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ABSTRACT

Joint implications from five recent studies on occupational choice indicate that a more in-depth concentration on the occupational consistency or discontinuity of women and minorities will provide direction for future academic discipline and policy for this population. The discipline and policy process is potentially one of the most important areas in research because it begins to raise questions about concepts of occupation. The studies show the extent to which identities seem to organize occupational choice for all individuals. A set of occupations consistent with how these identities are put together seems to be emerging. There seems to be a sense of occupational persistence with upward mobility within the context of tribe, class, or gender. Arguably, two factors--tribal/cultural concept and social class--seem to contribute to the relationship between ethnicity and mathematical performance at each educational stage. Both affect family behavior patterns, which, in turn, powerfully affect children's school performance. Literature indicates that girls' occupational expectations depend on how they expect to allocate their time during adulthood between the labor force and work in the home. Career choices seem to reflect how and when to resolve the conflict between achievement in the labor force and family responsibilities. (YLB)

Routes into the Mainstream
Career Choices of Women and Minorities

Sue E. Berryman

Occasional Paper No. 124

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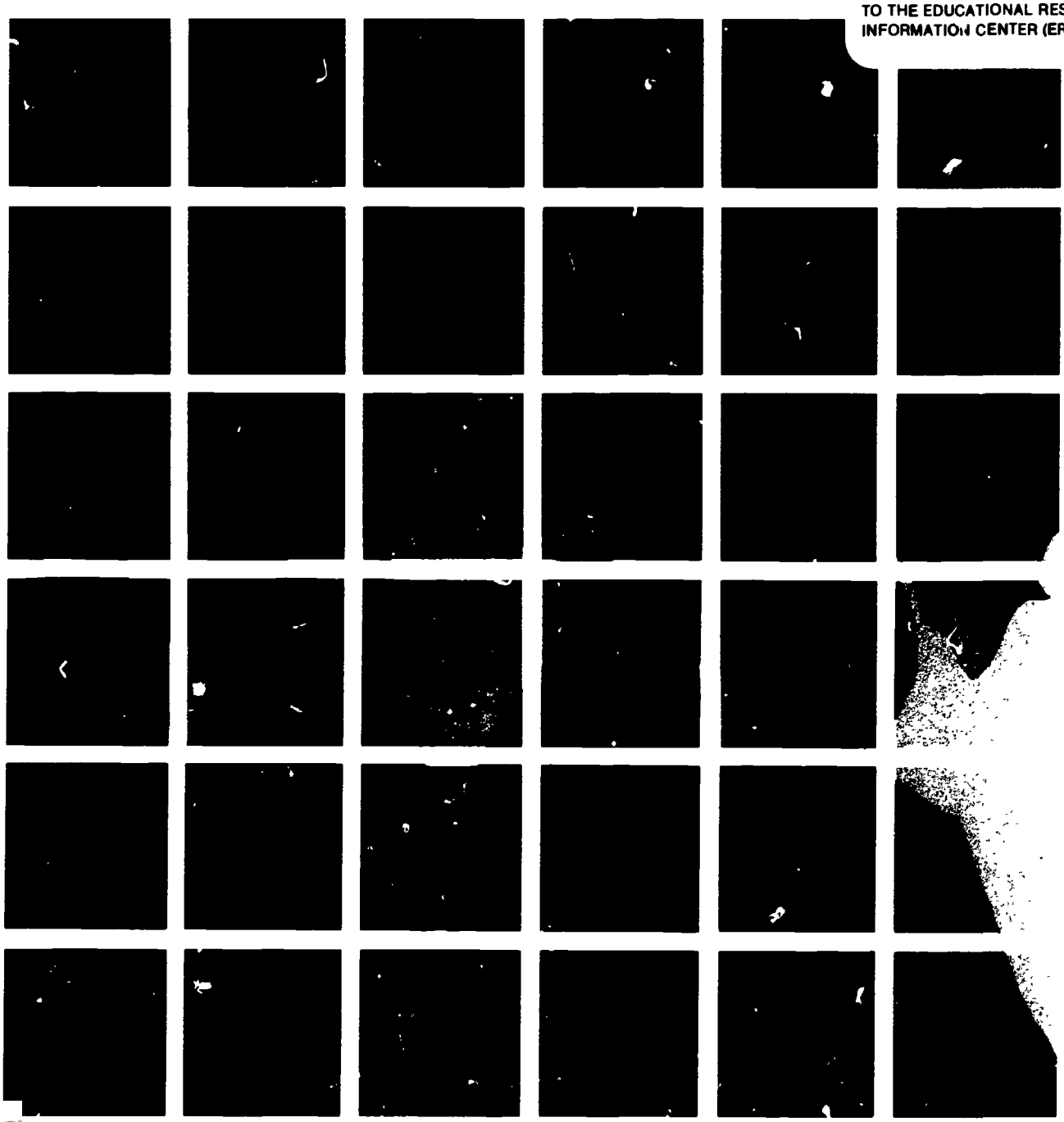

