Understanding Youth Resilience by Leveraging the Youth Development Study Archive

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Abstract: *Key formative experiences have the potential to influence the movement of young people through the transition to adulthood. Positive experiences promote resilience and success among at-risk youth; negative experiences can derail youth who are doing well at the outset of this transition. Taking a holistic and person-centered approach, we leverage data from the Youth Development Study, which followed 1,139 St. Paul youth from the ninth grade to age 38 (with 19 surveys).*

First, we identify youth who exhibit constellations of attributes indicating greater or lesser age-specific "success" in middle adolescence (ages 14–15), late adolescence (ages 17–18), and early adulthood (ages 26–27). In middle and late adolescence, more successful youth had higher grades, educational aspirations, and intrinsic school motivation; they avoided smoking and alcohol use. The more successful young adults were employed, economically self-sufficient, making progress toward their career goals, and satisfied with their jobs, and they lacked physical and emotional problems.

Second, we trace shifts between the more and less successful classes as respondents moved from middle to late adolescence and from late adolescence to adulthood. Though the majority of youth were "stable," considerable movement occurred between classes.

Finally, we describe key formative experiences and characteristics that distinguished adolescents who moved from the less to the more successful class (showing "resilience"), from middle to late adolescence, from those who stayed in the less successful class. These experiences included positive parent and teacher relationships and conscientiousness in school. Positive experiences during adolescence also predicted resilience during early adulthood. Key protective factors emerged in early adulthood: a teacher/professor who influenced the youth's career goals and delayed childbearing.

We conclude that the quality of family and peer relationships, and specific experiences in school and work settings, differentiate youth exhibiting more and less positive trajectories. Because the quality of adolescent experiences continues to influence trajectories during the transition to adulthood, it is especially important to address deficiencies in adolescent contexts. The research upon which this article is based was supported by a grant from CURA's Faculty Interactive Research Program.

Transitioning from adolescence to early adulthood involves multiple decisions and challenges for young adults. A large body of literature examines adolescent and young adult attributes, as well as features of experiences that are linked to indicators of success, such as educational achievement and attainment, career establishment, economic self-sufficiency, and health. Characteristics of the family (e.g., parental education, income, parent-child relationships, parental expectations, encouragement, and monitoring), school (e.g., curriculum, extracurricular resources, teacher-student relationships), and peers (support, prosocial and anti-social influences) emerge as correlates of success. Most studies are "siloed," focusing on single success indicators (e.g., educational attainment, juvenile justice involvement) or single domains of potential influence (e.g., family). Most use cross-sectional data, collected at a single point in time, and report aggregate trends. Longitudinal studies, which follow the same individuals over time, emphasize stability, that is, youth who are doing poorly relative to their peers in adolescence are likely to be in a similar position in young adulthood.

The present research takes a more holistic approach and looks for sources of change over time within persons. We identify adolescents and early adults who, based on a constellation of attributes signifying age-specific indicators of adjustment, are considered to be faring well or poorly. We assess movements between these constellations over a critically important period of the early

life course (middle adolescence to early adulthood).

We are particularly interested in identifying experiences associated with movement from a less successful to a more successful configuration of circumstances. For those youth with a less promising start, what experiences differentiate those who enter a path toward employment, career achievement, job satisfaction, economic self-sufficiency, and a healthy life from those who remain "at risk" throughout adolescence and early adulthood? Answers to this question are crucial for policy makers as they could suggest evidence-based policy interventions to direct as many young people as possible toward a successful life path.

Our motivation for this study stems from a series of meetings in the fall of 2015 with stakeholders affiliated with the Ramsey County Policy Unit. Each stakeholder focused on a specific domain of adolescent or young adult experience, through their work in the public schools, vocational guidance, skill development and employment, foster care, welfare program administration, and juvenile corrections. While primarily concerned with a particular domain of adolescent or young adult adjustment, it was apparent that the problems the stakeholders address are interrelated. That is, various difficulties and elements of success in adolescence and early adulthood tend to occur together. The information we aimed to provide would address not just single domains of success but would, more holistically, identify features of adolescents' and young adults' lives with implications for multiple domains of functioning.

Methods

Since this series of meetings, we have identified youth who exhibited more or less promising pathways to adulthood using data from the Youth Development Study. This longitudinal study followed (with annual or biannual surveys) a panel of 1,139 ninth graders in St. Paul, Minnesota, public schools to their late 30s. The data archive is rich in information about school, family relationships, mental health, and socioeconomic status. We examined youth adaptation in three phases:

1. middle adolescence (9th grade; ages 14–15, 1988)
2. late adolescence (12th grade; ages 17–18, 1991)
3. early adulthood (ages 26–27, 2000)

By the 12th wave of the study (2000), about three-quarters of the original sample remained.

