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## **Intelligence (IQ) as a Predictor of Life Success**

*ABSTRACT: The purpose of this article is to assess the impact of intellectual functioning (measured by standard IQ tests) on success in adult life. Empirical material for the analysis presented comes from a Warsaw panel study conducted over almost a quarter of a century. In the 1974–76 study, we focused on mental performance of a cohort of Warsaw eleven-year-olds. More than twenty years later, in 1994–95 and in 1999, the same people from the high- and low-IQ groups were approached again and their educational, occupational, and economic attainment was examined. Our analysis shows that the early measured IQ is a relatively good predictor of life success in terms of objective indicators. However, we were not able to separate the effect of IQ from its environmental correlates. Moreover, the IQ measures from the early period and from adulthood do not explain subjectively understood life success. On the basis of the 1999 panel study, we point out that the correlation between intelligence measured at ages thirteen and thirty-six is moderate. Taking these results into account, we conclude that the importance of the role of IQ in predicting life success should not be overestimated.*

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This article presents a research project that has been conducted over a time span of almost twenty-five years. It consists of four studies undertaken in the 1970s and the 1990s. A research team—Miroslaw P. Czarkowski, Anna Firkowska-Mankiewicz, and Antonina Ostrowska, working under the direction of Magdalena Sokołowska—completed the first of these two studies in 1974 and 1976 (these studies were supported in part through Polish-American Research Grant PL-480 and consulted by L. Belmont, Z. Stein, and M. Susser from the Sergievsky Center of Columbia University, as well as I. Wald and J. Kostrzewski; for the results, see Firkowska-Mankiewicz 1993). The third study, conducted in 1994–95, was supported by a grant from the (Polish) Committee for Scientific Research (KBN). Miroslaw P. Czarkowski administered the data collection for the first two studies, and IQS, a private company, for the third (for the results, see Firkowska-Mankiewicz 1999). The fourth study, also supported by the KBN, was conducted in 1999, by the Scientific Research Unit of the Polish Sociological Association. All four studies can be viewed as *one panel-study project* in that, over the span of almost a quarter of century, we retained access to the same respondents.<sup>1</sup>

The panel study focused on examining the mutual relationship between intelligence and social structure. I consider this relationship a *dynamic process* in which individual's intelligence is a central variable in the intergenerational transmission of social inequalities. In addition to genetic predisposition, which remain outside the scope of this article (see Firkowska-Mankiewicz 1993), the level of an individual's intelligence strongly depends on a complex system of bio-psycho-sociocultural factors, encompassed by the individual's social background, that is, by parental position in the social structure. The individual's intelligence, in turn, affects his or her own position in the social structure in the adult phase of life. In addition, a reverse relationship also takes place: one's social position, specifically education and job, affect one's intellectual functioning (see Husèn 1951; Kohn et al. 2000).

The following sections of this article briefly present the theoretical framework and some primary results obtained in individual studies. Then, I focus on the question of whether IQ—the test measure of intellectual functioning—is a good predictor of life success, or whether there are yet some other factors worth considering in this context.

## Theoretical Framework

In spite of numerous publications devoted to research on human intelligence, it is still debatable what intelligence is, what it depends on, how it develops, and what role it plays in human life. Findings are still fraught with ambiguities, controversies, and an abundance of unanswered questions. The topic of intelligence continues to generate strong emotions and disputes, with consequences that spread beyond the world of science. Discussions concentrate largely on the genetic and environmental factors of intelligence, or—if we define the problem more broadly—on its biological and social determinants. The classical question of *nature or nurture* remains a vivid one.

In the course of research on intelligence there have been quite radical reversals of the dominant opinions on this issue. It has oscillated from a strictly biological stance—granting priority in determining intelligence to the genes—to a strictly sociological stance—granting priority to the environment. In the 1970s it seemed as if the dispute between the two positions had been resolved. Virtually nobody questioned the opinion that intelligence was a polygenetic characteristic—although clearly predetermined by biology, it was nonetheless plastic enough to be responsive to the impact of the environment (Firkowska-Mankiewicz 1993). Recently, however, we have witnessed a renaissance of the biological position. Some researchers have presented it in a more balanced way than has been done in the past (McGue 1989; Bouchard et al. 1990; Plomin 1994). Yet some others continue to be provocative. For example, in the book by Herrnstein and Murray, *The Bell Curve* (1994), the authors advance a thesis forecasting the supposedly inevitable polarization of the future society into a narrow intelligent elite occupying top positions in the social hierarchy and an unintelligent underclass, compelled by joblessness, crime, and a variety of other social ills (for discussion, see Kohn 1999).

