comments by professors. Any responses include comments like college is not for everyone, high schools are not doing their job, some people are happier in trades, and such. I do not see comments saying that the reason for college dropouts may be the lack of stress on understanding, confusing education with trades. This means that students drop out of college because they reject what the professors are selling. It is hard to imagine students rejecting the goal of understanding. It means professors are not selling understanding, which they should.

Consequences of Teaching with Goals Other Than Understanding

We discussed above the importance of focusing on understanding as the primary goal of education. Failure to focus properly on this goal has consequences. One consequence we discussed above was gifted students dropping out of college. There are actually far more serious consequences. Some universities award skill and mastery of difficult mathematics to the degree that it overshadows full and proper understanding. Students who excel in this type of skill become professors and leaders in the intellectual community, and propagate skill over understanding, with the unfortunate result that society is left with incomplete, and indeed, false understanding of various topics. Here are some examples.

Einstein's theory of gravitation is extremely complex mathematically. This gives ample opportunities for gifted mathematicians to search for novel approaches. What is actually going on is scientists writing serious articles saying things like, objects can fall into a black hole, losing contact with the universe as they enter the black hole and enter another universe. Such statements are sheer nonsense, for the only thing a scientist can speak about is the universe, not some other universe. This sounds like the nonsensical beliefs of the ancient Egyptians, saying the dead go to another universe. A scientist who focuses on the primacy of understanding would not make this mistake.⁵

Another example is the talk about anthropogenic (human caused) global warming. Governments are spending huge sums of money out of concern for global warming. Evidence is based on the past decades, while not taking into consideration past centuries.⁶ When we try to understand the world, we must consider all evidence. Scientists who ignore historical evidence to the contrary of their opinions

are not scientists motivated by trying to understand things. What is truly surprising is the large number of scientific organizations that support anthropogenic global warming. This shows that very many scientific leaders do not fully focus on correct understanding.

All human thought, not only science, must focus on understanding. We must use valid tools for understanding the economy if we are to make correct decisions. Keynesian economics⁷ was the basis of government policy during the 1930's, and is the basis of current government policy. The supporters of this policy are not motivated by trying to understand economics. If they were, they would realize that not only is the internal logic of Keynesian economics flawed, but also all empirical evidence contradicts it. Another example of flawed economic thinking is with the Community Reinvestment Act, which demands banks issue mortgage loans to people at rates lower than the banks' requirements for financial stability. The consequence was banks going bankrupt. The principle underlying the CRA is the need for banks to be compassionate to the poor. This principle is faulty both logically and empirically. The result has been that the poor have suffered, that is, the banks were not compassionate. The fact that CRA is still on the books is possible only if America's leaders are not interested in understanding, but in power instead, or whatever. Once the human being rejects full and proper understanding, very harmful consequences to society result.

Summary

Education is necessary to advance society. The only way to change human behavior, proven over the millennia of human existence, is via education. Many social problems, both within our country and in dealings with other nations, can be helped by education. Education is not only what schoolteachers and university professors do. Education is what medical doctors need to do. Education is what political leaders and pundits need to accomplish. Education is what the media is obligated to perform. Although we agree with this, we do not act in this fashion. The solution is for us to understand the goals of education, which is the proper understanding of the material taught, and to demand that our fellow citizens focus on education and not influence.

We must consider people who are focused on influence as corrupt dishonest people. We must raise our voices loud and clear, demanding that speakers explain fully the issue being discussed. Explanations must begin with principles and include empirical evidence, and discuss the logical and empirical errors others may have. At all times, we must insist both on a discussion of principles and evidence, and not permit people to give evidence without principles, or principles without evidence. We need to be bold and courageous in order to be honest, to make our society successful.

ENDNOTES

¹**Rational Thinking, Government Policies, Science, and Living**, S. Aranoff (2010), amazon.com. ISBN 978-114538-1835-0.

²“What Young Teachers of the Gifted Need to Know and Do,” S. Aranoff, *Gifted Education Press Quarterly*, Winter, (2008).