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ROUTES INTO THE MAINSTREAM
CAREER CHOICES OF WOMEN AND MINORITIES

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1988

FOREWORD

We know from many sources that women and minorities are underrepresented in certain areas of the work force In fact, vocational educators have long been concerned with access and equity in upper management positions in the fields of mathematics, science, and engineering.

Joint implications from several recent studies indicate that a more in-depth concentration on the occupational consistency or discontinuity of women and minorities will provide direction for future academic discipline and policy for this population.

Sue E. Berryman received a B.A. from the University of Pennsylvania and a Ph.D. from The John Hopkins University. She is currently the director of the Center on Education and Employment at Columbia University, and she also is a consultant for the Rand Corporation. Berryman has consulted with the National Commission on Employment Policy, The Rockefeller Foundation, the departments of Labor, Education, and Defense, and she has taught at the University of Minnesota. She has served on numerous advisory boards and has published extensively.

On behalf of The Ohio State University and the National Center for Research in Vocational Education, we are pleased to present this seminar paper by Sue Berryman.

ROUTES INTO THE MAINSTREAM
CAREER CHOICES OF WOMEN AND MINORITIES

The joint implications of several studies that I've conducted over the past 3 years have in common a focus on occupational choice, particularly for women and minorities. The variables are either occupational expectations, the occupations in which people were actually working, or employment-related educational investments.

The first study, done for the Rockefeller Foundation, assessed the status change and the underlying dynamics of minorities and female representation among quantitative degrees. This study was begun to help the Rockefeller Foundation determine whether or not their program for increasing minority representation in the quantitative fields had any likelihood of being successful. When I began to look at the data (I relied primarily on published statistics), and then at a few target new analyses, I concluded that the Rockefeller Foundation was not going to get much return for their money.

The second study, funded by the Ford Foundation, modeled the traditionality of young women's occupational choices and the effects of the traditionality on job turnover We looked at that for women in the military and in the private sector.

The third study, funded by the Graduate Management Admission council, analyzed the status change and causes for minority representation among business degrees at the bachelor's and master's levels. This study relied heavily on census centennial data and National Center for Educational statistics data.

The fourth study, funded by the Russell Sage Foundation, is being done for the American Economic Association using the National Science Survey of doctoral recipients to model the career progress of male/female doctoral economists.

The fifth study is being done for the National Commission on Employment Policy. The study synthesizes existing data and analyses to appraise the adjustment of youth to technologically generated changes and skills requirement.

What these studies did for me was to present me with a number of questions about occupational choice. Why do we see overrepresention? When we look at the minority groups, we find profound differences among Asian Americans, Hispanics, and blacks. When we think about occupational choice, we can concentrate either on the variance or on the central tendency of choice. In other words, we can concentrate on the predictability or the deviations in the occupational choices of the group or on the occupational consistency or discontinuity of the work history of an individual.

