Your Subject's First Name and Last Name [a.k.a. XX]:

Your Thesis [e.g., A Revolutionary Scientific Genius]

Your Name

Term Paper for 185

Month, Day, Year

History of Psychology

University of California, Davis

In this paper I will defend the thesis that XX [= this paper's subject] was a revolutionary scientific genius. This conclusion is based on comparing the biographical information obtained in Smith (2005) and XX (2006) with the profile of the revolutionary scientific genius presented in our history of psychology lectures and in Simonton (2004). Although in certain ways XX does not fit the profile, I argue that she is better characterized as a revolutionary scientific genius than any other alternative designation (with an exception I will leave for the conclusion section). To make my case, I examine her family environment, educational performance, sociocultural context, personal characteristics, and career development.

Family Environment

Unlike most eminent scientists, XX was not born in a professional home. Instead, she came from a working-class family, her father being a high-school drop-out who worked at a factory (Smith, 2005). Only one of her relatives even went to a four-year college, namely her mother's father, who became a school teacher. However, XX's mother did go to a community college when XX was a teenager, earning a nursing degree and making XX aware of the value of education. This exposure was intensified when her parents divorced and her mother remarried a man who was a college graduate and an instructor in high school. Moreover, her family always had lots of books in the home, including a set of encyclopedias. Hence, XX had somewhat more intellectual stimulation available than would be typical for a working-class background. Such stimulation is often associated with creative development, especially in the sciences.

Another important consideration is the fact that XX was the first-born child in the family, with four younger siblings (XX, 2006). First borns are somewhat more likely to become scientists, but not necessarily revolutionary scientists. Yet she also experienced a number of traumatic events in childhood and adolescence that might make her early development more consistent with the experiences of revolutionary scientists and even creative artists. For instance, her parents' divorce

had a powerful impact on both her and her siblings. This might be considered a form of parental loss that is often found in the lives of geniuses, particularly in revolutionary scientists and artistic creators. Another source of trauma was the fact that the family sometimes experienced economic ups and downs. At times food was scarce and clothing too well worn. In addition, the home environment was sometimes physically and psychologically abusive, a condition aggravated by parental alcoholism.

The latter was not the only example of psychopathology in XX's family. Her mother had two siblings who had serious psychological problems, including schizophrenia. One of XX's own siblings was a paranoid psychotic who once attempted suicide, another was a depressive alcoholic, a third had a serious eating disorder, and a fourth had difficulties holding down a regular job. XX's own son suffered from depression so severe that he was once put on a 72-hour suicide watch. Interestingly, XX's paternal grandfather had abandoned his family when XX's father was very young, another potential indicator of mental illness in the family. The fact that this grandfather made up grandiose stories about his grandchildren is also somewhat indicative. For example, although XX never served in the military, her grandfather claimed that she served with distinction in the Vietnam War (Smith, 2005). In any case, these connections are consistent with the findings that geniuses – especially artistic geniuses – are most likely to come from family lines with higher than average rates of psychopathology.

XX's family was distinctive in one final way: Her parents were both born from different parts of the country, and came from different ethnic and religious backgrounds (XX, 2006). This kind of heterogeneous background is often associated with artistic creators.

On the basis of this family information alone, it is difficult to figure out where XX fits. But the weight of the evidence may favor her being either a revolutionary scientist or an artist.

Educational Performance

From the standpoint of education, XX at first seemed to be following the path of an artistic creator, for her performance in elementary school was often very uneven (Smith, 2005). Sometimes she would get top grades, and sometimes very mediocre grades. The fact is that she hated school, and only did well in those subjects that could excite her enthusiasm. Yet early in junior high school she realized the importance of getting a better education. She was convinced that she did not want to stay in the working class, trying to make a living at a low-paying job. So she began to work hard, and was soon earning the highest grades, receiving special honors in science and social studies as well as delivering a graduation address. Except for a temporary slump precipitated by her parents' divorce, XX continued to do well in high school, graduating second in her class and receiving special honors in science, social studies, and English. Clearly she was now following the academic track expected of eminent scientists.

This scholastic performance in high school earned her a scholarship that guaranteed her four full years of support. She used this "free ride" to attend a high-quality liberal arts college, where she began with a major in chemistry. Although she did reasonably well in her science and math classes, she had a "crystallizing experience" when she took an introductory psychology course as an elective, and soon after she changed majors (XX, 2006). Once she decided to become a psychology major she began to earn straight A's. She eventually graduated *magna cum laude* (high honors) and had been elected member of Phi Beta Kappa, the national honorary society that dates back to 1776. Hence, when she applied to graduate school she got accepted to two of the most prestigious programs in the country – Stanford and Harvard – and won two fellowships that would pay for her tuition and expenses for four full years. One of the fellowships was from the National Science Foundation, an award that recognizes promise in future scientists.