³“How is a Teacher of the Gifted Supposed to Teach?” S. Aranoff, *Gifted Education Press Quarterly*, Fall, (2009).

⁴“The Aura of Einstein and General Relativity,” *philica.com*, article number 192, Aranoff, S. (2010).

⁵“Basic Assumptions and Black Holes,” Sanford Aranoff, *Physics Essays* (a peer-reviewed journal published through the American Institute of Physics), **22**, 559 (2009).

⁶See <http://www.sepp.org/> for detailed comments.

⁷<http://www.wisegeek.com/what-is-keynesian-economics.htm>.

Auditory Thinking Strategies: A Learner-Centered Approach to Examine and Find Meaning in Music

Stephen T. Schroth & Jason A. Helfer
Educational Studies Department Knox College Galesburg, Illinois

Most parents and teachers believe that exposure to music is a key part of a gifted child's education (Helfer & Schroth, 2008a; Schroth & Helfer, 2008). Despite this, many parents and teachers feel uncomfortable working with gifted children and music (Schroth & Helfer, 2008; Smutny & von Fremd, 2009). This discomfort is often caused by a lack of exposure to music on the part of the adult who works with the child (Helfer & Schroth, 2008b; Schroth, Helfer & Dammers, 2009). To meet the need for an authentic, sophisticated yet simple approach, instructional strategies that will build gifted children's familiarity with music while also developing their critical and creative skills have been created and field-tested with students in a variety of grade settings in Arizona, Illinois, and Virginia. Experience gained through a variety of curriculum projects led to the development of Auditory Thinking Strategies (ATS), a simple instructional strategy designed to assist teachers and parents work with gifted students and music.

Background

Historically, most music programs in schools have focused on performance (Schroth, Helfer, Romano, Gonshorek & Johnson, 2010). While performance is, of course, an integral part of music education, focus on this alone ignores the other four “disciplines” of music: music history, music appreciation, composition and aesthetics (Helfer & Schroth, 2008a; 2008b). ATS is designed to revise the “music curriculum” to go beyond music performance—this may be resisted by those who fear that time spent on music history, appreciation, composition, and aesthetics will detract from teaching the traditional skills of music making. These complaints may be countered, however, by referring to the national music standards (Consortium of National Arts Education Associations, 1994). The national music standards ask that students:

- Listen to, analyze, and describe music;
- Evaluate music and music performances;
- Composing and arranging music within specified guidelines.
- Understand relationships between music, the other arts, and disciplines outside the arts; and
- Understand music in relation to history and culture (Consortium of National Arts Education Associations, 1994).

Taken in conjunction with other music instruction, ATS can build these competencies. ATS is especially attractive because it does not require an extensive music background on the part of the teacher.

ATS Research and Theory

ATS is a student-centered approach that uses music to teach thinking. ATS takes into account the developmental stages documented in detail by Jean Piaget (Piaget, 1926/1955; 1937/1954). Children are only able to accommodate information and learning that is within their capacity to grasp (Piaget, 1926/1955; 1937/1954; Vygotsky, 1934/1994). While children can hear and interpret information and ideas beyond their natural range, they cannot put these to use independently until they are ready to do so (Piaget, 1926/1955; 1937/1954; Vygotsky, 1934/1994). Learning occurs in increments that relate to the learner’s developing interests and capacities (Bruner, 1967; Piaget, 1926/1955; 1937/1954; Vygotsky, 1934/1994).

Over the course of five years, we worked with hundreds of children enrolled in kindergarten through the ninth grade. After working with these children, and interviewing them regarding their perceptions, we found that differences existed in how these children thought, and what they said, when listening to music. We endeavored to understand the changes in thinking that take place given exposure to music over time. Five distinct patterns of thinking transpired in the course of growth when listening to music. The five stages are:

Stage I: Responsive Listeners

Listeners have an immediate, and sometimes strong, response to what they hear. Listeners begin by associating what they hear with sounds they are familiar with from their lives. Observations are generally concise and succinct, and often do not come in a linear sequence. Frequently, listeners will provide a list of associations they make between what is heard and what they know: certain sounds may remind them of the rumbling of thunder while others may be reminiscent of the sound of human voices. Judgments, if present, are based upon what the listener likes or dislikes. Emotional responses to the work are common, as the listener’s focus is on those aspects of the piece that captures his or her attention.