Our Warsaw project provides an opportunity to analyze the relationship between the individual's intelligence and his or her location in the social structure. In this project we took into account a broad range of factors intervening in the relationship between family background and intelligence and between intelligence and the achieved social position. Cross-sectional studies of the impact of family background on intelligence are numerous. However, to examine the impact

of IQ on life success panel data are required. The Warsaw project provides such data.

### **The Main Results of the Warsaw Studies of the 1970s**

At the time of the first two Warsaw studies, in 1974–76, Poland, had already practiced three decades of *real socialism*—a system promising to introduce egalitarian social policies and stressing ideas of social equality. Indeed, efforts to implement egalitarian policies resulted in a considerable homogenization of living conditions—much greater than was common in capitalist societies. Because of this cross-national difference, in our research, the *macrostructural level* of the analysis was at least implicit. The Warsaw study allowed us to reflect on the character of the relationship between children's social background and their intellectual capacity in countries of different political systems. My colleagues and I addressed this topic in an article in *Science* (Firkowska et al. 1978).

On the *mesostructural level* of analysis, we focused on the effects of housing and educational policies. From the beginning of the post–World War II period, the Polish government imposed similar housing standards for community housing and all other housing as well as egalitarian rules for assigning apartments to individual families. In the realm of education, the government promoted a uniform curriculum and similar conditions for all schools of the same kind, as well as equality in access to schools for all candidates.

Finally, on the *microstructural level* of analysis, we included various characteristics of the family, such as material standard, health care, access to culture, and the like. We were able to very thoroughly study the relationship between the child's social background, operationalized by the socio-occupational position of the parents, and the results of a test measuring the child's IQ.

The choice of Warsaw as a setting for our exploration was justified on various grounds. In the newly rebuilt capital city, the prewar enclaves of wealth as well as the poverty-stricken slums did not reappear. The former city districts, traditionally dominated either by the intelligentsia or by the working class, also lost their class character. In their place, new districts arose that were uniformly supplied with all the elements of urban infrastructure, in particular with educational, medical, and service facilities. Housing standards were almost identical

everywhere. It became completely natural for children of both intelligentsia families and working-class families to live in the same neighborhood, even in the same apartment building, and to attend the same school. This situation offered an opportunity to detect the *pure* impact of the child's social background—and its correlates related to social class—on the child's cognitive competence.

### **Data**

The 1974 study involved a *complete cohort* of Warsaw inhabitants who were born in 1963 and were eleven years old at the time of this study ( $N = 14,238$ ). The more detailed 1976 study involved a sample selected on the basis of results obtained in 1974 in three tests: (1) the Raven Standard Progressive Matrices Test, (2) the Choynowski Vocabulary Test, and (3) the Grzywak-Kaczyńska Arithmetic Test. The sample of 1,171 children consisted of several subsamples of which the two largest were: (1) a random sample consisting of 1 percent of all Warsaw children born in 1963, and (2) a nonproportional stratified sample, consisting of seven strata. The two extreme strata were composed of all children who scored lowest and highest on the Raven Test. The entire sample of 1,171 children were thoroughly examined medically, psychologically, and sociologically (see Firkowska-Mankiewicz and Czarkowski 1982). However, this article relies primarily on the results of the Wechsler Intelligence Scale for Children.

### **Results**

In the 1950s and 1960s, some researchers expressed the opinion that curtailing social inequalities—for example by imposing uniform housing and education standards—should lead to (1) a reduced differentiation in the level of mental development of children, and (2) a weakened impact of social class on psychological functioning (see Anastasi 1958; for a review of this argument, see Firkowska-Mankiewicz 1993). The Warsaw study demonstrated that neither of these two predictions held. There was no evidence that variance in IQ was smaller in Warsaw than in comparable cities in the West. The relationship between children's social background and mental development not only did not weaken, but it appeared even stronger than in the majority of Western studies.

