Published in final edited form as:

J Soc Issues. 2008 March 1; 64(1): 227–233. doi:10.1111/j.1540-4560.2008.00558.x.

The Value of an Off-Diagonal Approach

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As coeditor of this issue, I, of course, looked forward to seeing all of the manuscripts in their final forms. As we planned the issue, the three of us editors were convinced that using pattern- or person-centered approaches focused on individuals following unexpected educational pathways would provide new insights into educational success and failure. Having just completed my third reading of all of the manuscripts in their final form, I am delighted that we accomplished this goal.

Focusing on individuals rather than variables made several conclusions very clear to me. First, stability rather than change is the norm. Second, despite the fact that certain combinations of risk factors appear to be quite debilitating, many youth do well in school despite having some risk factors in their lives. Third, unexpected outcomes are much more likely to be negative than to be positive. Finally, we know very little about how to produce positive change within the school setting.

Although these facts could be gleaned in an abstract way through traditional variable-centered analyses, I found that the individual case perspective provided more compelling examples of what these findings actually mean for individual lives. These cases provide much more powerful examples for conversations with policymakers than statistical coefficients. In discussing these four points, I focus on those articles in which the findings were presented in the most person-centered fashion in order to illustrate the power of such analyses.

Developmental Stability is Normative

I was struck by the continuity of trajectories in all of the articles that presented specific cases of stability versus instability. Several of the papers used some form of regression technique to identify individuals who were predicted to either attain or fail to attain certain educational statuses and then compared these predictions to the actual longitudinal outcomes. In most cases, the majority of the people who were predicted to attain or fail were later found to have attained or failed as predicted, indicating that stability is the norm and change is the exception. To quote: “The vast majority of students were classified into three stable trajectories of school engagement” (Janosz et al.). Similarly, in Neuen-schwander and Garrett, only 4–6% of the students in their study switched from one school track to another. The other 94–96% of the students showed quite stable educational pathways. Similarly, Trost and El-Khoury reported that the pathways of most individuals were characterized by stability that was consistent with their intraindividual patterns of age 10 competence and problems. Finally, Kokko, Pulkkinen, Mesiäinen, and Lyyra noted that most of their sample followed quite stable and predictable educational and occupational pathways across their lifespan.

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Further, the most salient trend in these and other data is that more people are on a stable positive educational pathway than on a stable problematic educational pathway. Again quoting from Janosz et al., “the vast majority ... distinguish[ed] themselves at moderate to high levels of school engagement.” Scarr (1992) argued that there is a wide range of environments that will support adaptive and healthy developmental outcomes. The findings in these articles are consistent with this perspective. Apparently, the majority of children in these studies had sufficient environmental supports to do well enough in school to complete the expected amount of education for their social group.

However, such stability is alarming for those who do not have sufficient environmental supports and who are on pathways toward educational failure. Here the findings are particularly stark. For example, Pagani et al. showed that practically 100% of kindergarteners characterized by the three risk factors studied (i.e., had mothers with less than a high school diploma, lived in a single-parent family, and had experienced at least one grade retention) failed to graduate from high school. If this isn’t a clarion call for policymakers, I don’t know what is. Such findings provide support for a social policy that would identify all children in the Quebec elementary school system who have these three risk factors, and then provide immediate educational supports.

Resilience Happens

Despite the overwhelming evidence of stability, the approaches taken in these articles also made it easy to see that both positive and negative changes do happen for some youth. Some of these changes highlight youths’ vulnerabilities despite what appear to be sufficient resources, whereas other changes highlight resilience in the face of adversity. Notably, there is evidence in these articles that supports that idea that youth who are on pathways toward educational failure can turn things around and achieve positive educational outcomes. However, as I discuss next, “beating the odds” once one is on a problematic trajectory is neither easy nor statistically very frequent. Nonetheless, looking across the articles suggests several factors that can facilitate positive educational trajectories even among youth who are already on problematic trajectories. For example, Peck, Roeser, and Zarrett documented the potential power of extracurricular activities to help educationally vulnerable youth make it to college despite being on a vulnerable course when they entered high school. Similarly, Melhuish et al. documented the potential power of supportive educational activities in the home to help children living in at-risk neighborhoods achieve high levels of math and reading literacy during their preschool years. Finally, 26% of the women and 17% of the men in the Kokko et al. study went back to school as adults, thus showing an unexpected upward turn in the educational pathway.