Stage II: Practical Listeners

Listeners’ responses indicate some familiarity with music and have some ideas about what the process of listening entails. Occasionally, listeners will allude to composers, singers, or musicians with whom they are familiar. The listener’s chief emphasis is upon developing and identifying the lens that assists them in making sense of what they are hearing: their perceptions, their experience with the world around them, and their knowledge of music and performance. If a piece is innovative, unusual, or atypical compared to what the listener is accustomed to hearing, the work is frequently rejected as “strange” or “bizarre.” An emphasis is placed on works that sound appropriate, either in a natural world or traditional musical sense. References to emotion are exclusively tied into the composer’s or performer’s technique. General references are made to *tone*, *timbre*, *melody*, and *rhythm* (e.g., “I like the tune,” or “I like the beat”).

Stage III: Categorizing Listeners

Categorizing listeners adopt and accept the analytical and critical insights of the musicologist. Listeners desperately want to identify a given piece as to compositional form, musical elements, composer, style, and time. Listeners make sense of, and interpret, a work using those facts and concepts that they have already learned and to which they are eager to add. Listeners believe that by properly classifying a work they will be able to better access that work’s significance, meaning, and implications. Thus, a student may make connections regarding the style of compositions from the same composer or time period.

Stage IV: Expository Listeners

Expository listeners expect and enjoy an individual concursion with a piece of music. Listeners at this stage are happy to slowly delve into the work, letting its meaning become known gradually and progressively. Intricacies of pitch, time, timber, harmony, counterpoint, texture, form, and orchestration are grasped and put to use in discerning underlying meanings of the work. The symbolic significance of a piece becomes paramount, and critical skills are used to explore a work’s fundamental implications. Listeners welcome each new encounter with a piece of music, knowing that it provides an opportunity for new assessments, experiences, and revelations. When revisiting previously heard works, listeners see their responses as susceptible to transformation and modification. Put differently, the ever deepening familiarity with a composition mingles with the new nuance resulting from continued listening.

Stage V: Demiurgic Listeners

Demiurgic listeners have a long history of listening to, playing, and otherwise interacting with pieces of music. A well-known piece of music exists on two levels: First, as a familiar entity that is well-known, beloved, and cherished and, second, as a portal allowing explorations of a more exalted, exhilarating, and electrifying nature. A lengthy relationship with a given work, and an extensive experience with listening in general, allows the demiurgic listener to combine personal interaction with a piece with reflection on universal concerns. Demiurgic listeners are able to bridge narrow concerns with the general, individual experiences with the common. Listeners at this stage are able to gain deep pleasure from listening to various interpretations of a composition. Sometimes, listeners within this stage will undergo an aesthetic experience due to their ability to focus on the filigree and the larger formal structures concurrently.

ATS in Action

ATS uses music to teach thinking, communication skills, and auditory listening to children. To begin the teacher plays the students a piece of music, in most cases a piece lasting no more than five minutes. Teachers may use almost any type of music, although instrumental seems to work best because vocals often distract children. Table 1 provides some pieces that have been used successfully in the past, but is by no means prescriptive.

Table 1

Useful CDs for Use with ATS

Composer	Conductor/Orchestra	Title	Label/ASIN
Ludwig van Beethoven	George Szell/Cleveland Orchestra	<i>Symphony No. 9</i>	Sony/B00005YJNW
Benjamin Britten	Benjamin Britten/English Chamber Orchestra	<i>The Young Person’s Guide to the Orchestra</i>	Decca/B0000041S6
Gustav Holst	Herbert von Karajan/Vienna Philharmonic Orchestra	<i>The Planets</i>	Decca/B000KQGOA4
Felix Mendelssohn	Herbert von Karajan/Berlin Philharmonic Orchestra	<i>Symphonies 3 & 4</i>	Deutsche Grammophon/B000001GXC
Wolfgang Amadeus Mozart	The Chamber Orchestra of Europe/Murray Parahia	<i>Piano concertos 21 & 27</i>	Sony/B00000279R
Richard Strauss	Herbert von Karajan/Berlin Philharmonic Orchestra	<i>Eine Alpensinfonie</i>	Deutsche Grammophon/B000001GK2