Thus, on the *macrostructural level* of analysis, we found cross-national similarities rather than differences.

The correlation coefficient between the socio-occupational position of parents and the scores in the IQ test of Warsaw children ( $r = 0.44$ ) proved to be one of the highest reported in the literature. This result confirmed the opposite of originally stipulated conjecture, namely, that with diminishing inequality of the external environment, differences in intellectual functioning of persons coming from the upper and lower echelons of the social ladder tend to rise rather than diminish (Dobzhansky 1979; Scarr 1981). Moreover, expectations that with improvement of the urban environment and the school environment the IQ of children would depend less on the social status of parents turned out to be unfulfilled. The *mesostructural* characteristics did not modify the relation between parental status and the IQ scores of children.

In the 1976 study, we focused on the relationship between children's social background and their IQ scores. The children's scores obtained on the Wechsler Intelligence Scale for Children (WISC) served as indicators of their cognitive competence. Data analysis confirmed the main research hypothesis that the transmission of the impact of social background on intellectual functioning of children proceeds through a complex chain of biological and environmental effects. The IQ scores of Warsaw teenagers depended most strongly on their individual biological characteristics—gender and state of health (18.8 percent of explained variance); the next two, almost identically significant factors being the mother's intelligence level (14.5 percent of explained variance), and the quality of parenthood, in particular the parents' aspirations for the future of the child, and a nonauthoritarian style of parental upbringing (13.5 percent of explained variance). The interactive chain of relationships briefly characterized as *nature via nurture* (McGue 1989) has distinctly marked its presence.

### **The 1994–95 Panel Study: Measuring the Life Success**

What happened to the children at a specific level of mental development after they matured into adulthood and started their economically active phase of life? In the Warsaw studies of the 1990s, we wanted to find out how their life course developed, what education they attained, and what occupational skills they acquired; and also whether in their

own assessment they had achieved economic success. Our 1994–95 data collection coincided with new radical changes in Poland’s political and economic system. Those changes resulted in the progressive differentiation of people’s living conditions, including their education, job prospects, economic situation, and the like. Our former respondents, at this time at the beginning of their thirties, were basically brought up under “real socialism.” They entered their economically active life essentially unprepared for the free capital, labor, and consumer markets. Because education acquired under socialism became less important in the new labor-market arrangements, it seemed justified to hypothesize that intellectual capacity was the key factor leading to success in life.

### *Data*

In the 1994–95 study, we selected two groups from among our former respondents who differed with respect to their IQ scores measured at the age of thirteen. The first group represented the low norm in intellectual functioning (with WISC scores between 69 and 85 points,  $N = 101$ ), the second group, the high norm (with mean or average WISC scores higher than 130 points,  $N = 170$ ). The exploratory mail questionnaire was addressed to the parents of our former respondents. The parents informed us about their children’s lives: their education, occupational status, economic situation, and a number of other factors.

In 1995, only the high intelligence group was subjected to more detailed study. We completed successful interviews with 141 persons, constituting 83 percent of the original group of 170. More than one-half of those whom we did not succeed in examining were persons who had permanently moved abroad or had left Warsaw and were inaccessible.<sup>2</sup> Others either refused to be tested again or became inaccessible for other reasons.

### *Results, Part I: Life Success Objectively Measured*

Table 1 demonstrates differences with respect to attained education, occupational status, and material conditions for high- and low-IQ groups, as reported by their parents. The between-group differences are striking. The high-IQ group is much better educated, has much better jobs, and enjoys a better economic situation than the low-IQ group.

