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How College Affects Students: Ten Directions for Future Research

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The research literature on how college affects students is expanding at an exponential rate. This paper identifies and discusses ten directions for future research on college impact that have the potential to enhance the quality and importance of the evidence produced.

As a total body of evidence, research on college students is perhaps the single largest area of inquiry in the field of higher education. Over the past 50 years, thousands, perhaps even tens of thousands, of studies have been conducted with college student samples. Only a subset of this massive body of scholarship is actually concerned with estimating the net or unique impact of the postsecondary experience on students. This subset of studies is distinguishable from the larger body of research primarily by its specific concern with identifying causal linkages between various aspects of the postsecondary experience and different dimensions of student development (Pascarella & Terenzini, 1991, 2005).

Yet, even if one considers only the research on college impact on students, he or she confronts a huge and complex body of literature that is expanding at an accelerated rate. Based on the number of studies cited in the four most comprehensive reviews conducted to date (Bowen, 1977; Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991, 2005), and allowing for some overlap, it would not be an exaggeration to estimate that somewhere between 6,000 and 7,000 studies of college impact have been conducted. This

estimate may actually be conservative in that it is nearly impossible for any review of such a large body of evidence to be absolutely encyclopedic. Thus, an unknown, though hopefully small, percentage of the evidence is likely to have been missed in existing reviews. Furthermore, the volume of research produced for any given time period is increasing at a dramatic rate. For example, the pioneering review of Feldman and Newcomb, published in 1969, reviewed approximately 1,500 studies covering a 40-year period. This translates into an average of roughly 375 studies per decade. Pascarella and Terenzini's 1991 synthesis covered the 20 years of research after 1969 and reviewed about 2,600 studies—roughly 1,300 studies per decade; and the 2005 synthesis published by Pascarella and Terenzini reviewed approximately 2,400 studies produced primarily in a single decade, the 1990s.

Should this current trend of a dramatically increasing volume of research continue, and there is no obvious reason to suspect that it will not, we can anticipate that an enormous number of studies of college impact, perhaps 5,000 to 10,000, may be produced in the next 20 years. In short, the next two decades may be a time of unprecedented advances in our understanding of how college affects students. In this paper, I discuss a number of recommendations and directions for future inquiry on college impact that I believe have the potential to enhance the quality and importance of the evidence produced. These recommendations and directions deal with both the

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conduct and the focus of this research.

1. Focus on the Quality of the Data or Information Being Analyzed

If we have learned anything from existing evidence on college impact, it is that good data trump almost any other consideration—including the use of sophisticated statistical procedures (Astin, 1970a, 1970b, 1990, 1993, 2003; Pascarella, 2001; Smart, 2005). By “good data,” I mean data collected in a manner that increases the probability of identifying causal linkages between the postsecondary experience and student growth. Of course, using measures of vetted psychometric reliability and validity is a major consideration in obtaining such data (Astin, 1990; Pascarella, 2001; Smart, 2005). However, irrespective of the quality of our measurement instruments, good data are extremely difficult if not impossible to obtain in the absence of a sound research design (Light, Singer, & Willett, 1990; Pascarella, 2001; Pascarella & Terenzini, 1991).

Consider, for example, the problem one is confronted with in attempting to estimate the impact of some postsecondary intervention or experience on a measure of intellectual development. In addition to errors of measurement, a student’s score on the measure of intellectual development will reflect not only the relative influence of the intervention or experience, but also the influence of individual student characteristics (e.g., ability, motivation, or prior level of intellectual development) that may be linked in systematic ways to exposure to the intervention or experience. Respective shorthand terminology for these two influences might be socialization effects and recruitment effects (Pascarella & Terenzini, 1991). In order to estimate the net socialization effect (i.e., the impact of the intervention or experience), one must have a means for separating the socialization effect from the recruitment effect (i.e.,

the impact of individual student characteristics)—and that remains one of the thorniest methodological challenges in research on the impact of college on students (Pascarella & Terenzini, 1991, 2005). The most powerful way to accomplish this separation of influences or effects is through randomized experiments. However, the ability to randomly assign students and, thereby, individual student characteristics to different socialization interventions or experiences is typically impossible in the vast majority of studies of college impact. Absent the possibility of randomized experiments, the next most powerful way to separate socialization effects from recruitment effects is through longitudinal designs with precollege measures of the outcome being considered and accompanying “statistical controls.” In our example, one could then statistically remove that part of the relationship between the intervention/experience and the measure of intellectual development that is confounded by individual differences in student levels of measured intellectual development when they entered college. The result would be a more internally valid estimate of the socialization effect (i.e., the net or unique impact of the intervention/experience on subsequent intellectual development).

