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PUBLIC LECTURE SERIES

Proceedings of the 2024 Public Lecture

Why I Prefer 'Academic Talent Development' over 'Gifted Education'

by Professor Frank Worrell

April 11, 2024 | Virtual


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FACULTY OF HUMANITIES AND EDUCATION
THE SCHOOL OF EDUCATION
2024 PUBLIC LECTURE
WHY I PREFER 'ACADEMIC TALENT DEVELOPMENT' OVER 'GIFTED EDUCATION'
SPEAKER
Professor Frank Worrell
Distinguished Professor of Education and Psychology
at the University of California, Berkeley
11 APR | 5:00 PM | VIRTUAL - VIA ZOOM
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Professor Frank Worrell

Biography

Frank C. Worrell, PhD., is a Distinguished Professor at the University of California, Berkeley with appointments in Education and Psychology. His areas of expertise include at-risk youth, cultural identities, scale development, talent development, teaching effectiveness, time perspective, and the translation of psychological research findings into practice. Author of over 300 scholarly works, Dr. Worrell is a Fellow of the American Educational Research Association, the Association for Psychological Science, five divisions (5, 15, 16, 45, & 52) of the American Psychological Association, and an elected member of the Society for the Study of School Psychology and the National Academy of Education. A former editor of Review of Educational Research, Dr. Worrell is a recipient of the Distinguished Scholar Award from the National Association for Gifted Children (2013), the Distinguished Contributions to Research Award from Division 45 of APA (2015), the Nadine Lambert Outstanding School Psychologist Award (Region II) from the California Association of School Psychologists (2016), the Outstanding International Psychologist Award from Division 52 of APA (2018), the Palmarium Award in Gifted Education from the University of Denver (2019), the award for Outstanding Contributions to the Profession of School Psychology from the Council of Directors of School Psychology Programs (2023), and an Honorary Doctorate from Heidelberg University (2023). He was the 2022 President of the American Psychological Association.

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Introductory Remarks

Dr Rinnelle Lee-Piggott, Lecturer, School of Education, UWI, St Augustine

Dr Rinnelle Lee-Piggott, Lecturer, School of Education, UWI, St Augustine

Good evening everyone, Director of the School of Education, Dr Rawatee Maharaj-Sharma; Our Esteemed Featured Speaker, Professor Frank Worrell; Colleagues at the School of Education here at the UWI, St Augustine Campus. Attendees from both the education and non-education sectors both locally and internationally – Welcome!

Amongst us are Directors, Teachers, Lecturers, Principals, Psychologists, Counsellors, Guidance Officers, Quality Assurance Personnel, Medical Practitioners and Students. – a quite diverse audience! Again, a warm welcome to everyone. I am Dr Rinnelle Lee-Piggott, Lecturer in Educational Administration at the School of Education, and I will be your Moderator this evening.

I'm sure at some time or other you may have encountered a child who appears to be 'talented' or maybe even 'gifted'. Have you wondered if there is a difference between 'talent' and 'giftedness' or if these can be developed, and if so, how? Especially in academics, how do we draw out academic success? Is it through academic talent development or maybe through gifted education programmes? Is one preferable over the other? Well, the School of Education's second public lecture this evening is focused on answering your questions.

Presenting this evening is Distinguished Professor of Education and Psychology at the University of California, Berkeley, Professor Frank Worrell. Professor Worrell will be sharing with us 'Why he Prefers 'Academic Talent Development' over 'Gifted Education'. The programme for this evening will continue as follows: We will have welcoming remarks and the introduction of our featured speaker by the Director of the School of Education, Dr Rawatee Maharaj-Sharma, which will take us to the main reason we're here, the lecture by Prof Frank Worrell. Then, we will move into the Question & Answer segment, which will be moderated by Dr Paulson Skerrit. This will be followed by closing remarks and the vote of thanks.

Before I invite our Director to bring her remarks, I ask you to please pay attention to our housekeeping guidelines:

- Be reminded that the session is being recorded.
- We ask you to please keep your microphones muted during the presentations.
- And because the session is intended to be an hour, we ask you to place your questions and comments in the chat or by using the Q&A feature, from where we will retrieve them for Prof Worrell's attention during the Q&A segment. Both icons (Chat & Q&A) can be found at the bottom of your Zoom window.

I now invite the Director of the School of Education, Dr Rawatee Maharaj-Sharma to bring her remarks and to introduce our speaker…Dr Maharaj-Sharma

Greetings and Introduction of Presenter

Dr Rawatee Maharaj-Sharma, Director, School of Education, UWI, St Augustine

A pleasant good afternoon to all who have joined us virtually to participate in this, the second public lecture hosted by the School of Education of the Faculty of Humanities and Education at UWI, St Augustine. This evening, I bring greetings and a very warm welcome to you all, from myself & on behalf of the Dean of the Faculty, Prof Elizabeth Walcott-Hackshaw.

The main aim of our public lectures is to engage with the public on trending and topical issues in education affecting contemporary society. Our major objectives are to contribute to solutions, raise awareness and improve our understanding about these issues.

We have embarked on this initiative to foster collaboration with stakeholders at every level within the education sector. We want to engage thinkers, facilitate knowledge sharing and spark discussions. It is our hope that our offerings through this medium will be received, in the collegial & collaborative spirit, in which it is intended.

The title of today's public lecture is "Why I prefer 'Academic Talent Development' over 'Gifted Education'."

We engaged in much discussion, bearing in mind many of the trending issues in the current educational context, and out of those discussions we carefully selected this topic for our second public lecture. We have recognised that talent development, as a framework for gifted education has drawn much focus in research and in educational practice, because of its emphasis on the development of emergent talent & potential; an emphasis which offers more than ample opportunity to educators & teachers to address the academic, psychological, psychosocial as well as the non-cognitive needs of a wider range of learners including students with special needs. Our presenter this evening will certainly add to our limited knowledge and understanding of this topic, as through this medium, we seek to raise awareness & provoke reflection.

With that being said, I will now proceed to introduce our esteemed presenter in the remaining time allotted to me.

Today, our esteemed presenter is Professor Frank Worrell. Professor Worrell is a Distinguished Professor at the University of California, Berkeley with appointments in Education and Psychology. His areas of expertise include at-risk youth, cultural identities, scale development, talent development, teaching effectiveness, time perspective, and the translation of psychological research findings into practice.

Professor Worrell is an author of over 300 scholarly works and is a Fellow of the American Educational Research Association, the Association for Psychological Science, and the American Psychological Association. He is an elected member of the Society for the Study of School Psychology and the National Academy of Education.

Among the many awards received, Professor Worrell is a recipient of the Distinguished Scholar Award from the National Association for Gifted Children, the Nadine Lambert Outstanding School Psychologist Award from the California Association of School Psychologists, the Outstanding International Psychologist Award from Division 52 of APA, the Palmarium Award in Gifted Education from the University of Denver, and the award for Outstanding Contributions to the Profession of School Psychology from the Council of Directors of School Psychology Programs.

In 2022, Professor Worrell served as the President of the American Psychological Association and, in 2023, Professor Worrell received an Honorary Doctorate from Heidelberg University.

A very special and warm welcome to you, Professor Worrel, and once again thank you for facilitating us. I now invite you, Professor Worrell, to share with us your presentation.

Public Lecture

Why I Prefer 'Academic Talent Development' over 'Gifted Education'

Professor Frank Worrell

Distinguished Professor at the University of California, Berkeley

I'd like to extend my thanks to the Director and the Publishing Lectures Committee of the School of Education at the UWI Campus in St. Augustine for the kind invitation to speak to you today. A special shout out to Mrs Pierre-Robertson for the support and all the help leading up to today's presentation. As indicated, my topic is Why I Prefer 'Academic Talent Development' over 'Gifted Education'. In the United States, education is generally the province of the States, with the Federal Government only taking the lead in special education. However, in the United States, the Federal Government doesn't provide funding for Gifted Education. They say that you can have gifted education, but they do not fund it. Therefore, there are very few grants for gifted education. That being said, the US is also very aware that students who are gifted and talented, who grow up to be talented adults contribute to the way society develops – for example, electric cars and the internet. Many of these students would have been in gifted and talented programmes. They are students who developed over time.

Common Views of Giftedness

With that, I'm going to launch into my topic for today starting with the common views of giftedness. There are several common views of giftedness. One of them is 'giftedness as trait'. This is the idea that we are born gifted.