You will always find within groups much variance. With individuals you can concentrate on the continuity, the thread through a person's work history, or the discontinuity, and what both reflect I believe that the field is just now beginning to concentrate on issues of variance and inconsistency in occupational choice. It is here that the most powerful discipline and policy process promises will be made in the next decade.

Let me give you an example of why I think this will be the case. The concept of career ladders is a question raised when we think about variance with regard to an individual's work discontinuity. What does a career ladder mean when you look at how people go through a work life? A person might have a career, but it doesn't necessarily seem to be a part of a ladder. Hence, the career does seem to have real potential for discontinuity. In fact, if you look at any occupation, you will find substantial variance in the educational and work history background of the incumbents of that occupation. Practitioners in the field might tell you that the occupation is really many occupations. The career may be called one thing by the census bureau, or it may suggest that there is some commonality among practicing individuals but that they possess other talents that aren't being used in that particular job, or it can mean that the occupation is not specialized and that an individual can do the job using a variety of human talents. I think that the reason that discipline and policy process is potentially one of the most important areas in research in the next 10 years is that it begins to really raise questions about our concepts of occupation, where occupation is seen as requiring a unique bundle of skills that can only be created with a unique training program and that individuals really cannot do the job without acquiring those skills.

This research also raises very fundamental questions about how we think about labor shortages and labor surpluses. One of the ways, at least in the short run, to combat shortage and/or surpluses, is via occupational mobility. However, if people cannot change occupations without acquiring unique new bundles of skills, then we have to provide training programs. Often, by the time the training program is in place the shortage has disappeared or the oversupply has handled itself through other mechanisms. I think that the concept of occupation as a unique bundle of skills may misassess the cognitive capacity of human beings, the effects of schooling, and the way labor markets work.

The studies I mentioned at the beginning necessarily focus on group homogeneity. As I worked on these studies, I became increasingly impressed by the extent to which identities, the concept of identities, really seemed to organize occupation choice for all individuals, including women and minorities. These identities were the blockbusters, the descriptive categories/characteristics, that are near and dear to sociologists' hearts. These are class identities, tribal identities, and gender identities. By tribal, I do not mean racial. I interpret tribal in a very fundamental almost anthropological, sense. It is culture, but in the context of community. I begin to see the individual first as a child, then as an adult who develops and integrates these self-identities that anchor every human being in the social world. A set of occupations consistent with how these identities are put together, as well as the human capital investment consistent with this set of occupations, seem to be emerging.

Individuals seem to be selecting, expecting to go into, moving among, or preparing for occupations within this set differently in terms of occupational codes. They seem consistent with one another in terms of identity. This concept of identity did not preclude change in the sense of intra- or inter-generational mobility. There seemed to be a sense of occupational persistence with upward mobility within the context of tribe, class, or gender.

In the Rockefeller report, I was trying to anticipate under what conditions we would find racial and ethnic equality in terms of taking up quantative natures. I decided that one of the key issues to look for was whether or not the individual was second generation college. I used the Sandy Austin database from UCLA. The reason I went to that database was because it had large numbers of some of the ethnic minorities. Until recently, most of our databases had whites and, if you were lucky, over examples of blacks. You could never do anything. Sandy Austin's data, collected on college freshmen right after they entered college, indicated what majors they were selecting. I anticipated that being second generation college (coming from a family where at least one parent had some college) would make a very large difference in terms of eliminating some of the racial and ethnic differences in the probability in choosing a quantitative major.