Although falling short of the internal validity achieved with randomized experiments, longitudinal, pretest–posttest designs with accompanying statistical controls, similar to the above example, have provided the most credible body of evidence available on college impact (Astin, 1993, 2003; Pascarella & Terenzini, 1991, 2005). It is also the case, however, that studies with such longitudinal, pretest–posttest designs represent a distinct minority of the body of investigations of college impact on students (e.g., Pascarella & Terenzini, 1991, 2005). There may be several reasons for this. It is likely, however, that the

major reasons stem from the fact that longitudinal research is not merely costly, it is also time consuming and extremely difficult to conduct. Indeed, it is much easier to apply sophisticated statistical techniques to cross-sectional or otherwise marginal data than it is to invest the time and effort necessary to collect longitudinal data. Yet, when we retreat from such longitudinal research designs simply because of the challenges they present, we pay a substantial price in internal validity, or the ability to accurately estimate the magnitude of the socialization effects of the collegiate experience (Astin & Lee, 2003; Pascarella, 2001). Indeed, it may be possible to obtain more internally valid findings from multiple small-scale longitudinal studies based on single institution samples than from multi-institutional data derived from cross-sectional designs.

I am *not* arguing for a moratorium on the use of sophisticated analytical approaches such as LISREL or HLM. Although some of our field's premier scholars have questioned the analytic value they add over that provided by simpler forms of regression analysis (Astin, 2003; Smart, 2005), in the right hands and with appropriate data they can provide very useful results, while doing less violence to the assumptions of least-squares regression. I would argue, however, that it is rarely, if ever, the case that even the most sophisticated statistical procedures can render internally valid and useful results from weak data. In short, if the data are a frog, don't expect some statistical magic wand to transform that frog into a prince. In the domain of research on college impact, there is simply no substitute for data derived from longitudinal, pretest-posttest designs. If in the next 20 years scholars put as much emphasis on collecting such longitudinal data as they currently do on applying sophisticated statistical techniques to data that are frequently marginal, it will lead

to a major improvement in the evidence on college impact.

2. Reassert the Importance of Replicating Findings

Replication of findings is the sine qua non of research in the natural sciences. Findings are ultimately accepted as valid by the scientific community only to the extent they are replicable. Yet replication, which provides a powerful safeguard against the acceptance of artifactual or fortuitous results from a single investigation, has failed to acquire the normative value in research on the impact of college on students as it has in the natural sciences, or even social science disciplines such as psychology. Our reviews of approximately 30 years of research covering about 5,000 studies of college impact are replete with literally hundreds of specific single-sample findings that have yet to be replicated. Indeed, replicated results in our reviews were overwhelmingly the exception rather than the rule (Pascarella & Terenzini, 1991, 2005).

Needless to say, academic administrators and student affairs professionals would be provided a significantly greater margin of comfort in developing interventions or policies that are informed by replicated findings than by single sample results that have a greater probability of being artifacts. The greater trustworthiness of replicated findings is evident in a statistical as well as a conceptual sense. For example, if one rejects the null hypothesis about the effects of an intervention or program at the .05 level, the chance of still being wrong (i.e., rejecting a true null hypothesis) is .05 or 1 in 20. However, if one replicates the finding on an independent sample, again rejecting the null hypothesis at .05, the total probability of still rejecting a true null hypothesis is not .05/2 (or 1 in 40), but rather .05² (or 1 in 400). Thus, replication provides an exponential reduction in the probability of making a

mistake about the true effect of an intervention or program (Hays, 1994).