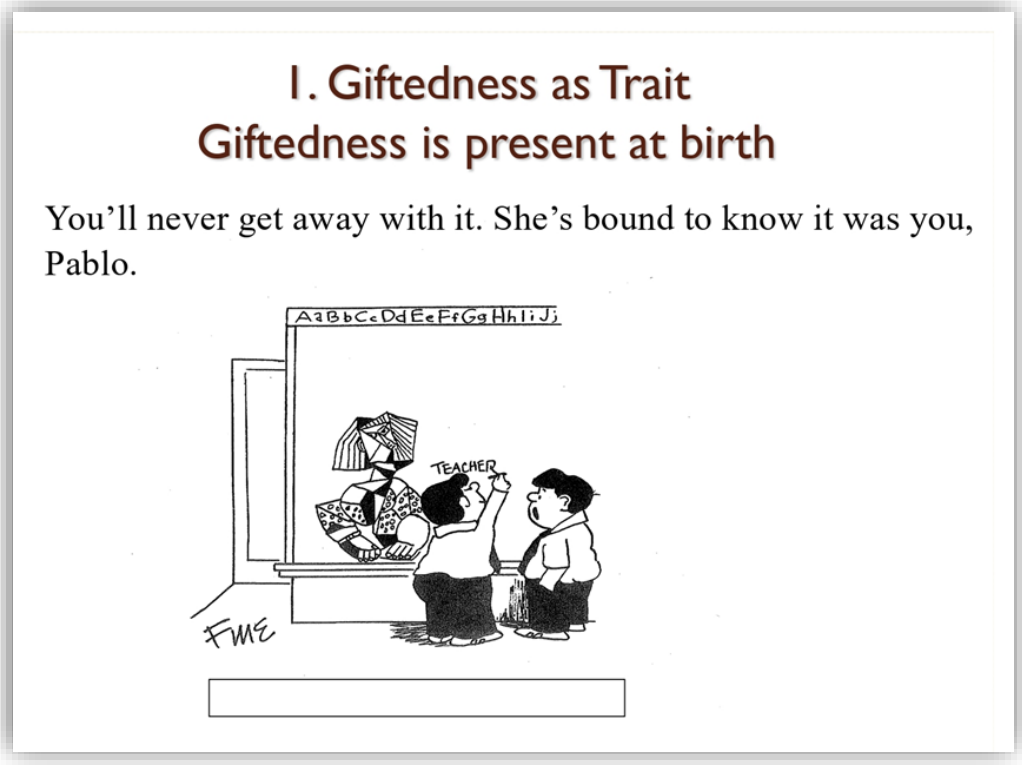


Figure 1 - Giftedness as Trait

In this cartoon (Figure 1), the young man is saying to his friend "You'll never get away with it. She's bound to know it was you, Pablo." I'm sure you all know which Pablo that is right? It is the cubist, Pablo Picasso. The cartoon communicates that Pablo Picasso even as an elementary school kid in drawing a picture of his teacher, draws a cubist version of that picture. But when we look at early Picasso on the left, we will see that early Picasso was not at all cubist. So, this idea of Picasso becoming a cubist is a result of talent that developed over time in response not just to the training that he got, but also in response to artists of his day with whom he was competing and engaging in collaboration as they moved forward.

Another common view of course is that 'giftedness is IQ', and I think it's perhaps one of the most common views in the world often established. Louis Terman in 1922 brought the first IQ test to the United States and started identifying students in the top 5%, 2%, or 1% as gifted students. Of course, this view of giftedness leaves out non-academic domains. It also omits domain-specific abilities such as mathematical reasoning and verbal reasoning. So, for example, I may be very good and have a high IQ, but I may actually have a stronger mathematical cast of mind or I'm a writer; so domain-specific abilities also matter.

The third view of giftedness is 'gifted individuals are good at everything'.

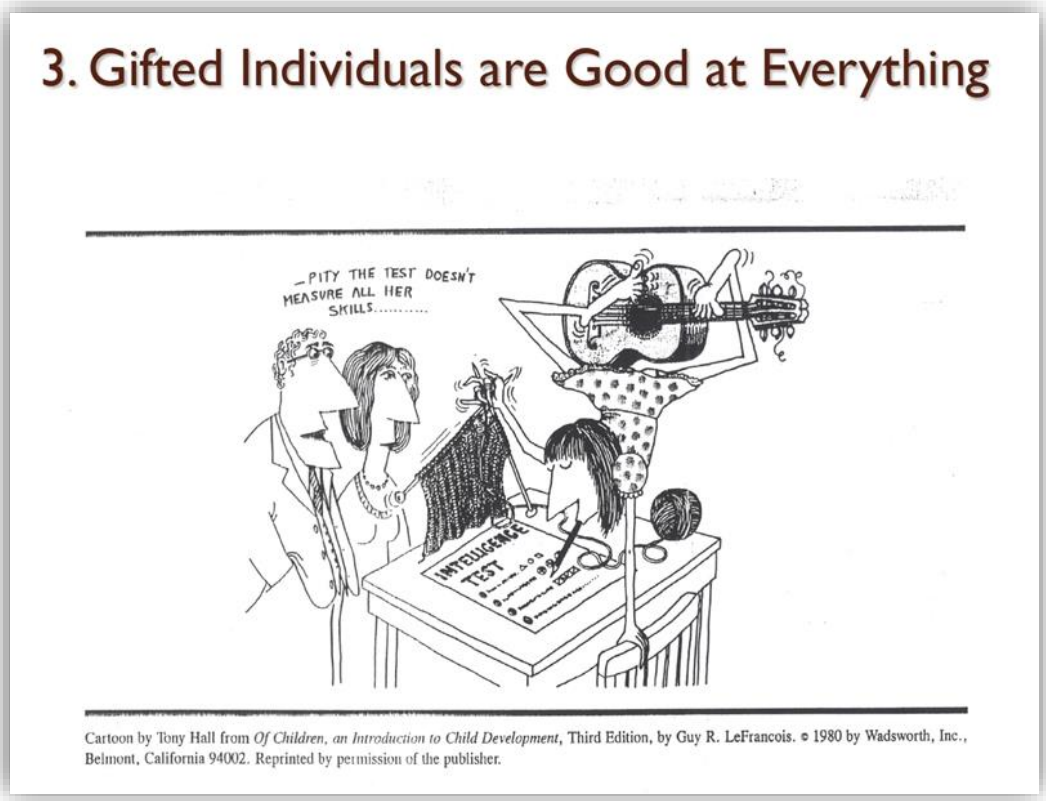


Figure 2 - Gifted Individuals are Good at Everything

In Figure 2, a young lady is taking an IQ test while she is doing a handstand, knitting with the other hand, and playing the guitar with her feet. The psychologist says, "pity the test doesn't measure all of her skills." Those of us who have been teachers, those of us in education, those of us who are psychologists, and those of us who work with kids and individuals generally know that there are people who have different, individual strengths and challenges.

The fourth view which has been popularised in the last decade and a half or so is 'giftedness as the outcome of practice'. Many of you may have heard of the 10,000-hour rule, that if you want to become gifted, you need to practice for 10,000 hours. This idea was based on a study done by Anders Ericsson. Ericsson did this retrospective study of individuals who were playing the violin and what he found is that the people who became teachers had practiced, on average, 4,000 hours. Those who became good players had practiced, an average, 8,000 hours, but the elite performers, the ones who were soloists with the orchestra and so forth, had practiced an average of 10,000 hours. So, Ericsson argued that 10,000 hours is a pathway to giftedness. But I would

say that what he was looking at again was talent development even though he hadn't thought of it in that way, because he also measured how many hours people practiced over the course of their lifetime. They were in their 20s when he interviewed them. So, those who at 5 years old were practicing on average 2 hours a week, by 14 years old they were practicing 15 hours a week and by the time they are 20, they are practicing upwards of 25 hours a week. So, we see that practice matters, but there is also a developmental trajectory here. Those views of giftedness have led to a sort of common gifted education practices which are really generic enrichment.

Generic Enrichment

In many cases, there are pull-out classes for part of the day and then there are project-based learning on art, science, and a variety of topics. These projects are often related to the teacher's knowledge. Therefore, if a teacher is very good at writing, they are going to do practice based on writing. But again, the kids they have engaged in writing practice may be talented in mathematics; so, enrichment shouldn't be generic, but should be domain-specific.