First, we selected variables indicative of "success" at each developmental phase. Second, we used latent class analysis to identify configurations of these variables. Finally, drawing on data during the intervening periods (between the 9th and 12th grades; between the 12th grade and mid-20s), we identified experiences and characteristics associated with distinct patterns of movement across success categories.

Measures of Success in Middle and Late Adolescence and in Early Adulthood

The adolescent indicators reflect success in the school domain, an absence of problematic behaviors, and positive outlooks toward the future. We include school achievement (grades), educational aspirations, certainty about occupational plans, substance use (smoking, alcohol), school problem behavior, intrinsic motivation toward school, and expectations about the likelihood of success in key life domains (work, family, health, community, etc.).

Indicators of early adult success include employment status, job satisfaction, career establishment, level of certainty about achieving one's occupational goals, and economic self-sufficiency, the latter being a central concern of policy makers. A categorical variable gauged whether respondents' living expenses came entirely from their own (or a partner's) salary, 25% or more from relatives or the government, or mostly from other sources. Additional variables indicated whether deficits in physical or mental health interfered with respondents' daily lives.

Identifying Success Categories

In each phase, we employ latent class analysis (LCA), which groups individuals into classes depending on the similarity in their responses across variables. The fit of models to data is gauged by the Bayesian information criterion (BIC) statistic, with the model with the lowest BIC being the better model. In our case, the best model specification involved four classes at wave 1 and three classes at waves 4 and 12.

Table 1 shows the proportion of respondents assigned to each class, based on the probability distributions of responses for each variable. In the ninth grade, 64% of respondents are in

a latent class we call "more successful"; 32% are in the "less successful" class. Because members of third and fourth latent classes (about 4% of respondents) had a very high probability of missing data on all indicators, we delete these cases from further analysis. Respondents in the first, *more successful* class:

▶ drink alcohol infrequently (0.92) and are unlikely to smoke (0.92)
▶ have high certainty about achieving their career goals (0.84)
▶ have high intrinsic motivation toward school (0.87)
▶ have high grades (0.85)
▶ have good behavior in school (0.84)
▶ expect to obtain 4 or more years of college (0.71)
▶ have relatively high expectations for the future (0.82)

The *less successful* class, in contrast, is distinguished by its relatively high frequency of drinking (0.49) and smoking (0.61). Sixty-one percent report a grade point average of C or lower. More than half of those assigned to this less successful class reports problematic school behaviors (0.54) and expects to obtain less than 4 years of college (0.54). They also tend to have lower expectations for the future (just 65% have high expectations).

Clear differences between the successful and unsuccessful classes are likewise observed in late adolescence, the senior year of high school. At this time, 57% may be considered successful; 33% unsuccessful. Again, a third class with about 9% of respondents with a high probability of missing values on all items was deleted from subsequent analyses. The more successful late adolescents:

▶ drink alcohol infrequently (0.88 vs. 0.55 among the less successful)
▶ are more likely to be nonsmokers (0.89 vs. 0.48)
▶ aspire to obtain 4-year college degrees (0.74 vs. 0.41)
▶ get grades of C+ or better in school (0.98 vs. 0.53)
▶ are intrinsically motivated toward school (0.91 vs. 0.53)
▶ have good conduct in school (0.85 vs. 0.49)
▶ have higher expectations about their futures in general (0.87 vs. 0.69)

Given the differences in their motivation, behavior, and future outlooks, one might expect that successful respondents at the end of high school would be more likely to be successful as young

Table 1. Estimated Prevalence and Conditional Probabilities of Responses for the Latent Classes in Three Phases from Middle Adolescence to Early Adulthood