I would argue that the overall credibility of the evidence on college impact produced in the next 20 years would be significantly enhanced through a greater emphasis on the purposeful replication of findings. One way to increase the importance attached to replication would be to alter our normative values in college impact research in ways that reward undertaking replication studies. For example, instead of replication studies being largely grist for the mill in master's theses, there is no reason why carefully conducted replications might not be appropriate topics for doctoral dissertations. Given the nature of the body of evidence on college impact, one could make a strong case that replicating a finding constitutes an important contribution to knowledge. Similarly, the core journals in which much college impact research appears (e.g., *Journal of College Student Development*, *Research in Higher Education*, *Journal of Higher Education*, *Review of Higher Education*) might begin to accept replications, either as peer-reviewed abbreviated reports or full-blown articles.

3. Expand Our Notion of Diversity

One of the major conclusions from the last decade of research on college impact is that, on balance, racial diversity enriches the postsecondary academic and social experience and enhances the intellectual and personal impact of college (e.g., Asada, Swank, & Goldey, 2003; Chang, Astin, & Kim, 2004; Gurin, Dey, Hurtado, & Gurin, 2002; Gurin, Nagda, & Lopez, 2004; Hurtado, 2001; Hurtado, Mayhew, & Engberg, 2003; Milem & Hakuta, 2000; Nelson Laird, 2005; Smith & Associates, 1997; Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 1999; Thomas, 2003). Based on this evidence, institutional policies designed to promote racial/ethnic diversity in an undergraduate student body are

not simply the projection of a "correct" political or ideological agenda, they have solid empirical support. Although the vast majority of research on diversity and college impact in the last decade has centered on the very visible topic of racial/ethnic diversity, this is certainly not the only type of diversity with the potential to enhance the impact of the undergraduate experience. There is nascent evidence to indicate that classroom and nonclassroom experiences that introduce students to issues of diversity other than those based just on race or ethnicity (e.g., diversity of political or religious views, diversity focused on social class or sex, value diversity, background diversity of friendships, and the like) also enrich and enhance the impact of college (e.g., Derryberry & Thoma, 2000; Gurin, 1999; Hurtado et al., 2003; Kitchener, Wood, & Jensen, 1999, 2000; Pascarella, Palmer, Moye, & Pierson, 2001).

Several important theories of student development posit that growth originates in challenges to one's current state of development (Evans, Forney, & Guido-DiBrito, 1998). Consequently, interactions with a diverse spectrum of people, ideas, values, and perspectives that are different from one's own and challenge one's assumed views of the world have the potential for important developmental impacts during college. If we are to fully capture the range and nature of these impacts, it will mean that our future research agenda on diversity will need to be broadened to include an array of experiences, interactions, and interventions more inclusive than just those based on race or ethnicity.

4. Acknowledge the Increasing Diversity of the American Postsecondary Student Population by Estimating Conditional Effects

If we know anything about the characteristics of American postsecondary students and their

institutional attendance patterns, it is that both changed substantially in the past decade. We can no longer plan an effective research agenda based on the assumption that our undergraduate student population is made up of White undergraduates from middle or upper-middle class homes, ages 18 to 22, attending four-year institutions full time, living on campus, not working, and having few if any family responsibilities (Pascarella & Terenzini, 2005). A steadily decreasing percentage of undergraduate students fit this traditional demographic pattern. For example, in the fall of 1990, non-White students (i.e., American Indian, Asian, Black, and Hispanic) comprised about 20.6% of all American undergraduates; by fall 2002 this increased to 30.7% ("Almanac," 2005). In 2002, slightly more than 44% of all undergraduate students were enrolled in two-year community colleges ("Almanac," 2005), and data from a nationally representative sample indicated that in the 1990s well over 50% of all undergraduates worked while attending college (Cuccaro-Alamin & Choy, 1998).