Table 1

**Education, Occupation, and Parents' Subjective Assessment of the Economic Situation Among Persons with High and Low IQs (as percent)**

Variables	High-IQ group ( <i>N</i> = 170)	Low-IQ group ( <i>N</i> = 101)	Difference
A. Education			
Primary	0	28	-28
Basic vocational	1	60	-59
Secondary	12	10	+2
Some college	23	1	+22
College	65	1	+64
B. Occupation			
Professionals	59	1	+58
Technicians	14	4	+10
Office workers	7	5	+2
Employers and self-employed	11	0	+11
Service workers	5	18	-13
Skilled manual workers	1	42	-41
Unskilled manual workers	1	25	-24
Not working	2	4	-2
C. Subjective assessment of the economic situation			
Very bad	1	12	-10
Somewhat bad	9	27	-18
Average	42	42	0
Somewhat good	39	11	+28
Very good	8	2	+6

Is IQ, measured at age thirteen, responsible for such divergent patterns of educational and occupational careers and material well-being? To answer *yes* would mean to come to a hasty conclusion. Our research indicated that social background as well as the related material, cultural, and psychological characteristics of the family were highly correlated with IQ for our two groups of respondents. A major proportion of children with high IQ scores came from the families of professionals and other nonmanual workers. These children were raised in much more advantageous conditions than the children with low IQ scores. Thus, in



this situation, it is difficult to assess the extent to which our respondents' intellectual functioning in adulthood and their own life careers resulted from their genuine capabilities and the extent to which it was actually stimulated, or limited, by the environment in which they were brought up. Unfortunately, strong colinearity between social background and the IQ scores makes it practically impossible to provide a definite answer to the question of which of these two variables is in fact decisive in determining the life success of our respondents.

In further analysis, we decided to compare the achievements of our respondents with those of random samples, constituting two control groups (see Firkowska-Mankiewicz and Zaborowski 1999; Firkowska-Mankiewicz 1999). One of these groups, consisting of 103 males and females, thirty to thirty-nine years of age, living in twenty major Polish cities, was drawn from a representative national sample. The second group of 146 men, aged thirty to thirty-six, was drawn from a representative sample of Łódź dwellers. Hence, we compared the educational, socio-occupational, and material achievements of our talented thirty-year-olds with those of the two control groups. Tables 2 and 3 present the comparisons.

As our data demonstrate, in each of the three dimensions of status, our former talented teenagers clearly placed higher than their counterparts when they reached their thirties. Over two-thirds of them (67 percent) attained college education, as compared with only one-fifth in the control groups (23 percent and 17 percent). One-half of them (49 percent) represented occupations located in high echelons of the occupational ladder, as compared to about one-fourth (24 percent) and one-fifth (20 percent) in the control groups.

However, the most important result is presented in Table 3: about 80 percent of talented teenagers attained high household income actually independently of their education. In the case of control groups, there is a considerable difference between those with college education and the rest. In control groups, those with college education attained high household income in 32 percent to 47 percent of cases, and those without college education attained the same income in only 8 percent to 13 percent of cases.

Nevertheless, as was pointed out earlier, we cannot insist that the achievements of our respondents were solely based on their level of intellectual competence because these achievements, particularly in the

Table 2

**Education and Occupation Among the Group of Talented Thirty-year-olds and Persons from Control Groups**

Variables	Talented thirty-year-olds ( <i>N</i> = 141)	Control groups (percentages)	
		national sample ( <i>N</i> = 103)	Łódź sample ( <i>N</i> = 146)
A. Education			
Primary	0	5	8
Basic vocational	0	30	30
Secondary	15	45	35
Some college	18	4	5
College	67	17	23
B. Occupation			
Top managers	4	4	3
Employers and self-employed	12	12	15
Professionals	33	6	8
Others	33	63	60
Not working	18	16	15

sphere of education, were strongly affected by their family environment. The role of social background strongly manifested itself in the case of a small group of persons from families of intelligentsia who, in spite of their low IQ scores at age thirteen, managed to attain high school education (one of them even a Ph.D. in law). The negative role of social background manifested itself in the case of a much larger group of persons whose parents did not belong to the intelligentsia and who had high IQ scores at age thirteen, but, eventually, did not complete college. Among those whose parents had no higher than primary education, there were 61 percent of such cases, while among those whose parents had college degrees, there were only 15 percent. Clearly, a disadvantageous social background, in terms of education and educational aspirations, made it impossible for as many as two-thirds of those highly talented children to attain college education.