	Age: 14–15		Age: 17–18	
	Successful	Unsuccessful	Successful	Unsuccessful
Prevalence	**64.1%**	**31.7%**	**56.7%**	**33.1%**
Had 2 or less drinks in the past 30 days	0.92	0.50	0.88	0.55
More than 2 drinks in the past 30 days	0.08	0.49	0.12	0.45
Has not smoked in the past 30 days	0.92	0.39	0.89	0.48
Has smoked in the past 30 days	0.07	0.61	0.10	0.52
High career certainty	0.84	0.75	0.90	0.85
Low career certainty	0.14	0.21	0.10	0.14
Expects to complete less than 4 years of college	0.19	0.54	0.20	0.52
Expects 4 years of college or more	0.71	0.33	0.74	0.41
Does not know educational expectations	0.08	0.12	0.06	0.07
Low future expectations	0.18	0.35	0.11	0.29
High future expectations	0.82	0.65	0.87	0.69
GPA of C+ or better	0.85	0.34	0.98	0.53
GPA less than C+	0.12	0.61	0.02	0.45
Intrinsic motivation toward school low	0.12	0.52	0.09	0.46
Intrinsic motivation toward school high	0.87	0.47	0.91	0.53
School problem behavior high	0.15	0.54	0.14	0.51
School problem behavior low	0.84	0.41	0.85	0.49

adults than those in the less successful class.

At the ages of 26 to 27 we find 46% of the respondents in a successful class (designated as class 1 in Table 1), and the remainder divided between two less successful categories (classes 2 and 3). Class 2, a relatively small class composed of 12% of respondents, is distinguished by its lack of employment (0.96). Class 3, including 42% of respondents, is 100% employed but, like class 2, indicates numerous difficulties.

On all counts, class 1 has made a more successful adaptation to the challenges of young adulthood. Early adult respondents in class 1 are employed (1.00) and manifest successful adaptation in numerous respects. They have higher educational attainment than respondents in classes 2 and 3 (0.34 with a bachelor's degree or more, vs. 0.16 in class 2 and 0.23 in class 3). Only 18% of class 1 respondents have only a high school education or less (compared to 0.50 in class 2 and 0.31 in class 3).

They are more likely to have achieved or feel very certain that they will achieve their occupational goals (0.78 vs. 0.55 and 0.49, respectively), they are much more likely to be pursuing what they consider a career (0.63 vs. 0.00 and 0.08), and they are much more likely to report satisfaction with their jobs (0.81 vs. 0.00 and 0.23). Class 1 is also characterized by economic self-sufficiency, with 81% reporting that all their living expenses are paid for by their own or their spouse's earnings (vs. 0.46 and 0.68). Finally, class 1 respondents are more likely to report no physical or emotional problems that interfere with activities in their daily lives (0.78 vs. 0.55 and 0.52). We therefore consider class 1 as the more successful, and classes 2 and 3 as less successful.

Assessing Movement Between Classes
As found in many longitudinal studies, respondents exhibit a high level of stability in adaptation across phases of the life course. Between middle and

late adolescence, approximately 71% of respondents who were in the more successful class at ages 14 to 15, indicating a high level of adaptation, are found in the same class at ages 17 to 18 (Table 2). Of those who started out in the less successful class at ages 14 to 15, 54% were found in the less successful class at ages 17 to 18.

Still, from ages 14 to 15 to ages 17 to 18 we see considerable movement between classes, signaling that some respondents are becoming more successful than they were before, and vice versa. Indicating resilience despite inauspicious beginnings, approximately 28% of those in the less successful class at ages 14 to 15 moved to the more successful one by the ages 17 to 18. Indicating the reverse "downward slide," approximately 24% of the more successful respondents at ages 14 to 15 moved to the less successful class by ages 17 to 18. Respondents whose movements indicate increasing adaptation are of particular interest.

Age: 26–27

	Class 1	Class 2	Class 3
Prevalence	46.4%	11.7%	41.8%
High school education or less	0.18	0.50	0.31
Tech/vocational or associate's	0.25	0.21	0.19
Some college education	0.22	0.14	0.27
Bachelor's degree or more	0.34	0.16	0.23
Not employed	0.00	0.96	0.00
Employed	1.00	0.01	1.00
Achieved occupational goal	0.36	0.16	0.06
Very certain to achieve occupational goal	0.42	0.39	0.43
Somewhat/not very certain to achieve goal	0.19	0.40	0.42
Is not in career of choice	0.05	1.00	0.53
Is in career of choice	0.63	0.00	0.08
Is in a steppingstone job to career	0.33	0.00	0.39
Satisfied with job	0.81	0.00	0.23
Somewhat satisfied with job	0.17	0.00	0.53
Dissatisfied with job	0.01	0.00	0.23
100% income from self and spouse	0.81	0.46	0.68
25% of income from government or relatives	0.13	0.42	0.25
Source of income: other	0.06	0.10	0.06
No physical or emotional interference	0.78	0.55	0.52
Slight physical or emotional interference	0.16	0.26	0.32
Experience physical or emotional interference	0.06	0.19	0.16

In early adulthood, we again observe much stability (Table 3), as 52% of respondents who were in the more successful class 1 at ages 17 to 18 remained in class 1 at ages 26 to 27. Fifty-nine percent of those in the less successful class at ages 17 to 18 were found in the two less successful classes at ages 26 to 27. We again see some upward movement: approximately 41% of those in the less successful class at ages 17 to 18 are found in the most successful class at ages 26 to 27. Again, we find "downward slide." In the transition from adolescence to adulthood, 48% of those in class 1 at ages 17 to 18 have moved to classes 2 or 3.