Moving From Giftedness as Trait or Practice to Giftedness as Talent Development

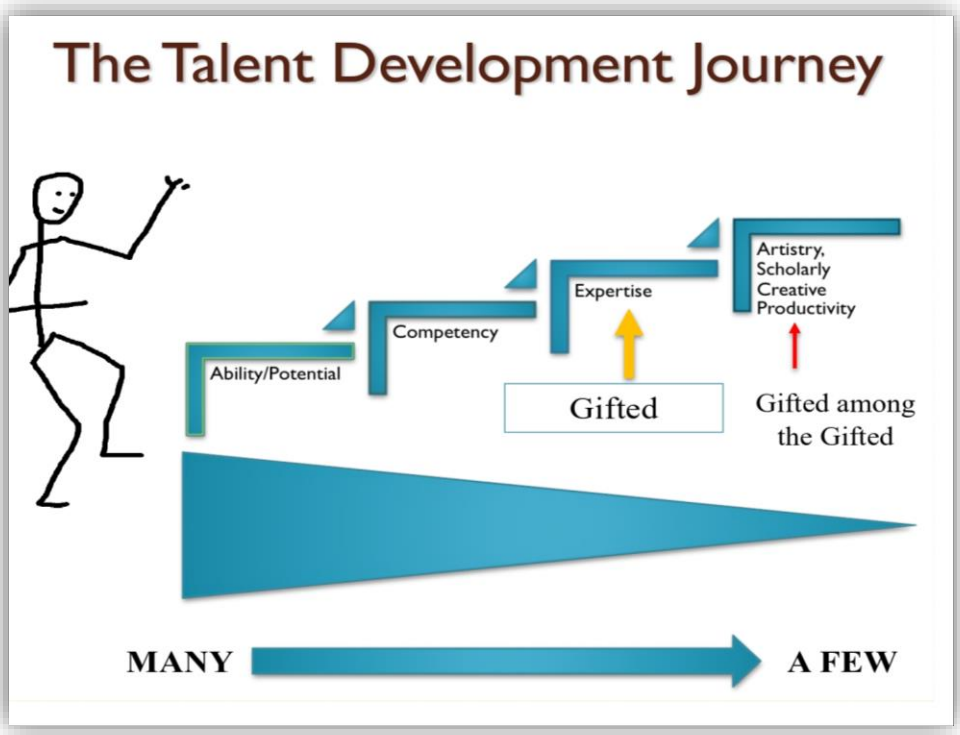


Figure 3 - The Talent Development Journey

Figure 3 speaks to the idea of moving from giftedness as 'trait or practice' to giftedness as 'talent development'. I will share why I prefer this idea of talent development. Many of you may be familiar with Gardner's

Eight Intelligences. Linguistics, logical-mathematical, and so forth. Importantly here, what many people fail to realise is that what is important is not just that it is linguistic or musical, it is your use of those skills.

Linguistic intelligence is not just about having a high score on verbal intelligence, it's how I use words. Am I a poet, am I a playwright, am I a calypsonian who gets you to laugh a lot with my calypsos? Can I indict politicians? I know Short Pants, I don't know if he is still around but he taught me. I remember the calypso, 'The law is an ass' where he skewered the legal system in Trinidad and Tobago. So what matters is the use of mathematics, the use of your body in sport or dance. Again, speaking to practice over time.

All Learning is the Outcome of a Talent Development Journey

In some sense talent development, then, is the outcome of a journey. Learning is the outcome of this talent development journey, and we are starting with kids who have ability or potential. We don't know what that potential is going to turn into as an adult. That's what education is for, that's what training and coaching are for. We move from ability and potential to competency and ultimately to expertise. Think about expertise because that's what adult talent looks like. The surgeon who does surgery in the operating room, and the batsman on the field of cricket, are examples of this idea of expertise. Expertise then is deep knowledge of a particular skill, or domain and the ability to incorporate new information into the expert's domain knowledge. So, if I am very good with words, I may start writing poetry but then I may move to rap or I may write haiku versus writing a sonnet. I can incorporate new information with the domain knowledge that I have, and I can express that information in a useful way. So, expertise then is giftedness in adulthood. What we are measuring in childhood is potential, and I would argue that we start with a lot of people, so everybody starts the same. But as we move up the ladder some people move into mathematics, some move into physics, some move into history, some move into sports, and some move into visual and performing arts. They get expertise. Fewer people in adulthood have expertise than the number of children who have potential. When we have gifted adults, at the very heart of that we have the people who are gifted among the gifted. I don't know if many of you who are listening on this call are people who play golf but if you play golf, I am

willing to bet that you may not know who the number one golfer is in the US today. I don't know who it is either. But I would also bet that many of you would know the name Tiger Woods even though he has not been the number one golfer for a very long time. That's because Tiger Woods was gifted among the gifted, Lebron James in basketball, and my namesake Sir Frank Worrell was gifted among the gifted in cricket. You may be aware of Weekes, Walcott, and Worrell. You know my father had hopes that didn't quite pan out. I didn't go into sports. So, returning to this idea about the gifted among the gifted, it is about expertise. We celebrate expertise in several domains, athletics, health professions, and academic fields, but I would argue that there is expertise in every field. We may have somebody who does our yard, the taxi driver who can get us to the airport in a rush because they know the back roads to take. Every domain has expertise even though some areas of expertise are celebrated more by society than others.

Other Talent Development Models

Moving back to the idea of talent development. There are a number of talent development models that have informed my thinking over the years. One of them is by Abraham Tannenbaum, who argued that giftedness is the potential for becoming an acclaimed performer or an exemplary producer of ideas. Tannenbaum recognises the idea of giftedness in childhood as potential. Françoys Gagné in Montreal talks about gifts as what we are born with, determined by biology, and talents as the skills and knowledge that we acquire over time. The goal of education then is to transform gifts into talents. One of the most cited theories of giftedness in the literature is 'Renzulli's 3-ring definition of giftedness'. I like this definition because he talks about an interaction between above-average ability, not necessarily the top ability, along with creativity, and task commitment. You need to have all three of these for what he calls gifted behaviour; the outcome. However, my favourite definition is one that a lot of people don't know, but which captures really nicely what talent development is and what gifted education should be about. Haensly et al. argued that giftedness is an interaction among abilities that have coalesced: the person who becomes an expert has their abilities coalesce into expertise, and that's dependent both on chance and the opportunities that they received and took up. It is dependent on 'a setting' that allows for and encourages the expression of those abilities. So, for example, classrooms and the Math club are places that helped those abilities come to fruition. 'Obstacles' hone or refine the expression of those abilities. So, the drills that the coach gives, the homework that the teacher gives, the curriculum and training, those things are important aspects of developing

talent. And, the final aspect of the definition is the individual effort and motivation as well as the commitment of the individual.

A few years ago a couple of colleagues and I wrote an article in which we introduced the talent development mega model. We talked about it with regard to giftedness and gifted education. And even though we are speaking about academics today we wanted a model that applied across all domains: academics, performing arts, athletics, and the professions. So, we did an exhaustive review of the literature on gifted education and the like.

Here are my two co-authors, Rena, Paula, and myself and this is our definition, which we think is an important one that captures all of the elements mentioned before (See Figure 4). Giftedness is the manifestation of performance or production at the upper end of the distribution.

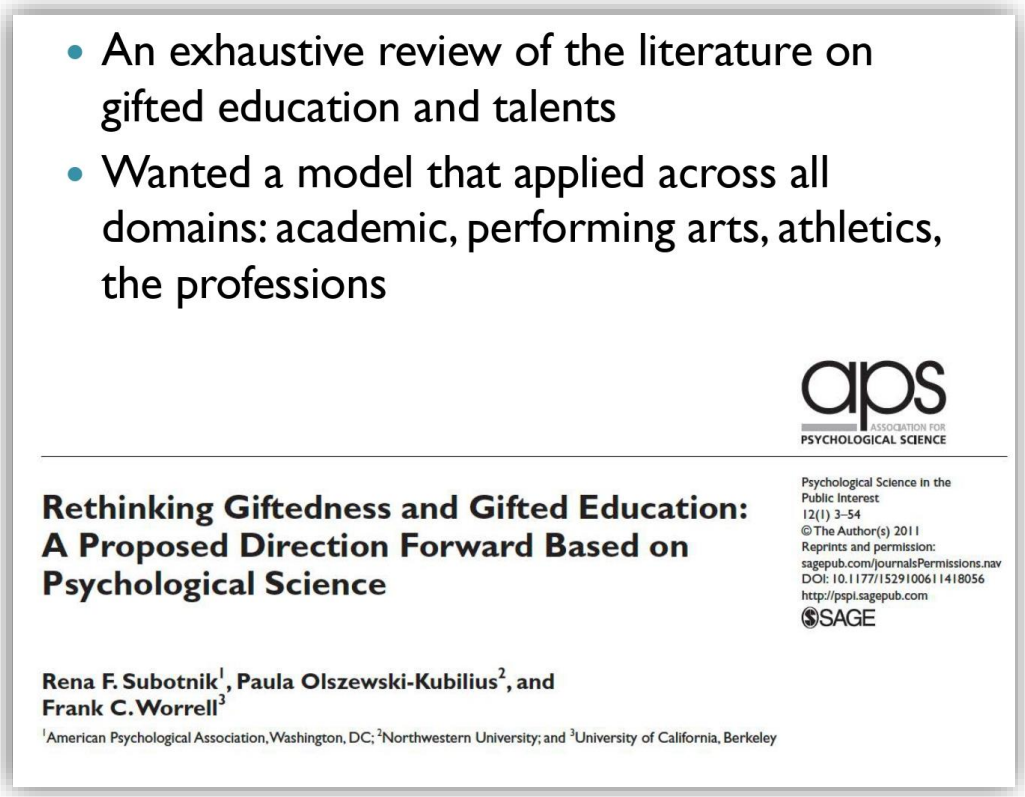


Figure 4 - Article Introducing the Talent Development Mega Model

So, you are performing well, even relative to other high-functioning individuals. That's point number one. It is developmental, in that in the beginning stages potential is what matters; in the later stages, achievement is the measure of giftedness; and in fully developed talents like Tiger Woods in golf and Steph Curry in basketball, Einstein and Shakespeare and names