After the teacher plays the piece for students, he or she allows them approximately 30 seconds to contemplate the music. The teacher then asks the students questions about the piece. There are only three questions asked, namely:

- What do you hear going on in this piece?
- What do you hear that makes you say that? and
- What else do you hear?

When asking questions, the teacher clarifies that he or she will not be responding to student queries, but that instead the answers must be found within the work to which all have listened.

A unique challenge to the ATS is the element of time. That is, if one were to look at a painting for a time, the image does not alter (at least in substantial ways—e.g., how light hits the canvas). When one listens to music, however, the movement of sound through time

affects the end result as this is a combination of all that came before. Thus, children may require multiple hearings of a composition prior to the initial questions.

Reacting to Student Responses

A teacher with little experience with music can still utilize this strategy with children. Indeed, one way of understanding student responses is through the three following categories: *imaginative*; *affective*; and *formal/structural*. Any of these categories may be used with individuals at any stage. Some children, possibly those with less formal experience with music, may respond in terms of what the music makes them imagine. Such students would respond well to imaginative works. In other words, the music may serve as a portal from which the child will enter another world. Thus, the beginning of Beethoven's *Symphony No. 9* will serve as a sonic exemplification of the beginning of creation or the (eventual) apex of an explosion. If a child responds in this manner, the teacher can expect responses to questions regarding, "What do you hear that makes you think that?" with remarks about groups of sounds or rhythms at particular points within the music. In other words, the child will mention that some sections (parts) of the music are loud and "sound like" an explosion. This application of simile can be used as a transition for further clarification of the third question in ATS ("What else do you hear?") Works that are especially useful in exploring imaginative themes are listed in Table 2 below.

Table 2

Useful CDs with Imaginative Themes

Composer	Conductor/Orchestra	Title	Label/ASIN
Hector Berlioz	Leonard Bernstein/New York Philharmonic	<i>Symphonie Fantastique</i>	Sony/B00000J27R
Richard Strauss	Bernard Haitink/Royal Concertgebouw Orchestra	<i>Till Eulenspiegel's Merry Pranks</i>	Philips/B0001KTB4E
Richard Strauss	Mariss Jassons/ Royal Concertgebouw Orchestra	<i>Don Juan</i>	RCO Live Holland/B001DF6HBW
Modest Mussorgsky (orch. Ravel)	Valery Gergiev/ Weiner Philharmoniker	<i>Pictures at an Exhibition</i>	Philips/B00005YX6C

Other students may respond to music in terms of how or what it makes them feel. These children would respond well to music that has strong affective themes. To be sure, some students will construct these strings of feelings in a narrative form. Nonetheless, if a teacher hears a child mention things like "The music sounded sad," or "The music made me sad," it is important to focus the child once again on the sound. The teacher, using the ATS will try and help the child identify moments that occurred in the development of the feeling (not necessarily particular timbres or rhythms or melodies). Even teachers that lack confidence in their musical abilities can do this with relative ease using the ATS. Thus, if a student responds that, "The music makes me sad," the teacher can simply ask "What do you hear that makes you say that?" At this point, and similar to the above, students may respond with particular moments in the music that are more expressive. These would include moments when the music suddenly changes dynamics (the relative loudness and softness within a composition), articulation (the relative length of the notes within a composition), timbre (the sound of the instruments playing within a section of music), and/or tempo (the relative speed of the music within a section). Table 3 below lists some works that are especially useful in exploring affective themes.