The considerable movement between classes representing different levels of psychological and behavioral adjustment, as individuals age from middle to late adolescence, and from late adolescence to adulthood, provides the basis for the next step of our analysis: to identify the factors associated with this movement. Those who move from the less successful to more successful classes are of special interest, as they may be considered at high risk, initially, but have managed to overcome earlier difficulties. Understanding the experiences that are associated with such movement, as youth transition across phases, will indicate points of effective intervention.

Predictors of Resilience

To identify variables associated with movement between classes, we conduct the analysis in two phases:

1. We first predict class movement during middle adolescence, between ages 14 to 15 and 17 to 18.
2. We then examine movement during early adulthood, between ages 17 to 18 and 26 to 27.

Movements may be upward, from the less successful to the more successful class, or downward, from the more successful to the less successful. The remainder of the sample exhibits stability—at relatively successful or unsuccessful levels. Figure 1 illustrates these possibilities.

We regress class movement on a variety of indicators in an attempt to explain mobility during adolescence (from the first to the fourth high school years), known as stage 1, and during early adulthood (from the last year of high school to ages 26–27), known as stage 2. Since the dependent variable, "class movement," is categorical (with four categories: stably unsuccessful, stably successful, resilience, and becoming at risk), we employ multinomial logistic regression. Independent variables include baseline characteristics (family of origin household income, parental education, race, nativity, gender, and family structure) and several explan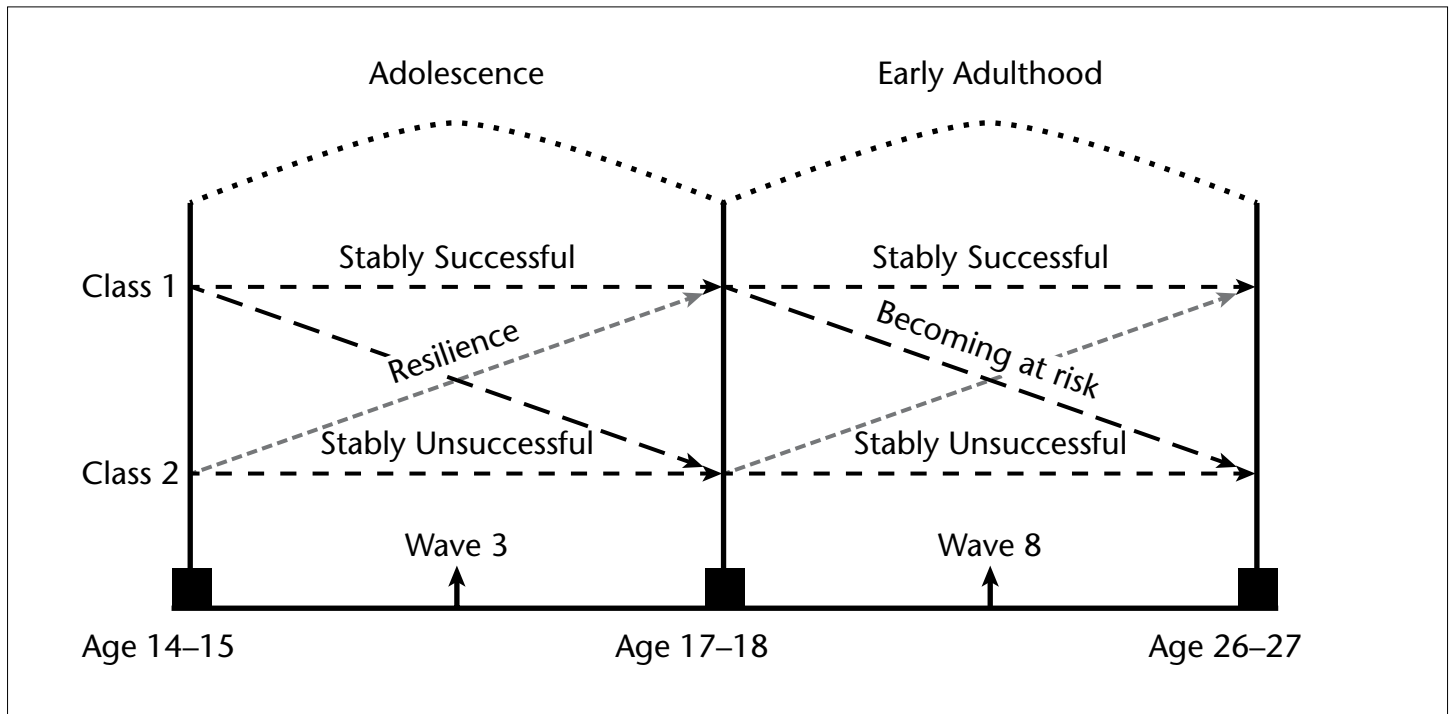atory variables. The analyses gauge the importance of each explanatory variable independent of the background characteristics (but not net of other experiential predictors). In the analyses described here, we specify the reference category as *stably unsuccessful,* with special interest in comparing those who move "up" to the *successful* category, the "resilient youth," with those who remain *unsuccessful.*