One of the things that is different about a quantitative major versus other majors is that it is unforgiving of indiv· ·als who have not taken the full mathematical sequence in high school. In fact the game is over by the end of high school in the quantitative fields. It is so difficult to make up these classes if you have not taken the full elective mathematical preparation; you hardly ever see someone with that preparation not going into college in highly quantitative fields. The reason I assumed that being second generation college would make a difference is that parents with any college were likely to assume that their children would also attend college and that the children of such parents were more likely to assume early in their schooling that they would go to college. There is an early college tracking, or expectation, on the part of parents. Also, the parents with college know more about the early training investments that children must make to enter college and to pursue career interests, especially the scientific and mathematical interests. Therefore, I assumed that if the child had parents who had attended college, those parents would be much more aware of what that child was going to forfeit if he or she did not experience certain courses in the high school curriculum.

Last, identity doesn't preclude the notion of mobility or change. Second generation college students are more likely to have grown up with a wider occupational horizon than is available to the white-collar mainstream. The data shows that movement from "socially marginal" (the low-class white or minority groups) to the "mainstream" appears to occur via limited sets of occupations.

Groups have varied in the nature of their "tickets out." The Irish used public sector jobs such as the police force, blacks have used the military, teaching, ministry, entertainment, and athletics, and Jews have used entertainment, business, and other professions. If the "ticket out" for a particular group does not happen to include quantitative occupations, the generation that makes the move will tend not to appear in or in training for these occupations. So, first generation college students are more likely to be the generation that moves into the white-collar mainstream. Second generation college students are more likely to come from families that have already made the move. These students should have grown up with a wilder set of career options associated with the mainstream positions secured by their parents.

This is what I mean about notions where the concepts of culture of tribe; it is both a class and culture phenomenon where as a member of a particular group your notion of how you got out seemed to be restricted to a certain set of occupations. Let me explicate these ideas of tribe, class, and gender. As I mentioned before, a child's mathematical achievement upon entering high school strongly predicts completions of the elective high school math sequence required for postsecondary training in math and science. Males and females enter high school with approximately equal average mathematical achievement. However, the racial and ethnic groups differ in their average mathematical achievement in grade nine. Blacks and Hispanics start first grade with mean verbal and nonverbal achievement scores below the national mean scores of whites. American Indians in first grade score below the national average on verbal tests and at the national average on nonverbal tests Asian American children in first grade score at the national average on verbal tests and above average on nonverbal tests.

I would argue that two factors—tribal/cultural concept and social class really contribute to the relationship between ethnicity and mathematical performance at each educational stage. Both affect family behavior patterns, which in turn powerfully affects children's school performance. Culture and social class interact to produce a unique pattern that cannot be predicted by knowing either cultural or social classes affects alone. A study of verbal reasoning, numeric, and spatial achievements among Puerto Rican, Jewish, Chinese, and black children in first grade shows clear racial and ethnic differences in the patterns of these abilities. Subsequent studies suggest that ethnic differences and ability patterns in first grade persist through elementary and secondary school.

The study also shows that middle-class children's scores from the various ethnic groups resemble each other to a greater extent than the scores of the lower-class children. In other words, middle-class Chinese, Jews, blacks, and Puerto Ricans were more like each other in ability than lower-class children in each of these groups. Social class has a particularly profound affect on the performance of black children. Lower-class status depresses performance more for black children than for lower-class status children from other ethnic groups. However, once you get to middle-class status, black children were only just below Jewish children in terms of verbal performance: Jews test highest on the SAT in verbal performance.

Recent research indicates that babies develop cognitively far more, and at much younger ages than realized, and that the socioeconomic status of the baby's family has profound affects on its early development. One cognitive researcher notes that the socioeconomic index is as powerful a predictor of later intellectural prowesses than any variable, but it does not operate in a vacuum. Socioeconomic status is a representation of the way people live and relate to each other and the way they behave toward babies. Social class seems to be a proxy for family characteristics that affect school achievement. Therefore, the extent to which a person talks about an occupation, or about getting into the mainstream, depends on his or her school environment.