XX decided to go to Harvard, but at first did not do as well as she had hoped (XX,

2006). Nonetheless, in her second year she passed her qualifying examinations "with Distinction" (the best performance in her class). She then got quickly started on her dissertation work, submitting her completed thesis in her fourth year of graduate school, when she was just 26 years old. The average age for earning a PhD in psychology is in the early 30s, and eminent psychologists tend to earn their PhDs when they are in the mid-20s. So overall her academic record appears to fit what is expected of an eminent scientist. It is certainly not the record that would be anticipated from a creative artist. In fact, it seems more like what we would see in a normal or mainstream scientist, in contrast to my thesis that XX was a revolutionary. The only educational fact that might support that belief was that she did not consistently get straight-A's, often becoming a B student when she entered an educational institution for the first time.

Sociocultural Context

Because XX was born so recently, and hence so close to my own time, it is hard to assess the extent to which she was the product of her times. After all, her zeitgeist is not that different than mine. She grew up in the same country as I did and is still living in the same century, even though she is obviously much older. Even so, I think there may be two points that can be made regarding how the zeitgeist might have influenced her creativity.

First, XX was a teenager in the United States in the 1960s, the period of the Civil Rights Movement, the Counter Culture, and demonstrations against the Vietnam War (XX, 2006). Research shows that civil disturbances can often promote more dissenting views in young developing talents. It is possible that these early experiences reinforced her tendency to challenge authority, an inclination that got her in trouble in with her teachers, especially in graduate school where she came close to being kicked out of the program.

Second, and more important, XX was truly fortunate regarding the period in which she launched her career. The conditions seemed to be especially supportive of scientific research. For

instance, she did not have to live under long-term and intense wartime conditions – circumstances that often inhibit creativity in a society. The timing was almost perfect. The Vietnam War ended shortly before she finished graduate school, and all of the wars since then have been relatively minor and brief, placing very few stresses on scientific inquiry, including hers (Smith, 2005).

Personal Characteristics

In many respects XX has the cognitive and dispositional traits associated with genius. She certainly has a high IQ. She was once a member of Mensa, the high-IQ society, and she herself once reported that her IQ is about 145 (XX, 2006). In fact, on the basis of tests taken in junior high school, she was immediately switched from the regular classes taken by working-class students to college-preparation courses taken by the children of middle-class and professional families. Later she also scored very high on both the Scholastic Achievement Tests (SAT) and the Graduate Record Exam (GRE). Hence, XX would qualify as a genius according to the psychometric or IQ definition.

Supporting this conclusion is the fact that XX was also a precocious child (Smith, 2005). She began reading the family encyclopedia early in elementary school, and by the end of elementary school had already begun writing two books, one on chemistry and the other on taxonomy. She had a chemistry laboratory in her bedroom where she would conduct original experiments. She would go on personal expeditions to collect zoological specimens, including live animals to put in terrariums and aquariums that she also had in her room. She also showed unusual interest in mechanics and electronics, inventing various kinds of gadgets. When she entered junior high school she was watching television programs on physics and chemistry that could be taken for college credit. Furthermore, in her early teens her potential was recognized when she was selected for a special metropolitan summer program for scientific talent.

Yet it is also clear that her interests and abilities were not confined to the sciences. She

was an avid reader of all kinds of books besides science, including history, literature, and art. She also wrote poetry and created art in various media. One of her pastel drawings ended up decorating the Principal's office at her high school (Smith, 2005). She acted in several school plays, including one lead role, and she even participated in extramural sports, student government, and community service. But perhaps the best manifestation of her breadth of interests was her involvement in the knowledge-bowl team which competed with other high schools (XX, 2006). The competition involves answering questions like those in Jeopardy, Trivial Pursuit, and Who Wants to Be a Millionaire. Hence, these questions cover a tremendous array of subjects and require encyclopedic knowledge. Taken together, XX's versatility and wide interests suggest the kind of intellect that associated with genius. Moreover, such breadth tends to correlate with the openness to experience so characteristic of artistic creators and, to a lesser extent, revolutionary scientists. As additional evidence for this openness is the fact that XX has shown a considerable interest in travel. For example, while still in her teens she has hitchhiked around the United States and has toured Europe by bicycle. She also loves to go to museums of all kinds, but especially those featuring painting and sculpture from all times and places.

Because XX is still alive, I tried to obtain information that was not available in the biographical sources. In particular, I wanted to find any evidence for a mild degree of psychopathology. Mental illness is somewhat more prominent among geniuses, particularly those in the arts, so this fact could provide some clue about her placement. Unfortunately, she never responded to my email inquiry about this subject. Perhaps she considered the question too personal, or else she was too busy to answer my message. Hence, I can only speculate on what would be her most likely response. On the one hand, given that she came from a family with a high level of psychopathology, it would be surprising if she did not exhibit at least a few symptoms of depression, alcoholism, or psychosis. On the other hand, to the extent that she can

be considered a scientist, any such symptoms would have to be rather mild. Naturally, if she were a revolutionary scientist her symptoms might be more similar to those of artistic creators.

To summarize, XX's intelligence is clearly at what can be considered the genius level. Her personality traits seem to place her somewhere between a creative artist and a scientific revolutionary. These inferences are consistent with the paper's thesis.