Adolescence

The predictors of movement in adolescence were mainly measured in wave 3, 1 year prior to the wave 4 "success"

Table 2. Movement Between Classes from Ages 14–15 (high school entry) to Ages 17–18 (high school senior year). *Missing Data Group (removed from analysis)

		Successful	Unsuccessful	Missing Data*	Total
Ages 14–15	Successful	484	160	33	677
		71.49%	23.63%	3.88%	100%
	Unsuccessful	94	177	59	330
		28.48%	53.64%	17.89%	100%

Table 3. Movement Between Classes from Ages 17–18 (high school senior year) to Ages 26–27 (early adulthood)

		Ages 26-27			
		Successful 1	Unsuccessful /Unemployed 2	Unsuccessful/ Other 3	Total
Ages 17–18	Successful	217	39	165	421
		51.54%	9.26%	39.19%	100%
	Unsuccessful	106	28	122	256
		41.41%	10.94%	47.66%	100%

Figure 1. Class Movement Variable Construction

constellations. Predictors include experiences in the family (e.g., closeness to mother and father), in school (e.g., quality of relationship with teachers, conscientiousness in schoolwork), and at work (e.g., employment, opportunities to learn from the job). Because, for policy purposes, we are mainly concerned with the sources of *change*, we focus here on upward moves from the less successful to the more successful classes (indicating resilience). Youth who exhibited this pattern started off in the unsuccessful class but became successful by the 12th grade. Knowledge about the sources of resilience could inform interventions to reduce risk.

Having a good relationship with one's teacher increased the odds of resilience by about 40% per each unit increase. Figure 2 shows that among the at-risk adolescents who thought that their teachers were "almost always willing to listen to your problems and help find solutions," more than 60% moved into the successful category by the 12th grade. Only about 40% of those who thought this was "never" or "rarely" the case became resilient. Considering it important to do what the teacher says in school, an indicator of the student's conscientiousness, increased the odds of becoming successful, by almost 50%.
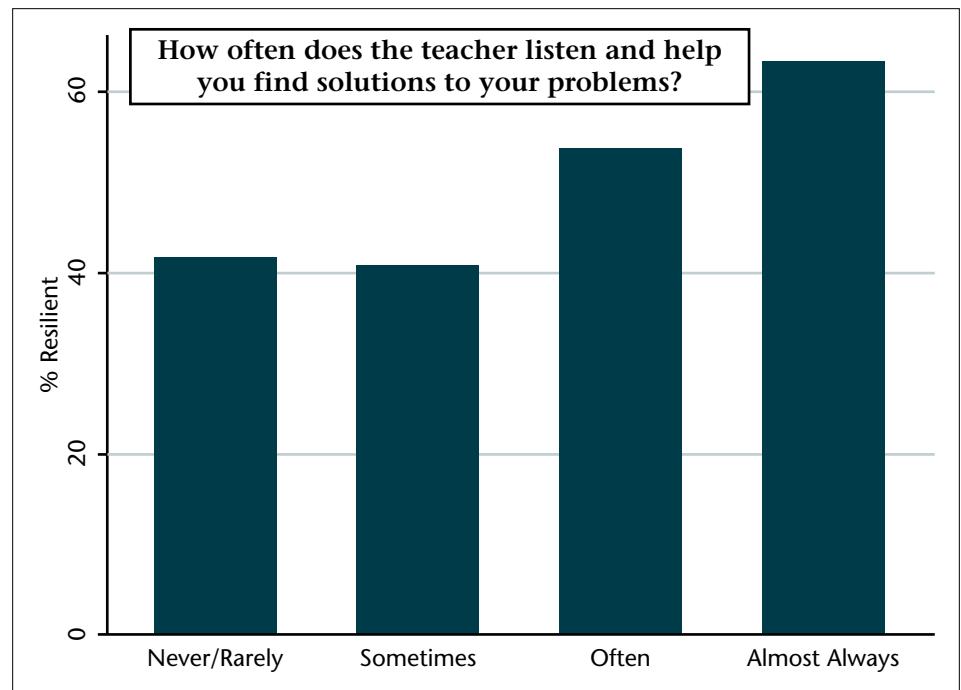
As shown in Figure 3, approximately 70% who thought "doing what the teacher says" was "extremely important" were resilient, but only about 40% of those who thought this was only "fairly" or "not important" moved into the successful class. Finally, at-risk youth who were close to their fathers were significantly more likely to be resilient. Figure 4 shows clear differences in resilience by closeness to father.