Table 3

Useful CDs with Affective Themes

Composer	Conductor/Orchestra	Title	Label/ASIN
Claude Debussy	Herbert von Karajan/Berlin Philharmonic Orchestra	<i>La Mer</i>	Deutsche Grammophon/B000W99IJS
Claude Debussy	Herbert von Karajan/Berlin Philharmonic Orchestra	<i>Prelude to the Afternoon of a Faun</i>	Philips/B0007KTB4E
Maurice Ravel	Pierre Boulez/Berlin Philharmonic Orchestra	<i>Bolero</i>	Deutsche Grammophon/B000001GLO
Frederic Chopin	Vladimir Ashkenazy	<i>Nocturnes/4 Ballades</i>	Decca/B0000041L8

Students, especially those who have received instruction on an instrument or voice, may respond to the structure of the music. This means of appreciation is interesting because the students are hearing the larger, overall structure of the compositions. They are able to hear and recognize large sections of music that are the same and different from one another. This is important because within this larger view are the other elements of music that make these larger formal structures evident. A teacher may need to assist the student on focusing upon the minutiae that, in combination with other elements make up the larger sections of music. Again, this can be easily accomplished with questions about what one hears and then asking for further investigation. Works that are especially useful in exploring formal/structural themes are listed in Table 4 below.

Table 4

Useful CDs with Formal/Structural Themes

Composer	Conductor/Orchestra	Title	Label/ASIN
Johann Sebastian Bach	Sir Neville Marriner/Academy of St. Martin-in-the-Fields	<i>Brandenburg Concertos</i>	EMI Classics/B000UZ43M0
Wolfgang Amadeus Mozart	Karl Böhm/Berlin Philharmonic Orchestra	<i>Symphony No. 41 (Jupiter)</i>	Deutsche Grammophon/B000001GQB
Franz Joseph Haydn	Eugen Jochum/Bavarian Radio Symphony Orchestra; Berlin Philharmonic Orchestra; London Philharmonic Orchestra	<i>Symphonies Nos. 88-104 (London Symphonies)</i>	Deutsche Grammophon/B000008RWRH
Ludwig van Beethoven	Carlos Klieber/Vienna Philharmonic Orchestra	<i>Symphony No. 5</i>	Deutsche Grammophon/B000001GX

While these three general approaches are somewhat different than the stages, they are similar insofar that they are useful for teachers when working with gifted children. These approaches to listening can assist the teacher in terms of what to expect from the child. This information may also be instructive in terms of what sorts of music the teacher can suggest for future investigation. Gifted children who have demonstrated an appreciation for a certain type of music often devour additional works from the same genre. This is especially true for gifted children who may not have had a great deal of previous exposure to or formal training in music.

If, for example, a student is able to identify music in terms of what it makes him or her imagine, the teacher may wish to look up examples of program music. Program music is instrumental music (no voices) that tells a story. *Symphonie Fantastique* (Berlioz) or *Till Eulenspiegel's Merry Pranks* (R. Strauss) would be excellent next choices. Students who respond to music in terms of how or what it makes them feel may be served by listening to music by Debussy or Ravel. Those students who are acutely sensitive to the larger formal structures may benefit from listening to music of the middle and late classical period (Mozart, Haydn, and early Beethoven). Of course, the teacher may also wish to try other genres of music such as jazz (be-bop or cool jazz work nicely) or world music to assist the student in realizing that the expressive power of music is not limited to works considered “classical.”

Conclusion

Gifted students are often provided many avenues through which they can hone their abilities in English/language arts, mathematics and science. This is reasonable since schools value these skills and that many children gifted in the fine arts receive services outside of the school. The purpose of the ATS is to also make it possible for all children to explore the wonders of music. To understand its power though asking simple yet deeply profound questions that lead the child to investigate not only what he or she hears, but how the music is able to affect the development of images and feelings so powerfully. ATS is a simple yet powerful approach that can allow all gifted children a means to develop their listening acuity.

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CREATIVE AND CRITICAL THINKING

Robert E. Myers Healdsburg, California

With E. Paul Torrance, I began writing exercises in the early sixties to encourage creative behavior. They were organized in booklets and we called them "Ideabooks." After publishing them for a short period of time, the booklets were picked up by Ginn and Company and had reasonably long lifetimes. The main problem for Ginn was that the exercises didn't fit neatly into curriculum categories. We insisted upon believing that subject matter designations weren't important and that the curriculum was not naturally separated into pigeon holes. The sales of the booklets suffered accordingly, of course.