The articles provide even more evidence for the protective role of a variety of factors for keeping youth on a positive educational trajectory. For example, Neuenschwander and Garrett found that holding high educational and occupational expectations/aspirations, having confidence in one’s academic abilities and in the likelihood of success facilitating one’s occupational goals, and doing well academically predict remaining on a positive educational pathway. Looking more at family processes, Englund, Egeland, and Collins found that low-income youth who have current and past good relationships with their parents and whose parents provided more structure and limit setting during the preschool years, in addition to good academic achievement and low problem behaviors, were more likely to stay on a positive educational track than their other high achieving peers. Similarly, Feinstein and Vignoles showed that young people with both personal and social assets are more likely to stay on track for attending higher education than those with more limited assets at age 16.

Vulnerability Trumps Resilience

I was also struck by the fact that unexpected outcomes were much more likely to be negative than positive in all of the papers that included relevant information. For example, in Messersmith and Schulenberg, 34% of those who expected to graduate from college did not graduate from college while only 3% of those who did not expect to graduate from college went on to actually graduate. Similarly, in Pagani et al., only one girl “beat the odds” and went on the graduate from high school despite being in the high-risk category. In contrast, 23% of the boys and 8% of the girls in the lowest risk group did not graduate from high school. Likewise, in Feinstein and Vignoles, 30% of the youth predicted to attend higher education failed to do so; in contrast, only a very few of those predicted not to attend higher education succeeded in beating the odds. Similar patterns of greater proportions of downward shifts than upward shifts were reported by Englund et al., Janosz et al., Neuenschwander and Garrett, and Peck et al. This imbalance is illustrated very clearly in this set of articles because the authors used methods that focused our attention on the “off-diagonals.” This type of clarity should be very helpful to policymakers.

As one looks across the articles, several psychological, social, and contextual constructs predict moving off versus staying on a successful educational pathway. For example, Pagani et al. (this issue) documented the importance of attention problems for both boys and girls, as well as the importance of early oppositional behaviors for girls, in predicting dropping off of an otherwise positive educational trajectory. Living in a welfare home and having low levels of parental supervision also predicted downward shifts for boys. Poor parent–child relationships and low levels of family educational activities were also identified as risk factors in Englund et al. and Melhuish et al. Family demographics such as low parental education and single-parent family status were significant risk factors in Messersmith and Schulenberg for a downward shift, along with involvement in drug and alcohol use, low educational aspirations, enrollment in a noncollege track, and high employment during high school. The importance of low educational and occupational expectations for predicting a downward shift in one’s educational pathway was also documented by Neuenschwander and Garrett in addition to plans for early marriage and parenthood, low academic performance, and low expectations for success. Interestingly, in each of the studies, each of the various risk factors added unique variance to predicting the downward educational shift. Finally, Janosz et al. showed that some youth have quite varied patterns of school engagement across their elementary and secondary school years and these students are particularly likely to leave school before completing high school. Furthermore, these variations in longitudinal patterns of school engagement are not predicted by maternal education or parental support for schooling; instead, these patterns seem more responsive to school characteristics, particularly at major school transition points.