Early Adulthood
Due to the relatively small size of the nonemployed class 2 at ages 26 to 27 (67 cases), we merge classes 2 and 3. This allows us to identify one successful and one unsuccessful class in each life phase. In predicting movement across classes in early adulthood, we drew on variables measured at ages 21 to 22.
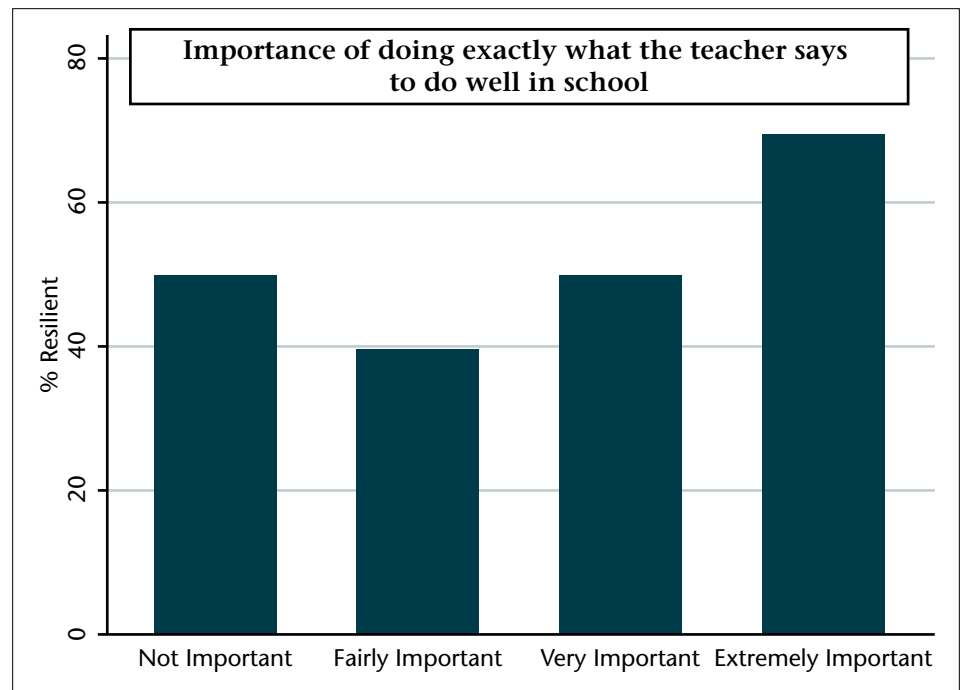
Educational experiences and aspirations were found to predict resilience in early adulthood. For example, being influenced by a teacher or school professional in one's career decision making increased the odds of becoming successful by about 44%. But thinking that the highest level of schooling one will achieve is a tech/vocational degree

Figure 2. Quality of Relationship with Teacher and Resilience During Adolescence (ages 14–17)*

How often does the teacher listen and help you find solutions to your problems?

% Resilient

Never/Rarely   Sometimes   Often   Almost Always

*Vertical axis shows % resilient, i.e., those who move from the less successful to the more successful category, as the quality of relationship with teachers increases.