To a substantial degree, the research on college impact conducted in the last decade reflected this increased diversity in the postsecondary landscape. Discernibly, more research in the 1990s and beyond focused on student populations (e.g., non-White, first-generation, employed during college) and on institutions other than research universities and liberal arts colleges (e.g., community colleges, historically Black institutions) than did the research of the preceding two decades (Pascarella & Terenzini, 2005). Although this refocused inquiry has made important contributions to our understanding of college impact, as a body of evidence it has yet to take the logical next step. This next step would be to routinely anticipate that the dramatically increased diversity of student characteristics and traits in the American undergraduate

population might itself shape the impact of college. That is, the same intervention or experience might not have the same impact for all students, but rather might differ in the magnitude or even the direction of its impact for students with different characteristics or traits. When the latter happens, it is commonly referred to as a conditional effect. Such conditional effects are in contrast with general effects, in which an intervention or experience is assumed to have the same impact for all students irrespective of their individual differences.

As a total body of evidence, the research of the 1990s essentially limited itself to the estimation of general effects. This is perhaps understandable. If an intervention has the same impact for all participants, then the resulting interpretation is both relatively parsimonious and neat. However, a small but growing percentage of the evidence on college impact produced since 1990 has clearly indicated that limiting one's vision to general effects can frequently be misleading and mask dramatic differences in the impact of an intervention or experience for different kinds of students (e.g., Bray, Pascarella, & Pierson, 2004; Carini & Kuh, 2003; Dale & Krueger, 1999; Flowers, 2000; Garside, 1996; Pascarella et al., 1996, 2001; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Posner & Markstein, 1994; Rumberger & Thomas, 1993; Seifert, Pascarella, Colangelo, & Assouline, 2005; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1994, 1996; Whitt, Pascarella, Elkins Nesheim, Marth, & Pierson, 2003; Wolniak & Pascarella, 2004). Even more serious is the fact that, in several of the studies cited above, the absence of a statistically significant general effect in the overall sample actually hid the presence of a significant effect for a subsample of students. As the demographic characteristics of the U.S. undergraduate student population become increasingly diverse, research on

college impact in the next decade should anticipate that conditional effects might become the rule instead of the exception. It therefore seems a wise course of action to conduct investigations that routinely estimate conditional as well as general effects.

5. Bring Systematic Inquiry to Bear on the Rational Myths of Higher Education

There are few, if any, social institutions in our culture that have not been the object of systematic inquiry by college and university faculty. Unfortunately, this same level of rigorous inquiry has not been brought to bear on many of the policies, programs, and practices that shape the nature of American undergraduate education. Rather, I believe, there is a tendency to base policy decisions on what some have called “rational myths.” That is, if a policy or program is rational and sounds like it should be beneficial, we assume that it is—even if there is no corroborating evidence. The result is an extensive edifice of assumptions and beliefs about what constitutes a quality undergraduate education that has little or no empirical support. Thus, for example, it is assumed that selective/prestigious institutions provide a higher quality undergraduate experience than less selective/prestigious ones. Yet, when controls are made for the precollege characteristics of the students enrolled, there is little empirical support for the developmental value added of an institution’s selectivity or its prestige based on national magazine rankings (e.g., Flowers, Osterlind, Pascarella, & Pierson, 2001; Hagedorn et al., 1999; Kuh & Pascarella, 2004; Pike, 2004). Similarly, although there appears to be a widespread belief that a faculty member must be a good scholar to be a good teacher, the clear weight of evidence suggests that scholarly productivity and instructional effectiveness are largely independent traits (Centra, 1993; Feldman,

1987; Hattie & Marsh, 1996).

Unexamined assumptions also appear to manifest themselves programmatically. For example, a recent investigation by Seifert et al. (2005) found that honors programs had small, but significant, net positive effects on cognitive growth during college. What was most surprising, however, was that this was actually the first study we uncovered that even attempted to estimate the cognitive impacts of honors programs using a longitudinal design with standardized measures of cognitive development. Given the prevalence of, and belief in, honors colleges and honors programs in American postsecondary education, this almost total absence of empirical support for their effectiveness borders on the scandalous.