During those years there was quite an enthusiasm in the schools for creative activities. Dr. Torrance was the leading authority and experimenter in the field. An article about him and his work in *Look* magazine in November of 1951, for example, resulted in an avalanche of letters to him, asking for information about creativity. Over 2,000 letters were received in a period of 18 months. Paul Torrance became a national figure, and the word creative became even more overused and misused.

As a disciple and student of Dr. Torrance, I taught courses and gave lectures about giftedness and creative thinking and have continued to write materials designed to nurture creative talent.¹ When, a few years ago, critical thinking enjoyed a similar wave of popularity in the schools, I took another look at what I have been writing for over 40 years. Surprisingly, there was nearly as much critical thinking as creative thinking in my work. For example, in 1961 I included "Is It Reasonable?" in *Invitations to Thinking and Doing*.² It went like this:

Is It Reasonable?

1. As you grow older you will find it increasingly important to tell the differences between statements which are reasonable and those which are incorrect or misleading. This exercise will help you to develop the ability to see how reasonable and unreasonable statements differ. Read the sentences below and decide whether or not they make sense. If you believe a sentence is reasonable, write an *R* in the space to the left of the sentence. If you believe it is unreasonable, write a *U* to the left of the sentence. Consider each statement carefully before you write an answer.

- _____ a. Marvin was the kind of boy who did everything well; he seldom played chess but when he did he always won.
- _____ b. Ever since the earthquake, Mr. Jensen's sun dial has been one-half hour slow.
- _____ c. Marion and Clair were never sorry that they had joined the Boys' Glee Club.
- _____ d. Miss Smith was suspicious of everyone who wore a bow tie because she had once seen a moving picture in which the villain wore a red bow tie.
- _____ e. Occasional gusts of wind blew over the desert sands, causing the hikers to unpack and put on their goggles.
- _____ f. Tom's bicycle was unusual in that the third wheel was three inches less in diameter than the others.
- _____ g. For nearly two years Jerry had read the financial page of the newspaper; and this habit, of course, enabled him to become an expert on corporation mergers and stock market trends.

2. Perhaps you can think of some additional statements which might be either reasonable or illogical. Why don't you write them below and maybe they can be used to stump your classmates?

3. Would you like to make up a limerick, or sketch a silly situation, or invent a ridiculous machine, or make up a play with absurd characters? If any of these projects appeals to you, or if any other activity which is related to unreasonable people or situations interests you, why don't you get down to work? The space below is reserved for your plans and notes.

Obviously, the first part of the exercise can be considered as an effort to provoke students to use the critical thinking skills of analyzing and making judgments. The second and third parts were designed to get the students to engage in creative behavior. In examining those exercises and the many that have followed, I've concluded that I often had students thinking critically as much as thinking creatively.

In their zeal to encourage creativity, some teachers had their students do exercises that were close, if not identical to those J. P. Guilford had used to identify creative skills. Guilford had devised the Brick Uses Test to measure fluency and originality. It had the subject listing all of the uses for a brick. So a youngster might produce a list such as this:

1. to hit a bad guy (Johnny)
2. to build a house
3. to keep a door open
4. to make a path in a garden
5. for hammering nails
6. for separating book shelves
7. to grind up into powder and use as paint
8. to use as a bed warmer when heated
9. to break up and put at the bottom of pots
10. to hold down a tarp when camping

Some interesting ideas and some obvious ones.³ But most often the teacher let it go after the student had exercised her or his mind and was thereby becoming more creative. There was no attempt to do anything with the ideas; it was enough to have the student produce as many ideas as possible. Many teachers were eager to nurture creative thinking, but quite a few didn't realize that the best way to do that was to *value* the ideas that youngsters express naturally.