Figure 3. Conscientiousness and Resilience During Adolescence (ages 14–17)*

Importance of doing exactly what the teacher says to do well in school

% Resilient

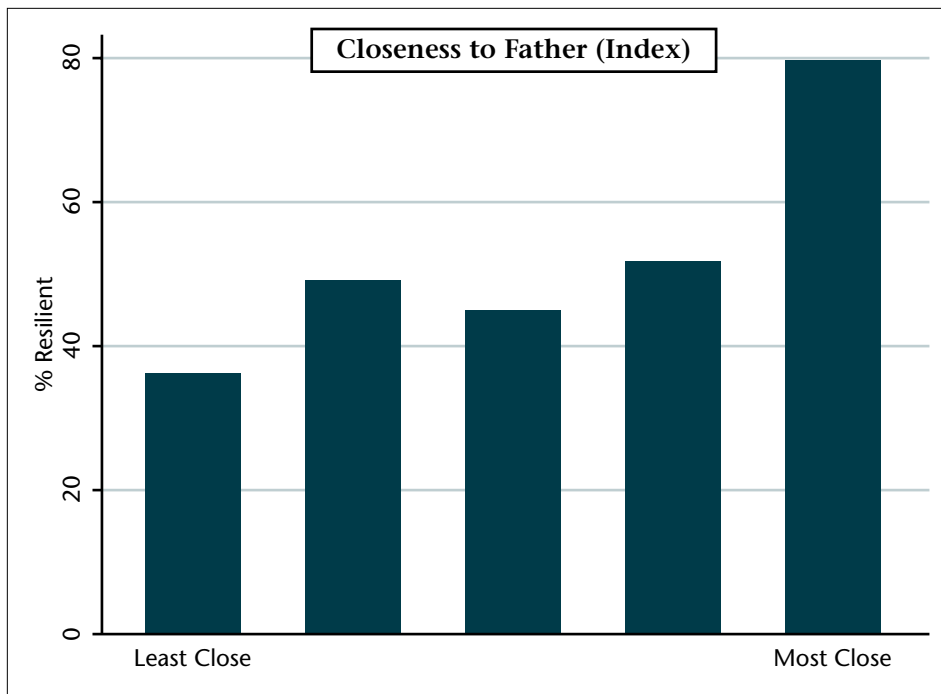Not Important   Fairly Important   Very Important   Extremely Important

*Vertical axis shows % resilient, i.e., those who move from the less successful to the more successful category, as the importance of conscientiousness increases.

(instead of a 4-year college degree) reduced the odds of resilience by 60%. In general, having educational expectations lower than a bachelor's degree reduced the likelihood of resilience. Not surprisingly, having children reduced the odds of showing resilience by 60%

(only 40% of young adults who had children were resilient, compared to more than 60% of the child-free).

Next, to assess whether experiences during adolescence are associated with adaptation in early adulthood, we estimated the effects of adolescent

Figure 4. Closeness to Father and Resilience During Adolescence (ages 14–17)*

*Vertical axis shows % resilient, i.e., those who move from the less successful to the more successful category, as the quality of relationship with fathers increases.

experiences on resilience between waves 4 and 12, the early adult period. We found that some experiences in adolescence predicted resilience in early adulthood. For example, having been close to one's high school teachers, as well as close to one's father during adolescence, were associated with higher odds of upward movement (31% and 8% for each unit increase, respectively). Conversely, working in high-intensity jobs (more than 20 hours per week, irrespective of duration) appeared to decrease the odds of resilience. Those who were employed at both high duration (working 22 or 24 months of observation, on average) and high intensity (more than 20 hours per week on average during high school) were only half as likely to be resilient as those who pursued low-duration and low-intensity employment.

Policy Recommendations

Based on the results of our analysis, several patterns could inform the development of interventions. It is especially interesting to note that variables in the adolescent period still have predictive power in the early adult period, indicating the importance of policy intervention during adolescence.

Our findings underline the importance of student conscientiousness in the classroom. The more students perceived that it was important to do

what the teacher says to get a good grade, the more likely they were to be resilient. While conscientiousness is considered a central defining trait of personality, associated with numerous indicators of success, its role in overcoming risk is not well understood. Furthermore, we find a clear positive effect of closeness to teachers. Teachers should try to establish good relationships with their students. Schools could implement activities and programs to enable teachers to get to know their students better—sites where students and teachers can bond with one another. Training programs for teachers could be implemented to help them nurture positive interpersonal relationships with students while fulfilling their pedagogical role. We also find that having been influenced by a teacher or a school professional in developing one's career goals is important for positive outcomes in early adulthood. School programs in which students are encouraged to discuss their careers and aspirations with educators and counselors may thus have a positive effect. Instilling and maintaining high educational aspirations should also be emphasized, as those who had lower educational aspirations were less likely to show resilience. It is clear that the influence of teachers and classroom practices is formative in multiple ways in the adolescent and early adult period,

indicating that policy should be in place to foster interactions that encourage students to be conscientious, ambitious, and successful.