that we recognize, eminence is the basis of which this label is granted. It involves psychosocial variables that play an essential role: motivation, risk-taking, and a number of other factors play a role as people develop over time. Gifted performance has to be developed and sustained by training and interventions, that is, good coaching, good teaching, and good mentors. The goal of this process is to transform potential that is evident in childhood into outstanding performance and innovation in adulthood.

So, people start with different levels of ability, and I think this article (Figure 5); this figure from Papierno shows it very nicely.

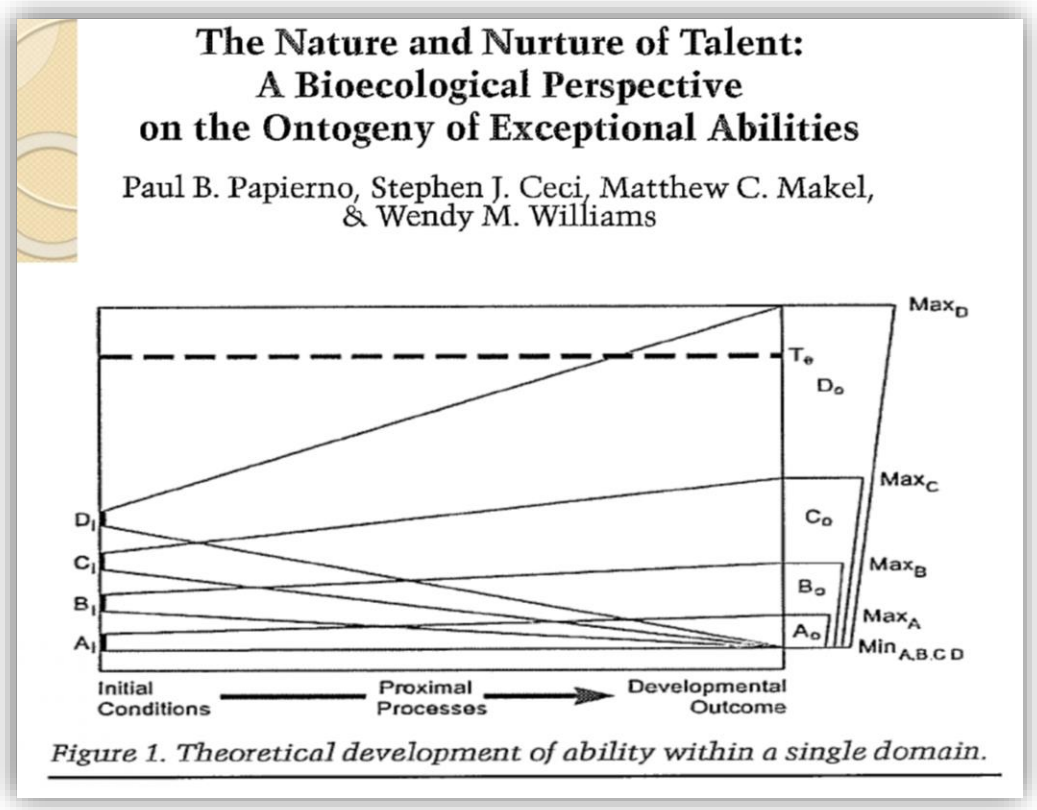


Figure 5 - Different Levels of Ability

If you look at A, B, C, and D on the left of this figure, these are different starting levels of ability. And the higher the ability that you start with, the greater the possibility for you in the future. But note that the person who is starting at the highest level of ability at D could end up down at the very bottom or end up at the very top of their ability levels as an adult because it depends on what happens. What are the education and training opportunities that they get? What is the talent development journey that they are on across the lifespan that gets them to manifest their talent? So, ultimately, you have general ability on top of domain-specific ability and then

opportunities given and taken, optimal teaching, psychosocial strengths, and chance. Somebody may not be the best singer, but the night that they perform at the nightclub a record producer is there and hears them and then they get a contract. That's something that you can't plan for. What chance does allow you to do in some sense is to take advantage of opportunities. If you do the right things, when the chance comes you can take advantage of an opportunity that comes your way.

Domain General Trajectories

The other thing we know is that trajectories differ. For example, mathematics is a domain where ability manifests at a young age. Music is another early domain. However, dance, the social sciences, diplomacy — these are domains in which talents are not evident until one is much older. Certainly, in the United States, the first psychology courses for instance are offered in high school. Therefore, you can't show talent in psychology until you've had an opportunity to take one of those courses. Content knowledge and skills are important as you are on the talent development journey, but as you move towards expertise, psychosocial skills and insider knowledge become more important. Psychosocial skills include persisting in the face of early failure, being able to work well with others. Insider knowledge helps you learn what is required in a particular domain. So, if you are writing plays, how do you set up tension in a scene? If you are an actor, how do you communicate authenticity to an audience so that they see you as the character that you are playing?

Key Elements in Developing Talent

I would argue that 5 key elements are required for gifted education talent development. I will briefly run through these. We start with endowment, biology, and ability. Certainly, general ability matters. IQ is not unimportant, although it is less important in some domains. IQ may be less important in visual and performing arts, for example, than it is in physics and mathematics. There are also domain-specific abilities such as musicality, and a mathematical cast of mind. You may hear two different performers; one may have a much better voice while the performance of the other moves you. One may be much more musical than the other, even though the other one may have greater technical skills. So, domain-specific abilities matter as well.

Figure 6 shows the work by some of my colleagues. Camilla Benbow is the Dean of the College of Human Development and Education at Vanderbilt