The fact that the talented individuals from our group managed to at-

Table 3

**Income in the Group of Talented Thirty-year-olds and Control Groups, by Education**

Education level	Talented thirty-year-olds	Control groups	
		national sample	Łódź sample
A. Median income <sup>a</sup>			
College	766.7	316.7	400.0
Other	653.3	216.7	263.3
B. Percentage of persons with income in the top decile*			
College	79.2	32.0	47.1
Other	76.2	7.5	12.5

\*Computed on the basis of data from the national sample after eliminating individual farmers, the median value was 205.0 PLN. Incomes of at least 450 PLN were included in the upper decile.

tain material well-being independently of education can be attributed to two factors: (1) high intellectual competence and high motivation to work hard in the new economic system, and (2) the greatly broadened opportunities for social advancement for persons who were entrepreneurial, dynamic, and intelligent.

***Results, Part II: Life Success Subjectively Measured***

People have different views about what constitutes life success and what factors contribute to it. In our 1995 study, we asked a question about which of thirteen factors affected respondents' life careers. Table 4 presents the results for two groups, distinguished with respect to social background. Group I is of intelligentsia background; group NI is of a different background, predominantly working class. These two groups do not differ with respect to IQ level.<sup>3</sup>

Respondents in both groups found their personal talents and abilities to be the most important factor (91 percent in group I and 94 percent in group NI) for their careers. In second and third places of importance, our respondents in group I placed level of education and occupational

Table 4

**Factors Considered as Affecting Life Success Among Respondents from Two Groups: Intelligentia Background (Group I) and Nonintelligentia Background (Group II)**

Factors	Group I (percentages) (N = 35)		Group II (percentages) (N = 35)		Chi-square test p <
	no effect	positive effect	negative effect	no effect	
State of health	35	59	6	35	NS
Talents	9	91	0	6	NS
Gender	70	21	9	44	0.040
Character, predisposition	9	70	21	9	0.070
Parental social status	47	53	0	79	0.001
Education level	6	85	9	18	NS
Occupational skills	15	85	0	24	NS
Life partner	38	59	3	28	NS
Friends, acquaintances	53	44	3	42	NS
Religious beliefs	88	12	0	79	NS
Political views	91	6	3	94	NS
Transformation in Poland	13	77	10	13	NS
Chance, luck	35	62	3	36	NS

skills (85 percent for each factor), while those in group NI mentioned a person's character (88 percent) and level of education (73 percent).

In fourth place, respondents in both groups placed socioeconomic changes in the country, which most of them found advantageous for their careers (77 percent and 71 percent). Explaining their opinions in this respect, both groups of respondents presented the advantages of a free market in a similar way. They mentioned "greater opportunities to take independent initiative in the workplace," "greater opportunities to make money," "being better paid for their work and abilities," "better opportunities for entrepreneurship," "more opportunities for good earnings and development," and "better prospects for the future and a better business outlook." They also noted greater freedom in the new social system: A general feeling of liberty, the freedom to travel, and legal forms for many activities previously disallowed. Clearly, in our respondents' opinions, socioeconomic transformation offered them new and broader opportunities for development and occupational advancement.

There is no question that, in our respondents' opinions, the most important factor affecting life careers is their own talent and ability. In contrast to those in the general Polish population, who usually define life success in terms of material well-being, the respondents in the high-IQ group perceive life success mainly in terms of achieving self-direction, feeling satisfaction in life, having their dreams come true, and accepting oneself. Two-thirds of them considered themselves successful in life as compared to just one-third in the general population (Firkowska-Mankiewicz 1999).

The multiple regression analysis revealed that personality variables (22 percent of explained variance) were most important for a sense of achieving life success, first, high self-esteem ( $beta = 0.59$ ). In second place (14.6 percent of explained variance) were factors linked to the material and occupational situation of respondents, specifically a positive assessment of one's own material status ( $beta = 0.42$ ) and a high socio-occupational position ( $beta = 0.35$ ). It is also important to note the positive role of being married ( $beta = 0.26$ ).