I am not in any way suggesting that all programs and policies shaping American undergraduate education are without value. Rather, the “take home” message is that the vast majority of programs and policies are essentially unexamined and continue to exist in the absence of evidence supporting their net impact on students. It is likely that substantial benefits would accrue to students if the next two decades witnessed a concerted effort to rigorously examine the validity of our prevailing academic assumptions and beliefs, particularly as they find expression in academic and student affairs programs and interventions.

6. Extend and Expand Inquiry on Previously Ignored Students and Institutions

The body of research we reviewed in our 2005 synthesis (Pascarella & Terenzini, 2005) made substantial contributions to our understanding of the impact of postsecondary education on students who had been previously ignored (e.g., African-American, Hispanic, commuting students, working students, and the like). Similarly, the decade of the 1990s and beyond also sharpened our understanding of the effects

of attending institutions such as community colleges, historically Black colleges, and single sex colleges (Pascarella & Terenzini, 2005). This is an important and positive trend in the research agenda on college impact that not only needs to be continued but also expanded to include additional student groups and institutional types.

There is intriguing evidence to suggest that the academic and out-of-class experiences that influence intellectual and personal development during college differ along such dimensions as race/ethnicity (e.g., Bray et al., 2004; Pascarella, Wolniak, Pierson, & Flowers, 2004; Posner & Markstein, 1994; Seifert et al., 2005) and first-generation versus non-first-generation status (Pascarella, Pierson et al., 2004; Terenzini et al., 1996). Thus, it is plausible that we should expect generally unstudied student groups such as Native Americans, students with disabilities, and lesbian-gay-bisexual-transgender students to have their own distinctive models of development and change during college. Identifying the unique experiences that enhance the impact of undergraduate education for these specific student subgroups would be a major contribution to knowledge. Similarly, evidence produced since 1990 has suggested that community colleges, historically Black colleges, and single-sex colleges each have their own unique impacts on undergraduate students (e.g., Allen, 1992; Flowers & Pascarella, 1999; Pascarella, 1999; Pierson, Wolniak, Pascarella, & Flowers, 2003; Tidball, Smith, Tidball, & Wolf-Wendel, 1999). It seems reasonable, then, that future inquiry might uncover unique impacts attributable to other virtually ignored institutions such as tribal colleges, Hispanic-serving institutions, nonselective religiously-affiliated baccalaureate colleges, and institutions where students are required to work as part of their undergraduate experience (i.e., work colleges). Indeed, an exploratory study by

Wolniak and Pascarella (2004) suggests that work colleges may have a number of unique long-term impacts on alumni, 5, 15, and 25 years after graduation.

7. Investigate the Full Range of Impacts of Information Technology

The unprecedented advances in personal computers, the Internet, and a vast array of attendant information technologies have the capacity to fundamentally transform the face of teaching and learning and perhaps virtually every other aspect of the undergraduate experience (Abeles, 1998; Alavi, 1994; Flowers, Pascarella, & Pierson, 2000; Green, 1996; Kuh & Vesper, 2001). Accordingly, there is a clear potential for such information technologies to assume a powerful role in shaping the impact of college. The existing research on the impacts of information technologies is probably still in its formative stages; and this may be in large part due to the fact that the technology itself is advancing so quickly in terms of sophistication, applicability, and power. Although there is a modicum of research to suggest the potential for positive impacts of computers and information technology on student learning and cognitive development (e.g., Flowers et al., 2000; Kuh & Vesper; Kulik & Kulik, 1991; Marttunen, 1997), the body of evidence is not yet clear and compelling. Moreover, at least a portion of the existing evidence suggests that the learning or cognitive benefits of information technology may not accrue equally to all students (e.g., Dillon & Gabbard, 1998; Flowers et al., 2000). The presence of such conditional effects underscores the potential complexity involved in estimating the cognitive impacts of information technologies. Consistent with Kozma's (1994) cogent argument on media and learning, we should probably expect that some kinds of information technology applications will be effective in some kinds of learning with

some kinds of students.