Career Development

In some ways, XX's professional life followed the pattern that we would expect to see in an eminent scientist. To begin with, she is a consistently productive researcher. She first started publishing in scientific journals when she was 26 (XX, 2006). Most scientific geniuses begin professional publication some time in their mid-20s. Moreover, she has been extremely prolific. At present she has over 300 publications, including several books and about 100 articles appearing in the leading refereed journals in her field (Smith, 2005). She averages about 10 publications a year, and in some years has published almost twice that number. This output rate places her among the most productive psychologists of her generation. Although she is now past the peak of her career, her output has diminished only slightly from her career maximum, which occurred in her late 40s and early 50s. High-impact scientists tend to continue producing late in life, and she is no exception. Moreover, despite the fact that empirical research shows that a very large proportion of scientific publications are never cited at all, XX's work averages more than 100 citations per year, or over 10 citations per publication – and her most influential publications have been cited more than 200 times in the professional literature (Smith, 2005). So her research can certainly be considered influential or high impact, as predicted by the paper's thesis.

Furthermore, her contributions have been recognized with honors from several national and international scientific societies. These honors include "best-book" and "best-article" awards as well as special awards for lifetime career achievements. She has been elected Fellow of several

professional organizations, including the American Psychological Association, the Association for Psychological Science, and the American Association for the Advancement of Science. In addition, she has served as editor of the major journal in her field and serves on the editorial boards of several other important journals, and she has given important talks before numerous professional societies and research universities located throughout the world. She has also served as the president of both national and international scientific associations. Because of these scholarly accomplishments, she advanced quickly up the academic ladder at a major research university, becoming full professor at age 37 (XX, 2006). This age is somewhat younger than average and thus is characteristic of an exceptional scientist. Besides all of these indicators, she recently was promoted to a "distinguished professor" title, the highest level that she can obtain at her university. Professors can only attain this title if they exhibit a strong and broad international reputation in their specialty area. In other words, they must be highly eminent.

Nevertheless, in some other ways XX does not fit the pattern expected of a scientific genius. She has never succeeded in winning big grants to support her research. As a partial consequence, she has not attracted many graduate students, and very few of these have actually pursued research in her line of work. In fact, at present none of the graduate students who she directly supervised has attained positions at major research universities. In contrast, great scientists, especially those doing mainstream science, tend to have lots of graduate students who extend their teachers' ideas. Nonetheless, because she still has about 10 years or so remaining before she retires, it remains possible that she will still mentor an outstanding graduate student who will develop further her theoretical and methodological innovations. In addition, it is possible that because her contributions are more revolutionary than normal or mainstream, it may take some time before her impact reaches the maximum possible level. However, it is also conceivable that she has not been as successful as a mentor of graduate students because she devotes much

more attention than usual to her undergraduates. Besides teaching several highly popular undergraduate courses – she has won all of her university's awards for outstanding undergraduate instruction – XX has recruited hundreds of undergraduates to serve as research assistants. Indeed, some of her best publications were produced with the collaboration of undergraduates. Still, as she herself once admitted, "My impact on psychology might have been much greater had I involved more graduate students in my research" (XX, 2006, p. 576).

Conclusion

I have argued that XX's life and work seems to be fit what we would expect if she were (a) a genius, (b) a scientist, and (c) a revolutionary scientist. I made this argument on the basis of what I have presented regarding her home environment, educational performance, sociocultural context, personal characteristics, and career development. To be sure, she did not always fit the expected profile on every criterion. Complicating matters still more is the fact that I was not always able to obtain the information needed to make an assessment. Besides the absence of information about psychopathology mentioned earlier, I could find almost nothing regarding XX's thought processes in either the biography or the autobiography. The closest I came was a brief comment she once made about her work habits: "I often do research on several different topics at once, going back and forth between them according to whatever most strikes my fancy" (Smith, 2005, p. 242). This statement is consistent with findings that "highly creative scientists virtually never work on just one project at a time but rather they tend to pursue several independent inquiries simultaneously" (Simonton, 2005, p. 79). So this still would support my original thesis.

Nevertheless, it may be more reasonable to infer that XX better fits another profile altogether. According to Simonton (2004) the development and disposition of scientists in a non-paradigmatic discipline (like psychology) falls somewhere between the revolutionaries of a paradigmatic discipline (like physics) and artists (especially those who create in formal styles).

Consequently, XX might be better classified as a scientist in a non-paradigmatic discipline. As such, she could no longer be considered a “revolutionary” because there is no paradigm to revolt against or to overthrow. Nor has she ever aimed in her research to have that role, the originality of her thinking notwithstanding. At the same time, it is still necessary to conclude that she is a genius of some kind. This conclusion comes from her high IQ, her childhood precociousness, and her unusually high productivity and impact. If all these points are granted, then it seems that the best inference to make is that XX is an example of a non-paradigmatic scientific genius. In different words, she might be considered to be a genius in the discipline of psychological science. Can psychologists ever hope to become more?

References

Simonton, D. K. (2004). *Creativity in science: Chance, logic, genius, and zeitgeist*. Cambridge, England: Cambridge University Press.

Smith, J. P. (2005). *XX: Her life and work.* Arleta, CA: Wentworth Press.

XX, X. X. (2006). *The autobiography of XX: From tribulations to triumph*. Davis, CA: UCD Press.