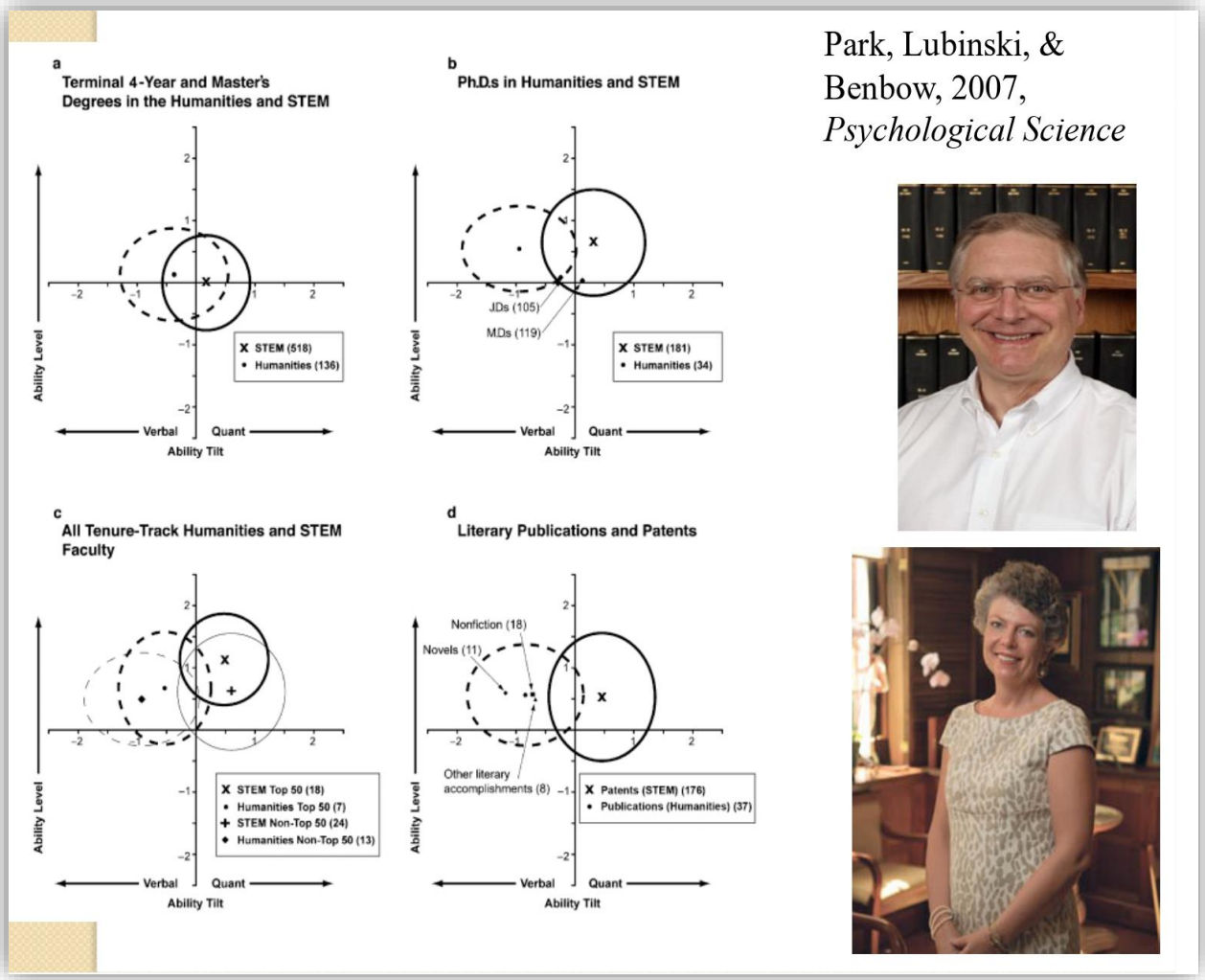


Figure 6 - Work by Park, Lubinski and Benbow

University, and David Lubinski is her husband. They are psychologists and they are co-directors of the Study for Mathematically Precocious Youth. What is this showing? On this graph, the X-axis represents the continuum from verbal ability to mathematical ability. If the score is toward the right side of the X-axis, that indicates that the student has a higher math score than verbal score; if the score is toward the left of the X-axis, the verbal score is higher than the math score. The Y-axis indicates ability level, so the higher the scores on the Y-axis, the higher the ability level. I should point out that these are all students in the top 1% who took the SAT when they were 12 or younger—before they turned 13 they took the SAT—so that low scores are relative to the sample and not the population. Many of these students got 1,600, the top score on the SAT. Now note that when we look at Figure A in the top left, the math and the verbal scores are around average. They are in the middle of the graph, indicating similar mathematics and verbal scores and average levels of ability relative to this sample. When we move over to the people who got PhDs in Figure B, we see that those scores move up on the Y-axis indicating a higher ability level. So, even though these individuals are in the top 1%, the ones who end up getting PhDs in Humanities and STEM fields have higher average ability than their high performing peers. But we also see the circles representing STEM or verbal pulling apart. The ones who have higher mathematics scores than verbal scores (right circle) are more likely to be in the STEM fields whereas the ones who have higher verbal scores (circle to the left) are more likely to be in the Humanities and Social Sciences. Again, there is a domain-specific ability tilt.

In another study, spatial ability was added to the mix (See Figure 7). Spatial ability is represented here by the arrows. In this case, the math is on the X-axis, verbal is on the Y-axis, and spatial ability is represented by the arrows, with arrows to the right indicating higher spatial ability. Note students' favourite high school courses in Figure A. These students are 18 years old in Figure A, but the scores are from when they were 12 or younger. Students who have higher verbal scores prefer the Humanities and Social Sciences. They have higher verbal scores, lower math scores, and lower spatial-ability scores. For students with higher spatial-ability scores and higher math scores but lower verbal scores, their favourite courses were math and science. The pattern continues for college majors. Those who have higher spatial ability are more likely to be in Computer Science, Engineering, and the physical sciences.

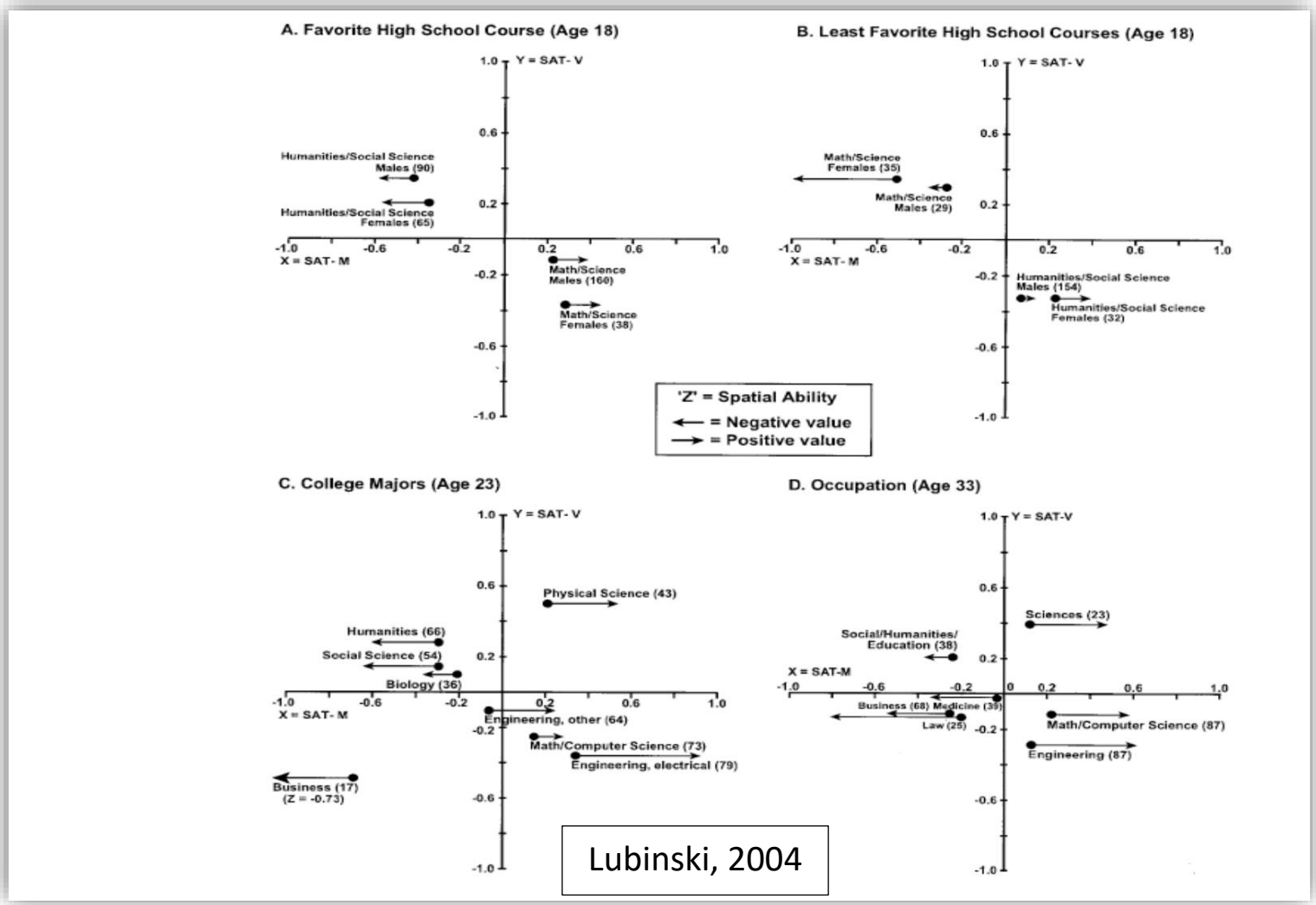


Figure 7 - Study by Lubinski, 2004

Those with the higher verbal scores were more likely to be in the Humanities, Social Sciences, and so forth. Interestingly, Business was low on spatial and low on Mathematics although oftentimes they make the most money. That's a great irony there. We see the same pattern for occupations. Domain-specific abilities do matter.

Practice is Necessary but not Sufficient

Practice Interacts with Ability

Practice is important as Ericsson argues. Practice, however, interacts with ability. While it is necessary it is not sufficient.