What was worse, however, was the practice of prematurely evaluating the imaginative effort of students. Too many teachers couldn't help assigning grades to their students' stories, poems, drawings, et al. Thus, there was a powerful teacher behavior that militated against creative growth by inflicting premature evaluation.

The notion that creative thinking doesn't lead to anything productive without some critical thinking is evident in all of the theories of how to promote creativity. Consider the best known method, that is, brainstorming. After all of the ideation by the members of the brainstorming team has been put forth and recorded (without criticism, of course), there must be a set of criteria with which to examine the ideas and rate them. This is the crucial step, and it may or may not reveal that the ideas are worthwhile. The next-to-last step in the creative thinking process is *evaluation*. (The last is to make public the idea or to test it.) So creative thinking must be accompanied by critical thinking.

I became aware of the reverse notion when chatting with my son, Ted. He had been studying the literature regarding critical thinking in preparing to give a workshop about that topic. He remarked that what was often missing in his colleagues when they were attacking difficult problems was creative thinking. Ah. It helps at times to add some creative thinking in order to get really good solutions.

To illustrate the principle of adding creative thinking to problem solving, here is a recent exercise:

Testing Your Ingenuity

A. Let's suppose that you have recently graduated from school and are seeking employment. You are well prepared to enter your field and feel confident of landing a job. But you know there are a great many people looking for work, especially in your field. You see an online advertisement for a position that is just right for you. It states that a preliminary telephone interview is required, and so you have the interview, which you feel went quite well. You are notified that you have passed the first screening and are sent an application. The next step is to send in a resume and proofs of your qualifications with the application. The materials are to be

received by August 4; no application will be accepted after that date and only mailed applications will be accepted. You think that August 4 is several weeks away and wish it were sooner.

On August 3, you go to your calendar to learn what you are supposed to be doing that week, and you are astonished to see that your application must be received on the *next day*. When you had first received the notice of the deadline, you thought it was *so* long in the future, and you just put it out of your mind. How could you be so stupid as to not have mailed it right away!

B. What can you do? Your hoped-for employer is 550 miles away. Ordinarily, it takes two days for mail to reach that city. The instructions are that no application can be received electronically. Like your friends, you live with your parents and have little money.

Think of all the ways that your application can reach the employer in time. List all of the possible ways below.

C. Now review your list of solutions. Which one is most likely to be successful? Explain why it should succeed.

At this point in my career, I'm amused to think that a great many people have championed creative thinking and ignored critical thinking's role in the process and probably more have eschewed creative thinking and concentrated only on critical thinking. We are better off if we recognize how the two types of thinking can benefit each other. I guess I have been somewhat naïve. A strictly critical approach is likely to leave something out when an individual endeavors to seek solutions, as Torrance and Harmon concluded in a provocative study,⁴ whereas imagination without some critical thinking leads to little in the way of achievement.

ENDNOTES

¹ See Myers, R. E. *Golden Quills*. Manassas, VA: Gifted Education Press, 2009.

² Myers, R. E. and E. P. Torrance. *Invitations to Thinking and Doing*. Minneapolis, MN: Perceptive Publishing Co., 1961.

³The ten ideas could be assessed as fair in fluency, above average in flexibility, and fair to low in originality.

⁴Torrance, E. P. and J. Harmon. "Effects of Memory, Evaluative and Creative Reading Sets on Test Performance." In J. M. Seidman, *Educating for Mental Health*. New York, Thomas Y. Crowell, 1963.

Alfred Hitchcock (1899-1980), Film Director: Unity of Personal Genius and Synergy

Michael E. Walters Center for the Study of the Humanities in the Schools

"I AM AN OBSERVER OF LIFE," Hitchcock had told me shortly after I met him. "Personally I have preferred to live an ordinary, uncluttered life, doing my chores, which was making movies. The Chinese have a proverb to the effect that an interesting life is better not lived. I liked to make films *about* the man-on-the-spot, not to *be* him." From *It's Only a Movie: Alfred Hitchcock, A Personal Biography (2005)* by Charlotte Chandler. p. 330.