The Mystery of Positive Change Abides

The patterns just described illustrate how infrequent “beating the odds” is. In every study that used the off-diagonal approach, there were far fewer cases of “beating the odds” than of shifting downward in one’s educational pathway. As noted earlier, many of the youth started and stayed on positive trajectories, even among youth with several risk factors in their lives. But few actually beat the odds once they were started on a problematic trajectory. These results are consistent with findings reported by Cairns and Cairns (1994) in their longitudinal study of children and adolescents in North Carolina. They noted that, although many of their troubled participants had one good year at school when things looked like they might be turning around, very few of these troubled youth actually succeeded in changing their trajectory over the long run. Similarly, many intervention studies are able to show positive gains initially; however, these gains often disappear over time (see Eccles &

Gootman, 2002) unless the supportive contexts created by these interventions are maintained over time. In response to findings such as those presented in the articles in this issue, Dale Blyth has argued that we need to shift our theory of change from an inoculation model to a nutrition model. We want to believe that single shot or limited interventions will somehow equip a child with the resources needed to overcome the dangers of living in risky contexts or to cope with new risky experiences. But the evidence suggests we need to think about positive development as being dependent on a continuous supply of “good nutrition” in the form of continued exposure to growth promoting social contexts.

The mystery is made even more interesting by a second pattern of results: In virtually all of the studies with relevant data, many more constructs significantly predicted downward shifts than upward shifts. For example, in Englund et al., only 2 out of 15 possible protective factors predicted high school graduation among those youth who were predicted not to graduate from high school; in contrast, low levels on 10 out of the same 15 factors distinguished drop outs from high school graduates among those youth who were predicted to graduate from high school. Similarly, among their 7-years-olds, Melhuish et al. found that the quality of the home learning environment distinguished low-achieving students in both math and reading from average- and high-achieving students; in contrast, the quality of the home learning environment did not distinguish the average achievers from the over achievers. These findings suggest that we are much better at predicting “failure” than “success” in that the models tested in these articles make more reliable predictions regarding who is likely to attain less education than we would think is appropriate for a successful transition into adulthood.

The reason we are better at predicting failure than success, however, may reflect a methodological artifact related to where we set our cut points. As noted earlier, the methods used tended to define more individuals as initially on a positive educational path than on a more problematic path. As a result, we had very few cases for whom an upward change was possible. At the simplest level, this means our statistical power for identifying predictors of resilience was low. At another level, we might have seen more upward changes or fewer downward changes if we had raised the cut point for those assigned to the positive starting status. Finally, this differential pattern could reflect the fact that most of the studies involved narrow windows of time. Kokko et al. reported a much larger group of individuals who went back to school (a positive upward shift in their educational pathway) than the other studies, and they followed their population until age 42. In any event, these various possibilities suggest the need for more intensive person-centered analysis of both kinds off-diagonal groups (i.e., the resilient and vulnerable) so that we can understand better what accounts for these kinds of changes.

Conclusion

Taken together, these findings are relevant to two policy issues: prevention and intervention. Most important, the findings point to the need for both prevention and constant vigilance to evidence that some youth are withdrawing from positive educational pathways as they move through their primary and secondary school years. Given the high cost of getting less than the maximal amount of education possible, it is important to be able to identify youth who begin turning away from high levels of educational engagement early and then to provide preventive support to keep them engaged. Second, remediation is going to be hard. To accomplish it successfully will likely require early identification and extended intervention efforts. Third, although remediation is important for those youth whom we predict will drop out of schooling, the findings across these studies suggest that prevention based on careful monitoring of longitudinal changes has the potential to impact more youth than remediation.

Finally, these findings clearly suggest that we need better theories of change if we are to design more effective remediation and prevention programs.

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Biography

Dr. JACQUELYNNE S. ECCLES (McKeachie Collegiate Professor of Psychology) received her PhD. from UCLA in 1974 and has served on the faculty at Smith College, and the universities of Colorado and Michigan. She chaired the MacArthur Foundation Network on Successful Pathways through Middle Childhood and was President of SRA. Her awards include: APS Cattell Fellows Award, SPSSI Kurt Lewin Award, APA Division 15 Thorndike Life Time Achievement Award, Hill Award for Life Time Achievement from SRA, and APA Division 7 Mentor Award. She conducts research on topics ranging from gender-role socialization and classroom influences on motivation to social development in the family, school, peer, and wider cultural contexts. Her recent work focuses on: (1) ethnicity as a part of the self and as a social category influencing experiences and (2) the relation of self-beliefs and identity to the task choices across the lifespan.