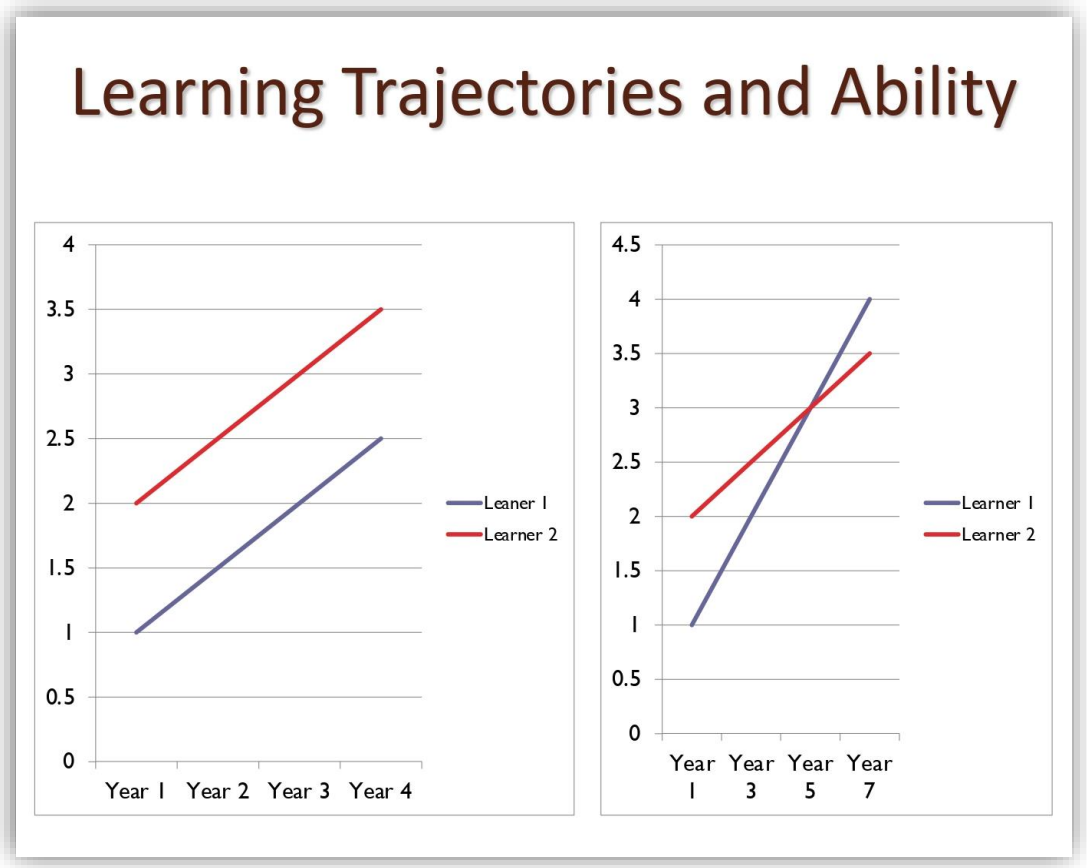


Figure 8 - Learning Trajectories and Ability

Observe these two kids in Figure 8. They start studying at the same time. They are studying with the same teacher. They are doing the same amount of practice. All things being equal, learner 2 is above learner 1. Learner 1 will never catch up with Learner 2. However, we see it all too often; that even though one student is doing less work than another or even the same amount of work, one student will make faster progress. That's because that student has more potential in that particular domain.

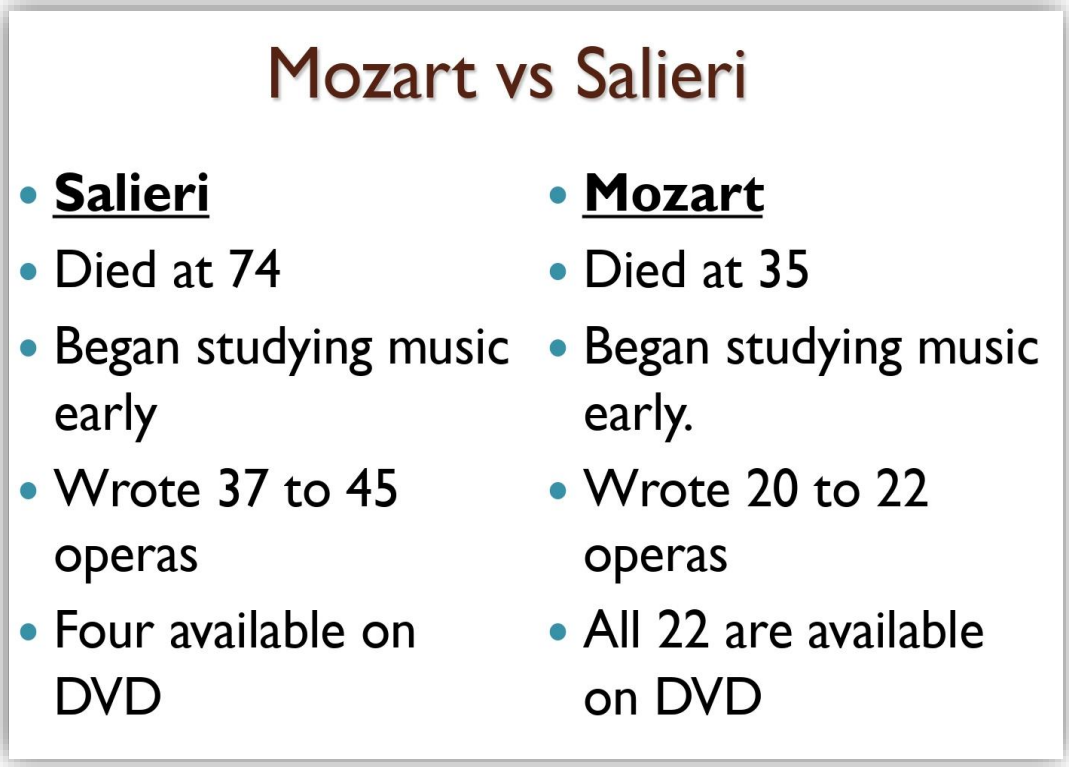


Figure 9 - The Case of Mozart vs Salieri

The case of Mozart vs Salieri (See Figure 9) is a great example of this. I'm dating myself here, but the movie Amadeus (from back in the 1980s I believe it was), introduced us to one of Mozart's contemporaries called Salieri. In the movie, they are seen as rivals, which is not what was the case in real life. But their life stories are interesting. Salieri began studying music early. He died at 74 years old. When he was a young kid, he ran away to see his brother perform. His family was musical. He wrote 37 to 45 operas, 4 of which are available on DVD. This is a composer who has had a lot of practice, a lot of deliberate practice according to Ericsson, and so should be on top of his game. Mozart on the other hand died at 35. He also was from a musical family. He started studying music early. Although he wrote half the number of operas that Salieri did, all of Mozart's operas are available on DVD and many of them are still being performed today while very few of Salieri's are performed. Even though Salieri had much more deliberate practice than Mozart did. Mozart's production and expertise are greater than Salieri's as evidenced by his lasting contributions. This supports the claim that practice is necessary but not sufficient.

Appropriate Development Differs by Talent Domain

Appropriate talent development must also be provided by domains. Different domains have specific talent development trajectories that they need to go

through. For example, actor vs comedian vs surgeon or author vs composer vs physicist. They will all require different kinds of development education. Some talent development trajectories start early as I mentioned before. We can think of gymnastics where to be in the Olympics in gymnastics participants need to be age 16. By the age of 25, gymnasts are past their peak. Now compare football, where oftentimes people don't get to their full strength (for example in American football) till they are in their early 20s. By the time they join the NFL [National Football League] they bulk up to 250 pounds and are running backs and so forth. Mathematics starts early, psychology starts late. Now, with talents, there are some similarities between producers and performers. They have to master the content of the domain. They must have guided and deliberate practice, and they must have commitment and motivation. Psychosocial variables are important in all domains as well. However, there are also differences between domains that are important too. The first difference has to do with what tasks are needed for success. If I want to be a good basketballer, I know what to do. I need to be able to do 3 pointers, I need to be able to dribble and pass the ball. But what if I want to be a mathematician or an astrophysicist? It's really hard to know what to do. The tasks are much more diffuse. Some may be long-term and multi-component. Second, over time, there is greater winnowing and fewer opportunities in the performance domains. When we look at the top 5 sports for example in the US, basketball, American football, baseball, track and field, and hockey, those leagues take in only 300 people every year. But there are hundreds of professors, hundreds of doctors, and so forth who begin studying each year. In many of the production domains, there is more room for a greater number of producers. Third, physical abilities are often very important for performers, but they are less so for producers. Fourth, in the performance domains, there is a greater focus on psychosocial skills, be it cricket, soccer, or whatever. When a team loses on one weekend, they've got to go and try to win the next weekend. They get trained to deal with defeat and to move on, whereas we don't typically teach students how to handle failure in school. We don't teach kids to take risks. So, when they don't do well in an exam, how do they come back from failure? The path to excellence is not always clear in the production domains and certainly many of us, me included, probably appreciate more the March madness that just ended, than we appreciate who won the Nobel Prize in Economics or the Nobel Prize in Chemistry. The performing domain is typically more appreciated by the public.