Although the main focus of future research on the impacts of information technology is likely to be on student learning and cognitive growth, it would be unfortunate for that to be the limit of our vision. It seems reasonably clear that the use of information technologies has important, if not always positive, implications for a wide range of student social and interpersonal interactions during college (Kuh & Vesper, 2001). These include not only interactions with faculty and administrators, but also interactions with peers. The clear weight of evidence indicates that such interactions have important impacts on student personal and intellectual growth during college. Mapping the indirect ways in which information technologies shape the impact of college through their influence on students' social networks and interpersonal experiences is a major, if challenging, agenda for future research.

8. Conduct Studies That Uncover the "Why" of an Intervention's Impact

A problem with much of the research on college impact that seeks to estimate the causal effects of some intervention or special program is the frequent absence of information illuminating just why the intervention or program has the effect that it does. When this happens, it not only makes the study difficult to replicate, it also makes the intervention or program difficult to implement in a different context or setting.

Approaches exist for dealing with this intervention-as-"black-box" phenomenon, but they have been seldom used in college impact research. One approach is a fairly standardized procedure that employs multiple regression modeling. This procedure has two basic steps. In step one, the outcome, or dependent variable, is regressed on a variable representing exposure to the intervention (or program) plus

any control variables (e.g., a precollege measure of the outcome). The results of this analysis yield an estimate of the net total effect of the intervention on the outcome (Alwin & Hauser, 1975). However, the total effect, even when statistically significant, yields little information as to the underlying processes or mechanisms that account for the effect. Obtaining that information requires a second step. In this second step, measures of the underlying processes or mechanisms hypothesized to account for the effect are added to the step one regression model. If these hypothesized processes or mechanisms actually explain or account for the impact of the intervention, then two things will occur in the step two regression model. First, the measures of the underlying processes or mechanisms will be significantly linked to the outcome; and second, the variable representing simple exposure to the intervention, which was statistically significant on step one, will be reduced to nonsignificance on step two (e.g., Lacy, 1978; Pascarella & Terenzini, 1981; Pascarella, Wolniak, Seifert, Cruce, & Blaich, 2005).

Although not always successful (e.g., Seifert et al., 2005), this two-step procedure has the potential to help explain just why an intervention or program has an impact on some dimension of student growth during college. Yet, I would also argue that the many powerful quantitative tools we might bring to bear in college impact research are probably more suited to establishing the existence of potential causal relationships than they are to understanding or explaining why those causal relationships exist. The central concern of qualitative inquiry with "understanding" (Lancy, 1993; Lincoln & Guba, 1985; Whitt, 1991) probably affords it greater power to explain the why of causal relationships than quantitative approaches. Indeed, the very nature of qualitative approaches makes them

more sensitive to the influential nuances of student academic and nonacademic experiences during college (Torres et al., 2004). Future research on college impact would benefit substantially from mixed-methods studies in which quantitative and qualitative approaches are purposefully employed in coordinated and mutually informing ways. Longitudinal quantitative inquiry would focus on identifying causal linkages between interventions and outcomes, whereas both quantitative and, in particular, qualitative approaches would focus on understanding or explaining the processes and mechanisms underlying those causal linkages.

It should be pointed out that the admittedly cursory nod to qualitative methods above in no way indicates a personal view that such approaches are marginal or unimportant in understanding the impact of college. Patrick Terenzini and I have underscored the power and appropriateness of qualitative methods on a number of occasions in the last 15 years (for example, Pascarella & Terenzini, 1991, 2005). Rather, my brief treatment of qualitative approaches is much more a reflection of the fact that I am simply not competent to explicate or discuss them in any detail.

9. Map the Role of Within-College Experiences on Life After College

Starting with Bowen's (1977) classic review, the last three decades of research have provided us with a remarkably clear picture of the long-term contributions of postsecondary education to an individual's labor-market success and personal life after college (e.g., Baum & Payea, 2004; Boesel & Fredland, 1999; Ehrenberg, 2004; Hartog & Oosterbeek, 1998; Knox, Lindsay, & Kolb, 1993; Leslie & Brinkman, 1988; Pascarella & Terenzini, 1991, 2005; Paulsen, 1998; Perna, 2003, 2005; Rowley & Hurtado, 2003). The vast majority of this research, however, has focused on how post-