As for family influence, we see that closeness to parents (especially the father) early on has positive outcomes both during adolescence and in early adulthood. Outreach programs for families could be constructed to encourage parents to spend more time playing, talking, and being with their children. Parental training programs can teach parents how to build interpersonal bonds with their children even when parents live apart.

Work during adolescence also predicted positive outcomes in early adulthood for youth who started off with several disadvantages. Pursuing low-intensity work appears to promote resilience in early adulthood among high-risk teenagers. Times have changed, however, and relatively few opportunities for adolescents to do paid work now exist. Internship programs could be provided in which adolescents receive work experience and training. Our findings suggest that these programs should avoid high-intensity work (more than 20 hours per week).

We conclude that experiences in family, school, and work settings appear to help youth who do not indicate high potential for success; that is, those who are less motivated with respect to school have relatively low educational aspirations, report more problem behavior in

Predictors of Youth Resilience

▶ **High student conscientiousness in the classroom**

▶ **Close relationship with teachers**

▶ **Close relationship with father**

▶ **Career goals fostered by teacher or professor**

▶ **Desire to attain a 4-year degree**

▶ **Work limited to less than 20 hours a week**
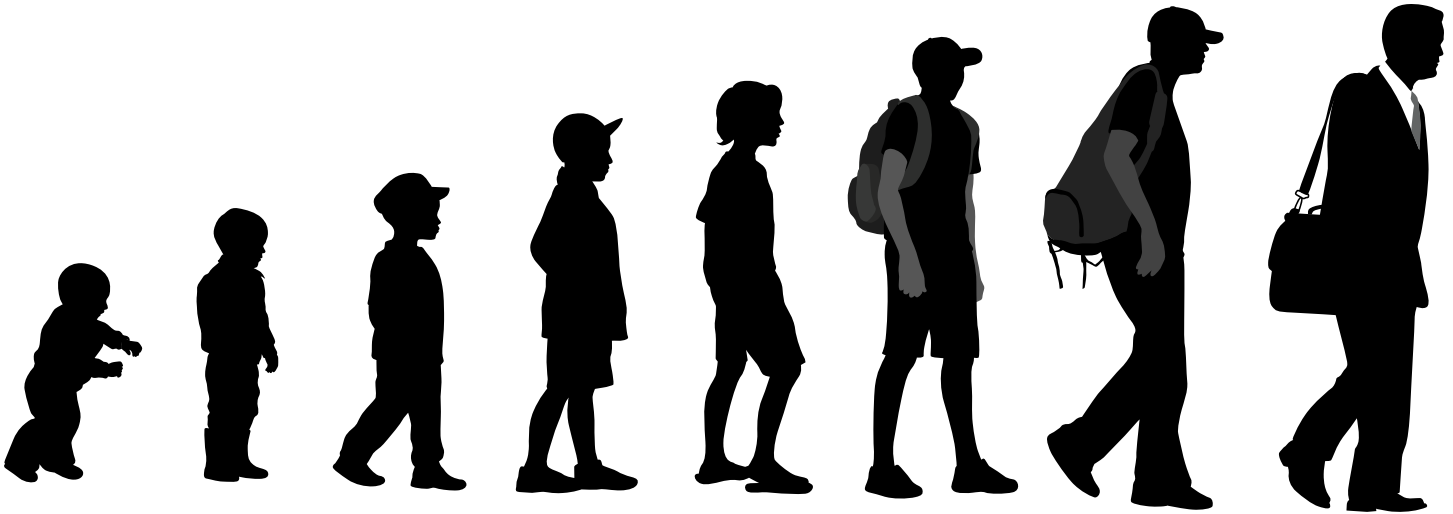
school as well as more alcohol use and smoking, and have lower expectations in general for the future. The quality of parent-child and teacher-student relationships, as well as specific experiences in school and work settings, separate those youth who stay in the relatively unsuccessful class throughout adolescence and during the transition to adulthood from those who manage to become successful despite inauspicious beginnings. Because the quality of adolescent experiences continues to influence trajectories during the transition to adulthood, it is especially important to address deficiencies in adolescent contexts.

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