Training, Teaching, Coaching

Training and teaching are important. Many of you here are educators. Gifted performance as an adult typically does not occur without an effective teacher, mentor, or coach. The expertise of that teacher in pedagogy brings out the best in the mentee. The teacher may not be an expert in the field, but they are good at getting the person to be an expert. Pavarotti talked about the fact that his teacher made him practice singing the vowel 'e' for a year before the teacher was satisfied with how he was doing it. Different types of teachers are needed at different stages of development. Benjamin Bloom, (of Bloom's taxonomy which some of you may know), did a retrospective study of gifted youths. He identified gifted adults and had them reflect on their teachers. There are different teachers needed for different stages. The Stage 1 teacher teaches from potential to competence. They teach basic skills but also teach you to fall in love with mathematics, fall in love with writing, fall in love with science, fall in love with acting, and so forth. In Stage 2 teachers move you from competence to expertise, utilising their teaching technique. So, you are learning more advanced skills. At the final stage, teachers are mentoring for a personalised niche. These are your graduate advisors. If you are getting a graduate degree, your thesis advisor is mentoring you for a personalised niche. So that's also very important.

Context, Opportunity

Context and opportunity are also important. As I mentioned, opportunities matter. Society needs to provide opportunities, but we need to take them up as well. And of course, because talent development requires a lot of resources, typically, it's more incumbent upon society to provide those opportunities to individuals from low-income backgrounds, because parents may not be able to afford them. As very talented youth mature, their talent becomes the center of the family and the need for resources becomes much more intense. My academic colleagues, who have kids, have the time to be at their schools and to take them for practice and the like. It's easier for those of us who are working for salaries than for persons working for an hourly wage where if they must take time off work, they are also losing money needed for rent and other expenses. In many of our gifted education programmes, we have kids who have high opportunity and high motivation. One of the things we need to do is to provide talent development opportunities for kids who have high motivation and low opportunity. For kids who have high opportunity and low motivation, we need to increase their motivation. And for kids who have low opportunity and low motivation,

psychologists have to do a lot of work with them to get them ready to work toward success.

Psychosocial Factors - Effort, Motivation, Task Commitment

Why do we identify kids for specialised programmes? So, they can work harder, not for life to be easier. Ability without hard work doesn't lead to success. Without task commitment, there is no development in a domain. Motivation of course plays a critical role. Motivation leads to effort, effort leads to growth and growth leads to developed talent (See Figure 10). This is a circle in some sense because you go from developed talent back to potential at each stage. At the end of elementary school, you are at the bottom of secondary school, at the end of secondary school you are at the bottom of college, at the end of your PhD you are an assistant professor, so you keep going back to the bottom. Motivation is required throughout your career.

Figure 10 - Motivation Plays a Critical Role

This is what we are seeing here. Ericsson saw it only as practice, but it's really a combination of motivation, ability, and practice that is leading to a goal, and leading to those 10,000 hours. The Mozart's may get there at

4,000 hours. For me to be a leading violinist I may need 20,000 hours. There is this interaction. The work that gifted performers require is designed to include performance, be repeated a lot, involve receiving feedback, and be mentally demanding. So, it's not always fun and that is something that we need to let students know. That's one of the reasons why passion and falling in love with the subject are important because when the task gets hard it's not always fun. You need to be passionate about it so that you will continue.

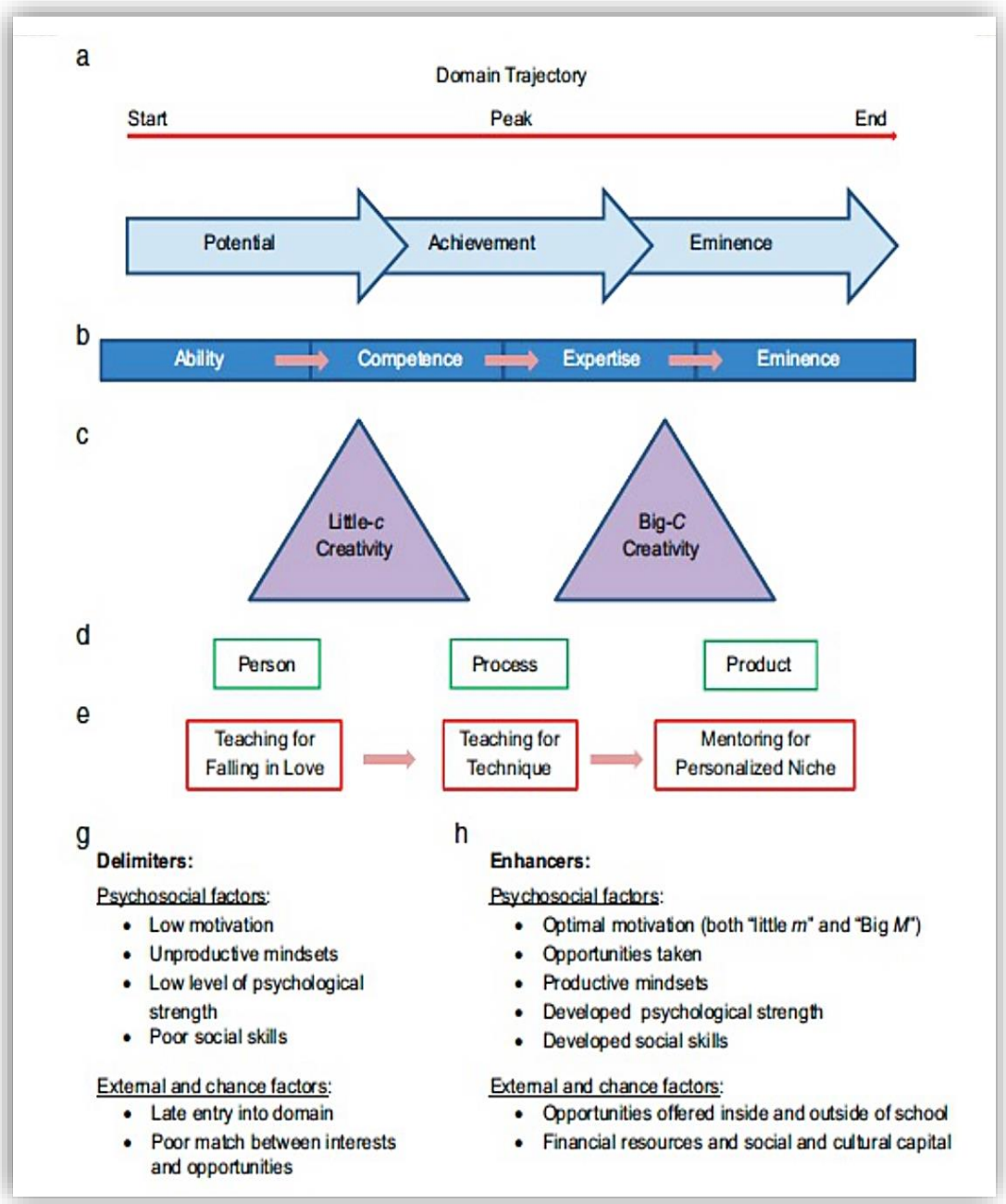


Figure 11 - The Flow Model

So, Figure 11 is the Flow Model, and we are almost at the end where I can take questions. This is our Flow Model. As you can see, talents start, they peak, they end. Individuals are moving from potential to achievement, and sometimes to eminence. We cannot predict eminence. We oftentimes don't know who are the ones who are going to become great in their fields. Early on, a child may show creativity on a class project, manifesting what is called Little-C creativity. Later on, individuals may show Big-C creativity. Consider Edison and electricity, the electric car, the paperclip, the Internet, Tik Tok, and many of these things that we take for granted in our lives. People will come up with these things, those are Big-C creativity - things that change or impact society. So, we start with a person with potential, followed by the process of learning, and then as adults they develop products. Those products may be writing plays or acting in plays but they are giving us something

And then we have a set of factors that can help and hinder talent development. So, if we are an obnoxious individual, we are rude, people may not want to work with us and our talents may not get developed. If you are pleasant to work with, people like us and so forth, people now want to work with us. If we are able to take risks, we get opportunities that we may not get otherwise.

Potential Constraints or Obstacles to Overcome

Physical Constraints in Athletes

There are several physical constraints on athletic talent. If I want to be a jockey and I happen to be 6' 5" and 300 pounds, I am probably out of luck because I will need a very strong horse.

As you can see in Figure 12, the height of the jockeys is on average 5' 2" both males and females. Jockeys weigh on average, 113 pounds for males, and 107 pounds for female jockeys, whereas in the National Football League, the average weight is 246. Within specific domains, there are constraints. For example, Point Guards in basketball are on average 6' 3", and centers are on average 6' 11". Two of the top centers in basketball history were 7-foot 1 inch. Therefore, if I want to be a basketball player and I happen to be 5' 2", I may be able to get there but I will need to have a tremendous amount of skill.