secondary degree attainment or years of education completed are positively linked to such long-term outcomes as earnings, labor-market success, health status, health-related behaviors, voting behavior, civic involvement, continuing education, and the like. With the possible exception of studies of the economic effects of college major and grades, almost no attention has been given to mapping the long-term impacts of specific within-college academic and nonacademic experiences during college. Yet there is tantalizing, if sparse, evidence to indicate that the specific experiences that enhance development during college can have enduring implications for an individual's later life (e.g., Baxter Magolda, 1999; Gurin, 1999; Mentkowski & Associates, 2000; Pearman et al., 1997). For example, Pearman et al. found that a one semester undergraduate course on health knowledge and practices had significant positive effects on the health knowledge and health-related behaviors of alumni in five graduating classes covering a nine-year period. Based on such evidence, it seems reasonable to believe that developmentally influential experiences that occur during college can have significant long-term impacts that we have yet to document, let alone understand. Establishing the existence of such impacts and mapping their dynamics so that we can better understand them would constitute a major contribution to college impact research in the next decades.

10. Continue to Take Periodic Stock of the Research Literature to Establish Where We Are and Where We Might Go

If the frequency with which a body of work is cited says something valid about its importance, then the nearly 1,500 citations in the *Social Sciences Citation Index* to the three largest reviews of college impact literature (i.e., Bowen, 1977; Feldman & Newcomb, 1969;

Pascarella & Terenzini, 1991) suggest that these reviews have been reasonably useful contributions to the field. If we believe in the cumulative nature of knowledge, then I would argue that these periodic efforts to synthesize the existing evidence on the impact of college on students should continue. They can provide important signposts to tell us how far we have come and where we might go next with our research agenda.

At the same time, however, I would also argue that future syntheses may have to take a somewhat different path and perhaps a different form than the syntheses that have been conducted so far. In the past, these reviews have been produced by a process in which one or two individuals spend somewhere between three and eight years systematically sifting through thousands of studies and ultimately publishing a very large book. After an appropriate period of time (e.g., 10 to 20 years), the process is repeated by different, or perhaps even the same authors. Although such a serial process has worked reasonably well in the past, I have serious doubts that it will continue to suffice in the face of the exponential expansion of the literature base mentioned earlier in this paper. The sheer volume of published and unpublished research has simply become too massive for one or two individuals to synthesize and turn into a book covering 10 or 20 years of inquiry. Furthermore, the time it takes to actually write a book of this magnitude after the research has been synthesized (usually two or more years) means that there will be a gap in the literature reviewed. For example, Pascarella and Terenzini's most recent synthesis was published in 2005, but only reviews research through about 2001-2002.

Rather than periodically depending on one or two scholars to take on the increasingly intimidating task of producing a synthesis of the overall body of research on college impact

every 10 or 20 years, I would suggest that the professional associations in student affairs and/or higher education might assume the leading role in conducting such syntheses. For example, ACPA might bring together a select group of 10-20 scholars and commission them to break the huge body of research on college impact into more manageable segments and conduct literature reviews in a continuous and overlapping manner rather than in the periodic, serial pattern that has characterized past efforts. In support of this initiative, the major journals in the field might regularly devote specific portions of their space in each volume to comprehensive research reviews. In this manner, syntheses of the most current evidence might not only become available in a more timely fashion than once every 10 to 20 years, but might also be presented in a form that is more easily digested by both policy makers and scholars.

CONCLUSION

In this paper, I have presented and discussed ten substantive directions for future research on how college affects students. These are certainly not the only directions future research in this important area of inquiry might take. However, given the existing body of evidence as described by Pascarella and Terenzini (1991, 2005), I believe these suggested directions for research speak to relevant methodological, conceptual, and content needs. Because it seeks to identify potential causal relationships in natural settings, research on the impact of college on students is an extremely challenging area in which to work, and many of my suggested directions for future research are no less challenging. Yet if the future offers daunting research challenges, it also offers a wealth of new opportunities for us to more thoroughly understand—and ultimately to shape and enrich—the undergraduate experience.

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