Among variables pertaining to experience at the younger age, educational factors come first (10.4 percent of explained variance), particularly a high motivation to learn ( $beta = 0.40$ ) and positive self-esteem at the time of school attendance ( $beta = 0.29$ ). The earliest family environment did not significantly affect the sense of success of our talented respondents except for one variable: the control exerted on the respon-

dent as a child. The less rigid this control was, the higher the sense of achieving life success ( $\beta = 0.27$ ).

Neither social background nor IQ scores at age thirteen or thirty-six had any significant effect on the current sense of achieving life success, if all relevant variables were controlled. However, one must bear in mind that the sample was very homogeneous with respect to both these variables; thus, no strong effect could have been expected.

### **The 1999 Panel Study: Stability of IQ Scores**

Many studies report a high stability of IQ scores measured by the same test in different phases of human life (see Bayley 1949; Jensen 1980; Słomczyński and Mach 1996; Raven, Raven, and Court 2000). In the 1999 panel study, we wanted to assess the stability of intellectual functioning among those tested originally in 1974–76. The current level of intellectual functioning was measured by the Raven Standard Progressive Matrices Test.

#### ***Data***

In 1999 we tracked respondents of the 1994–95 study. The prospect of a new IQ test in the context of implementing a new legal bill on the protection of personal data was probably responsible for a relatively high rate of refusals to participate in the study. As a result, in the high-IQ group, the final number of tested respondents was 97, constituting 69 percent of the 1995 sample. The number of persons from the low-intelligence group who took part in the 1999 study decreased even more dramatically—from 101 respondents to only 49. Many potential respondents in this group did not establish a current permanent residence, were constantly moving to new places without providing an address, or were unavailable due to various pathological circumstances.

#### ***Results***

Our study allows us to verify whether persons with high and low IQ scores in their teenage years maintained a similar level of intellectual competence in adulthood. Table 5 presents the mean IQ scores of our respondents in the Wechsler Intelligence Scale for Children (WISC)

Table 5

**Average IQ scores on the Wechsler Intelligence Scale for Children (WISC) and the Raven Standard Progressive Matrices (SPM) at Ages Thirteen and Thirty-six, and the Correlation Between the Two Measures**

Group	Age and test		N	Correlation between WISC and SPM
	thirteen years old (WISC) <sup>a</sup>	thirty-six years old (SPM) <sup>a</sup>		
High-IQ group	Average (standard deviation) 131 (8)	124 (8)	97	0.49 <sup>b</sup>
Low-IQ group	78 (5)	87 (13)	49	0.35 <sup>c</sup>

<sup>a</sup>Raw data were normalized to mean = 100 and standard deviation = 15.

<sup>b</sup> $p < 0.001$ .

<sup>c</sup> $p < 0.05$ .

measured at age thirteen and Raven's Standard Progressive Matrices Test (SPM) at age thirty-six. The IQ scores in the high-IQ group clearly diminished while the scores in the low-IQ group increased, reaching almost a full norm. This result can be interpreted in both substantive and methodological terms.

Substantively, one can expect some *regression toward the mean* in both the high- and low-IQ groups. In the high-IQ group, the *ceiling effect* means that it is practically impossible to increase intelligence above an already achieved level, while it is possible to decrease it. Note that, in spite of their currently slightly lower IQs, our former "talented teenagers" certainly maintained their superior intellectual competence in adulthood at age thirty-six. Meanwhile, however, their less talented counterparts improved their intellectual functioning. Among those with improved intellectual functioning were persons from poor and pathological families who as children were diagnosed as mentally handicapped (Firkowska-Mankiewicz 1974; Firkowska-Mankiewicz and Czarkowski 1986). This category is subject to the *floor effect*.

Methodologically, it is possible that lack of access to a major part of

our sample of respondents (28 percent in the high-IQ group and 51 percent in the low-IQ group) seriously contributed to differences in the mean IQ scores measured over the span of twenty-four years. In the high-IQ group, many of those inaccessible in 1999 were persons who sought better job opportunities abroad, or who were so busy pursuing their careers in Poland that they could not find time to participate in our study. One may suspect that the high level of occupational involvement was in line with a particularly high level of intellectual functioning. If those active persons were currently "missing" from our reduced high-IQ group, it is understandable that the new IQ scores diminished. In contrast, there were completely different reasons, often bordering on social pathology for the selection bias of the low-IQ group. It is possible to conclude that the inability of those persons to cope with the demands of an orderly life had much to do with their particularly low level of intellectual functioning. If such persons were currently missing from our low-IQ group, the mean IQ score for this group might, indeed, become higher.