Height and Weight Across Sports

Olszewski-Kubilius et al. (2023)

Table 1. Average height and weight of elite athletes by gender and selected sports.

	Men		Women		
Sport	(Inches and cm)	(lbs and kg)	Sport	Height	Weight (pounds)
Jockeys	5'2"/157.4	113/51.3	Jockeys	5'2"/157.4	107/48.5
Gymnasts	5'4"/162.6	103/46.7	Gymnasts	5'1"/154.9	103/46.7
Figure Skaters	5'9"/175.3	163/73.9	Figure Skaters	5'3"/160	108/49.0
Freestyle Skiers	5'11"/180.3	171/77.6	Freestyle Skiers	5'5"/165.1	135/61.2
Soccer	6'0"/182.9	170/77.1	Soccer	5'7"/170.2	135/61.2
Tennis	6'11"/185.4	177/80.3	Tennis	5'8"/172.7	143/64.9
NHL	6'1"/185.4	200/90.7			
MLB	6'2"/188	207/93.9			
NFL	6'2"/188	246/111.6			
NBA	6'6"/198.1	217/98.4	WNBA	6'0"/182.9	166/75.3

Note. NHL = National Hockey League; MLB = Major League Baseball; NBA = National Basketball Association; WNBA = Women's National Basketball Association; NFL = National Football League.

Figure 12 - Height and Weight Across Sports

Key Elements of Gifted Performance

Key Elements of Gifted Performance

- ✓ Endowment/Biology/Ability
  - ✓ Person
- ✓ Appropriate Development
  - ✓ Match between Person and Environment
- ✓ Training/Teaching/Coaching
  - ✓ Environment
- ✓ Context/Opportunity
  - ✓ Environment and Person
- ✓ Psychosocial: Task Commitment/Mot/Effort
  - ✓ Person

Figure 13 - Key Elements of Gifted Performance

In sum, the key elements of gifted performance (Figure 13) are (1) 'endowment or biology', so the person, what you're bringing; (2) 'Appropriate development', the match between person and environment; (3) 'Training, teaching, coaching' from the environment; (4) 'Context or opportunity', with the environment providing it and the person taking it up; and (5) psychosocial skills— that is, 'Task commitment' and so forth. In other words, talent development cannot just be about the individual, it's got to be about the individual in context, in a particular society. Many of us, when we think about giftedness, we think about prodigies. Prodigies are the exception and not the rule, even though they are often the most visible of gifted. But if you think of everybody who is an expert in their domain as gifted, then many people are experts, like many of us on this call.

Figure 14 - The Clay is for Everybody

Here is a prodigy. The teacher is telling him that the clay is for everybody. I would say that the teacher here is missing the mark. This is a prodigy. What the teacher needs to do is to give him his own set of clay and give the other kids clay to build with. But the more common path to expertise as an adult is long. You start with a block of clay, you do measurements and you do a whole lot of other stuff. Over time you end up with a figure. And with that, I will say thanks for your attention. I am open to questions.

Questions, Comments and Key Issues Raised

Dr Paulson Skerrit, Lecturer, School of Education, UWI, St Augustine

Professor Worrell's response to questions on academic talent development encompassed several key insights aimed at fostering a comprehensive approach to nurturing students' potential.

Firstly, he emphasized the importance of exposing students to a broad array of subjects early in their education. This exposure allows them to discover their passions and potential. He argued that without such exposure, many talents remain undiscovered and unutilized, highlighting the need for our educational system to provide diverse opportunities.

Regarding motivation, Prof. Worrell challenged the notion that some students are simply unmotivated, asserting instead that everyone is motivated but to different ends. He stressed the role of autonomy, competence, and a sense of belonging in motivating students, suggesting that personalized approaches, such as allowing students to choose their topics of interest for assignments, can significantly enhance engagement.

Addressing the structure of the Trinidad and Tobago educational system, he acknowledged its evolution but suggested ongoing adaptation to societal needs, such as incorporating more contemporary subjects like computer studies and responding to global challenges like climate change.

In terms of inclusivity, Prof. Worrell advocated for an approach to talent development that moves beyond traditional notions of giftedness. He proposed academic talent development as a more inclusive alternative, focusing on progressing students from their current academic levels rather than categorizing them into predefined labels like "gifted."

He also touched on the concept of late bloomers, challenging the linear view of education and highlighting that individuals develop on diverse trajectories. This perspective underscores the importance of fostering hope and potential in all students, regardless of their early academic performance.
Regarding resource disparities, he emphasized the role of our Ministry of Education in providing equitable opportunities, such as July/August programs and scholarships, to ensure that financial constraints do not hinder talent development.

On the nature versus nurture issue, Prof. Worrell argued for a balanced approach, acknowledging the influence of both genetics and environment in shaping talent. He underscored the role of public education in providing opportunities for all students to explore and develop their interests, regardless of familial background.

Reflecting on his own journey, he credited personal determination, parental support, and discovering his passion for psychology as catalysts for his own academic and personal growth. He encouraged educators and parents to similarly support students in finding value and passion in their pursuits, suggesting that a supportive environment can significantly impact a student's trajectory.

In conclusion, Prof. Worrell's insights advocate for a holistic approach to academic talent development that embraces diversity, fosters intrinsic motivation, adapts to societal needs, and provides equitable opportunities for all students to flourish. His perspective challenges Trinidad and Tobago educators to rethink traditional paradigms and emphasizes the transformative power of education in unlocking individual potential.

Vote of Thanks

Dr Rinnelle Lee-Piggott

Thank you, Dr Skerrit for ably moderating the Q&A segment. Thanks to our participants for engaging our speaker, Prof Worrell, with your thoughtful questions and comments. Thank you again, Prof Worrell. But as we all know, 'All good things must come to an end'. So, at this point, I'd like to give the Vote of Thanks.

1. Firstly, on behalf of the School of Education, I extend special thanks to Professor Frank Worrell for an enlightening and engaging discourse. You have not only facilitated our understanding of the two contested terms discussed, but you've surely helped us to see the merits of favouring 'academic talent development' over 'gifted education'. Thank you very much, Professor Worrell!

2. To Dr. Maharaj-Sharma, Director of the SoE, for approving and supporting this initiative – A gracious thanks to you, Director.

3. For organising and running this event, thanks go to the Publishing and Outreach Lectures Committee, which comprises Mrs Petronetta Pierre-Robertson (chair of the committee), Dr Shamin Renwick, Mrs Nalini Ramsawak-Jodha and myself.

4. To members of the SoE AV Tech team for providing technical logistics and assistance leading up to the session and this evening: Mr Jefferson Rock and Mr Sherbert McKie – Thank you, gentlemen!

5. To The UWI's Marketing and Communications department for providing promotional materials and for promoting the event via social media – a great big thanks!

6. To Ms Melissa Campbell, Library Assistant CERIS who issued invitations via email, Thank you!

7. To Colleagues of the SoE for their support, attendance and for promoting the event across their various networks – much appreciation to you all!

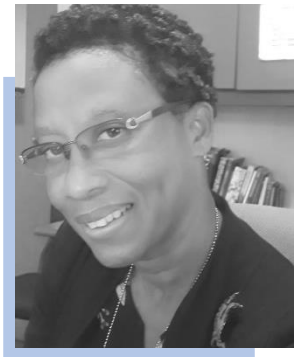
8. To the Secretariat and Administrative Assistants who were instrumental in spreading the word of this event to our students at the

SoE and to schools across the nation. Thank you, Ms Akeeta Sumair-Worrell, Ms Necole Blake, Ms Kwesi Bowen, Mr William Carter, Ms Vitra Ramcharan, Ms Heather Holder, Ms Hailey Samaroo and Ms Suzanne Fonrose.

9. And to all Attendees – a great big thank you for spending your time with us this evening and for participating. I trust that you were enlightened and that you enjoyed the session. It was great having you.

Do look out for the published proceedings of this public lecture, which will be sent to all registered participants and posted on our UWISpace platform and the SoE's website. We hope that you will join us for our next public lecture hosted by UWI's School of Education. Bye everyone! Take care.

Publishing and Outreach Lectures Committee Members



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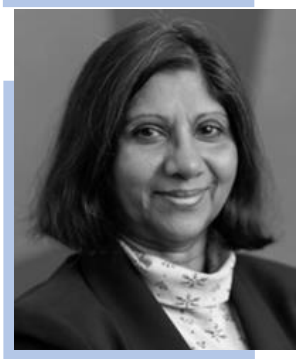

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