One of the main debates among educators in the gifted field is concerned with the dichotomy between personal genius and group performance. However, this is a false and misleading dichotomy since gifted personalities can unify talent, motivation and the ability to achieve synergy with others. This synergy occurs when a group project is based on the individual work of many gifted people. Thus, the issue is not how many different people work together, but rather the quality of the gifted individuals who use their special skills and attributes to achieve common goals. The result might be the creation of a unique work of art or an important scientific discovery. Alfred Hitchcock represented that merger of artistic genius with technical and interpersonal synergy.

Hitchcock was among the great film directors of the twentieth century, specializing in suspense stories and psychological thrillers. His films were not merely recognized as cinematic masterpieces, but they also achieved an iconic quality. I will describe the different areas of talent and environmental factors that he was able to synergize. First, there was the technical staff represented by the camera crew, lighting crew and set designers. Hitchcock started out as a general technician working in the British and German film industries

during the 1920s. One of the German directors he observed during this period, Fritz Lang, had to eventually flee Nazi Germany and take refuge in the United States because of political and ethnic reasons.

Second, Hitchcock had synergy with different physical landscapes which in effect became characters in his films. Some of the famous landscapes he used were the Scottish Moors in *The 39 Steps* (1935), the Statue of Liberty in *Saboteur* (1942), and Mount Rushmore in *North by Northwest* (1959). Third, he possessed synergy with the performers and writers in his films. Hitchcock believed that “negative acting” involving subtle and low-keyed performances was preferable to brash and exaggerated acting. The greatest actors and actresses of his era were constantly seeking parts in his movies. These actors included Gregory Peck, Cary Grant, and James Stewart, while some famous actresses were Marlene Dietrich, Ingrid Bergman, Grace Kelly, and Kim Novak. Hitchcock also chose some of the best writers to create his screenplays. Among them was the Nobel Prize winner John Steinbeck who wrote the script for *Lifeboat* (1944). His film, *The Birds* (1963), was adapted from a short story by the English writer, Daphne du Maurier.

Additionally, he had synergy with his wife, Alma. They met in the early 1920s while both were working in the British film industry, and later honed their skills in German films. She wrote scripts for him, was his personal advisor, and helped with storyboard designs which enabled him to successfully direct each movie. Hitchcock drew his films using detailed storyboards before he actually filmed them.

Gifted students need to study the life of individuals such as Alfred Hitchcock. They can learn from Hitchcock that giftedness is the ability to accomplish a symbiosis of personal, artistic genius with the synergy of many different types of people working to attain the same unique goals.

Resource

Chandler, Charlotte (2005). *It's Only a Movie: Alfred Hitchcock, A Personal Biography*. New York: Applause Theatre & Cinema Books.

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2. *Energizing Your Gifted Students' Creative Thinking & Imagination: Using Design Principles, Team Activities, and Invention Strategies: A Complete Lesson Guide for Upper Elementary and Middle School Levels* (ISBN 0-910609-57-8) by Harry T. Roman Technology/Engineering Educator East Orange, New Jersey. COST: \$22.00 including P&H. <http://bit.ly/bb20R2>

3. *Golden Quills: Creative Thinking and Writing Lessons for Middle-School Gifted Students* (ISBN 0-910609-56-X) by R. E. Myers, Ed.D. Creative Learning Consultant Healdsburg, California. COST: \$22.00 Including P&H. <http://bit.ly/c6Xbol>

4. *HOMESCHOOLING GIFTED STUDENTS: Stimulating High Levels of Creative Thinking and Problem Solving in the Home – Upper Elementary through Middle School* (ISBN 0-910609-59-4) by R. E. Myers, Ed.D. Creative Learning Consultant Healdsburg, California. COST: \$22.00 Including P&H. <http://bit.ly/btgkFj>

5. *SNIBBLES: REALLY Creative Problem Solving Lessons and Mind-Stimulating Exercises for Gifted Students and Their Teachers, Ages 5 through Really Old!* (ISBN 0-910609-50-0) by Judy Micheletti Teacher of Gifted Students Berwick, Pennsylvania. COST: \$19.80 Including P&H. <http://bit.ly/9mCe3C>