American studies show that social class translates into the characteristics of the family. For example, the following characteristics seem to coorelate with achievement scores:

- Family's pressure for achievement
- Language models in the home
- Academic guidance provided in the home
- Indoor/outdoor activities with the family
- Intellectual nature of toys, games, and hobbies

Overall, literature is showing us that, independent of cultural differences, social class predisposes a family to certain patterns that affect a child's school performance. At the same time, we still observe some variation in these patterns among families of similar social class but different ethnicities. The variation is greater among lower-class families of different ethnic origins than among their middle-class counterparts.

Social class tends to be related negatively to the recency of immigration. Furthermore, recency of immigration seems to be negatively related to mainstream acculturation. Middle social class probably marks not only socioeconomic position, but also indicates more homogenous family behaviors. If one parent has had even one year of college, you eliminate the racial and ethnic differences in choosing a quantitative major.

The exception to the above is in Asian American families. The Asian American freshmen subgroup differed from all other subgroups These freshmen chose quantitative majors twice as often as the white subgroup—and their choices were insensitive to their parents' education. It didn't matter whether they were first or second generation or how much education their parents had. Unlike all other subgroups, being first rather than second generation college did not affect their probability of choosing a quantitative major. I believe that says that culture, or tribe, is a very important factor.

When we look at data on black students we find that families economic status affects black's choices of a science major. Higher family socioeconomic status increased the rate of choosing science majors. When white and black students were equated on the intervening variables, blacks had a higher probability of choosing a science major than whites.

Let's take a look at the situation for women. This will be couched in terms of their quantitative majors, but I would like to say that it is consistent with what was found under the choice of non-traditional occupations in general. Gender differences in grade 12 mathematics achievement are primarily attributable to differences in boys' and girls' participation in elective math. From grade 9, boys and girls do not differ significantly in average math achievement. Previous achievement does not explain subsequent gender differences in the decision to pursue elective math courses. We know that an individual's confidence in his or her mathematical ability predicts participation in the high school math sequence. A recent study finds gender differences in math confidence for children with the same math ability. Specifically, parents believe that daughters have to work harder than sons to perform well at math despite the similarities of sons' and daughters' past achievement in math. Parents also think that advanced math in high school is more important for sons than for daughters. Parents expectations are more related to their children's self-concepts of their math ability than children's actual performance in math.

The utility that math has for the individual also strongly affects participation in high school elective courses. The more useful the individual expects math to be, especially at achieving education and career goals, the more high school math he or she takes. This gets back to my view that a child's general notion of where they're going occupationally drives the educational investment patterns. Because career goals seem to determine educational investments, gender differences in occupational expectations become key to understanding gender differences in high school math participation.

Literature indicates that girls' occupational expectations depend on how they expect to allocate their time during adulthood between the labor force and work in the home. The more the girls expect continuous labor force participation during adulthood, the more their occupational goals approximate those of their male counterparts. This isn't surprising. The girls who expected to invest more time at home than in the labor force expected to marry early and have larger families. They didn't plan to be working at age 35; their orientation was toward family. These girls consistently chose occupations that fit the gender notions of what women at home did or occupations that fit labor market conditions and raising a family. However you look at it, girls who expected traditionally female occupations didn't expect to get much education. What we really find with all of these data on women's choices of quantitative fields is that the key seems to be their career choices; related to their choice is their investment in junior and senior high school math and science. The career choices themselves seem to reflect how and when to resolve the conflict between achievement in the labor force and family responsibilities.

Studies from England show that male single parents make occupational labor force adaptations to parenting that look like the occupational and labor force plans of girls who expect dual family and work responsibilities. In these studies, men who have become single parents for whatever reason make the same adjustments by deciding not to take the next promotion, or changing shifts so that they can be home for the children. I would say that as long as girls expect to assume the major child-rearing responsibilities, we can expect them to be less likely than boys to choose quantitative occupations or occupations that require major educational labor force commitments.