Statistically significant correlations between the scores measured at ages thirteen and thirty-six support the opinion that the IQ scores of intellectual functioning taken in childhood predict those in adulthood. However, those correlations are not very high ( $r = 0.49$  and  $r = 0.35$ ). It is difficult to compare them to any published data for two reasons.<sup>4</sup> The first reason pertains to the different tests, WISC and SPM, used for the measurement of IQ. Correlations reported in the literature between the scores in both these tests vary between 0.54 and 0.86 for the children and youth in English-speaking countries and between 0.30 and 0.68 for children and youth in other countries. The exception to the latter was a study by Kostrzewski and Biela in which those correlations were found to be between 0.70 and 0.75 (see Raven et al. 2000: 53).

Second, the time span between the two measurements of an IQ score is rarely longer than a few years. I did not find a study presenting differences between the IQ scores obtained through WISC and SPM tests while one of those tests would be applied in the respondents' childhood and the other, in their adulthood. The only data that can serve as an approximate reference point concern an application of the SPM test to a group of 1,000 Germans tested when they were in the sixth grade and again at ages twenty to twenty-one. Raven et al. note, "After four years the reliability coefficient was 0.61, dropping to 0.46 after eleven years"



(2000: 49). This is a magnitude similar to the correlations in our study. Taking into account the aforementioned limitations of our study, as well as an unusually large time span of twenty-four years between the two measurements, one may suppose that correlations between the IQ scores at ages thirteen and thirty-six would be even higher.

## Conclusion

The 1970s studies conducted in Warsaw focused on the impact of social background on IQ. Results from the 1990s panel study indicate that the IQ score at age thirteen can be viewed as a good indicator for future life success, defined in terms of attained education, occupational status, and material well-being. Dramatic differences in this attainment between the groups of respondents with high and low IQ scores attest to this conclusion. Smaller, yet still significant, differences between our former talented teenagers and their counterparts from the two control groups, who apparently did not have the high-IQ advantage, also support the thesis that IQ has a significant impact on success in life.

Three points are in order. *First*, we do not know how to disentangle the IQ scores from many environmental factors that are colinear with them. In the limited cases of persons with identical IQ scores but different social backgrounds, we discovered that the predictive power of intelligence was limited. *Second*, it turns out that the IQ score loses its predictive power for a sense of achieving life success, at least among those with high levels of intellectual functioning. Personality variables, particularly high and stable self-esteem, are decisive for a sense of achieving life success. *Third*, intelligence does not seem to be as stable through the life course as other investigations suggest. Our study shows only a moderate correlation between IQs measured at ages thirteen and thirty-six.

Thus, the value of the IQ scores should not be overestimated. It would be useful to consider IQ in the context of a full range of environmental factors that could affect success in life. Not only objective but also subjective measures of life success need to be carefully considered. In measuring IQ, various points in the life cycle should be scrutinized.

## Notes

1. All studies reported in this article were conducted under the auspices of the Institute of Philosophy and Sociology, Polish Academy of Sciences.

2. Some of our 1995 respondents were living abroad but they agreed to take part in our study by mail. Because the testing planned for the new 1999 study required personal contact with each respondent, we had to eliminate those who were not in Poland.

3. Actually, pairs of persons were selected whose IQ scores were as close as possible. Each pair was contrasted with respect to social background.

4. There are also other factors that could, in part, contribute to low correlations between the IQ scores measured for our respondents at ages thirteen and thirty-six. For example, the variance of IQ scores in each of our two groups is rather low. In addition, SPM has been administered under a time limit of twenty minutes. However, the most important bias may stem from the fact that the WISC is a test of general intelligence, composed of a battery of verbal and nonverbal items, while SPM is a solely nonverbal test (Jaworowska and Szustrowa 2000).

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