One other trend that came out of the study of traditionality of girl's occupational choices was of a racial/ethnic dimension. For white and Hispanic girls raised by single-parent families, there

was more likelihood that they would go on to a nontraditional occupation. Most mothers of these girls were unable to function by themselves, girls saw this and became determined not to end up this way themselves.

In the business of the minorities, Hispanics and blacks are underrepresented in the total pool of graduates. If they did not have degrees they were as likely if not more likely as whites to get into business. That's an enormous change for blacks, which gets us back to the notion of this upward mobility trend where studies 20 years ago showed that blacks almost never went into business. The studies showed that business occupations were perceived by blacks as having a closed door to them. I think the fact that blacks are moving into business is an incredible documentation of the structural changes in access to occupations in this country

QUESTIONS AND ANSWERS

Sue E. Berryman

Question: In your study of 14 to 17-year-olds, what was the portion of young women who were still planning to be full-time homemakers?

Approximately 10 percent of those women were planning on having families and were not going to work outside of the home.

Question: Are you suggesting that the Perkin's Act requires a certain amount of money be spent training for an occupation?

No, it depends on the measures of success. First, it can be argued that having such a stipulation can be a statement of national objectives. Second, it probably does sensitize teachers to be on the lookout for kids who might be interested in going into that field and thus to encourage them. I think that where we're unrealistic about being able to make changes is where it can be difficult to make much impact on a core group of girls. They have a clear idea of where they're going (and it's pretty feminine in orientation).

Question: The middle of the 1972 data called up by HSB and The Ohio State University show that there is a real downward trend in the participation of majority white men in postsecondary education. The reasoning is that this past year shows a payoff for a 4-year degree for white man is 12 percent of those who didn't partake of postsecondary education. What do you think the long-term trend may be, as indicated by these statistics?

The trends are consistent with what we know about kids being very adaptable. They read market signals. Congress says "we're going to need these people" and the kids move in a snap. The shift within their majors to something where there's a market possibility You also have to be careful about the socioeconomic composition. In other words, where an increasing proportion of people going into college, who you would expect to get less education simply on social class grounds alone independent of what's going on with wages, the first generation of college usually completes 1-3 years. On the study that I did for the National Commission for Employment Policy, I found real shifts in the degrees by level across a 10-year period. At the same time, there was a real change in the socioeconomic profile of those going on to college. It could be that your cohort size has gone down so much. I may also be that the 12 percent is caused by a shortage of the "most desirable workers", that is white males, that people are willing to pay them the same salary, or not much less, for going on to college.

Question: Have you seen an increase in the number of associate degrees granted? Are these degrees effective?

Between the demand for white males and them not going on to college, and the fact that the returns for going to college don't seem to matter as much, I don't know. But you're quite right,

there have been real shifts toward associate degrees over the last 10 years Some of that is clearly evident in the schooling now provided to people who never went to college before

Question: Did you make any recommendations to the Rockefeller Foundation about the types of programs they should fund that would encourage minorities?

It was very clear that what they were doing was funding college and scholarships and graduate fellowships I told them that the game was over by then You may hold some people in the pipeline but all you can do is keep the base from shrinking further If you want to expand it, you must go back to seventh grade or earlier.

Question: You were talking about nonverbal and verbal test scores being lower I'm curious to know if there was any testing in language or English knowledge?

The first data out on that were the Coleman data in 1966 Certainly the tests since then are richer and more consistent in that they've used negative language Unstable language would explain the Hispanic issue and potentially some of the American Indian (racially related to Asian Americans) is testing at the average level in mathematical ability. I don't know if that means anything. It's just one of those intriguing things you notice

Question: Why did you pick the quantative fields?

The Rockefeller Foundation wanted me to look at them. I find that if you do a lot on these occupationally, you begin to build a picture about a structure and how these different occupations relate to each other and to what extent the story is really different for different occupations. The problem is that kids are starting school with one foot in a hole, and that seems to be a social class issue. The way families conceive of the future of their children, it effects how the children see school.

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