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Small-scale Fishermen's Beliefs About Success
and Development: a Puerto Rican Case

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Small-scale Fishermen's Beliefs About Success
and Development: a Puerto Rican Case

John J. Poggie, Jr.

It is not an uncommon practice for change agents to design development plans with self-diagnostic information from their clients. The logic of this approach is that clients know their situation best and can relate this knowledge to the change agent who is in a position to "do something about it." While this approach has considerable "face validity" and may be attractive as a means of shifting responsibility for action taken from the agent to the client, it is based on the false assumption that peoples' beliefs are isomorphic with reality. Peoples' beliefs are important and must be considered, but they must be considered along with other factors that impinge on the relative well-being of individuals.

Well-being can be looked at in a number of ways. In this paper the concept of relative success is used as the basis for analyzing well-being. No matter how simple or complex a society is, there appear to be standards by which members of all societies rank each other according to the concept of success. Even in the most "egalitarian" societies, some individuals are better hunters or gatherers; in the most communal some have identified self with the society to a greater extent; in societies where service to the community is valued, some individuals have attained a higher level of service; and in complex capitalistic societies, we are familiar with the combination of attributes that brings social recognition and feelings of success to individuals. Thus success is a variable that can be measured within all types of societies even though its content may vary from situation to situation.

Nevertheless, a review of the literature shows that we have not really

studied this variable as such, even though it can be argued that it is really part of the larger literature on social stratification. It is a relevant concept for applied anthropology in that it is readily understood by administrative decision makers, a factor which is of considerable importance in the implementation of the findings of social science research. This of course is subject to debate and interpretation.

The theory of cognitive dissonance would lead us to predict that it would be the less successful who would develop a belief system of success which "guards" them against the psychological discomfort of being less successful (Festinger 1957). These beliefs might also prevent them from taking advantage of new opportunities. This paper suggests that the beliefs of the less successful are no more or no less "realistic" than those of the successful. Since it is the less successful individuals who are usually the chief concern of programs of economic development, it behoves us to consider the actual and potential interrelationships between success, beliefs about success, and innovations designed to enhance the well-being of the less successful. Although success and beliefs about it are not the only sociocultural factors that might contribute to an undesirable distribution of the benefits of change programs (cf. Pelto and Poggie 1974), they are very widespread and worthy of routine attention.

The purpose of this paper is to examine success among a population of Puerto Rican small-scale fishermen and to determine how success, beliefs about success, and the empirical correlates of success relate to efforts to increase the economic well-being of this population.

In this paper, I will establish that I obtained a valid and reliable measure of success. I will then describe the contrastive patterns of beliefs of successful vs. less successful fishermen as to why fishermen are successful. Further, I will examine the beliefs of these two groups of fishermen to determine how these beliefs

correspond to the empirical psychocultural correlates of success. Finally, I will discuss the implications of beliefs about success and the empirical correlates of success for designing programs of change for small-scale fishermen.

The Setting and the Fishery

This study was carried out in Puerto Real, a barrio of Cabo Rojo on the west coast of Puerto Rico, 15 kilometers south of Mayaguez. Puerto Real has a population of about 2,000 people and is the most important fishing community on the island. Landings at Puerto Real account for about 20 percent of the total annual catch of four million pounds for the Commonwealth. About 200 men gain their living directly or indirectly from fishing. Fishing is carried out primarily by means of traps, but line fishing is becoming a strong rival to this long-used mode of capture. Parrot-fish, squirrel fish and grunts are the main species caught in traps, while red snappers make up the principal type of line fish caught. Boats in the fishery range from 12-16 feet wooden skiffs to two trip boats which are 40 and 55 feet long. The "median" type boat would be a 25 foot sail and inboard powered craft capable of going offshore to the edge of the coastal shelf.

Besides fishing, which is the largest single occupation, a number of men from the community work as seasonal cane cutters and a lesser number work in a variety of jobs including storetending, taxi driving and other small-scale entrepreneurial activities. About 50 men and a large number of women work in the small factories that have located near Puerto Real in the past few decades.

The Sample

Because of the importance of its fishery, the community of Puerto Real was selected for a detailed study after an initial two-week reconnaissance of the island. The data for this analysis were gathered by the author and three research

assistants during seven months of field research from December 1974 through June 1975. A majority of the quantitative data are derived from an interview schedule administered in Spanish to a sample of 50 fishermen. Interview schedules were also administered to a sample of factory workers, cane workers and other non-fishermen the results of which will be reported elsewhere. Qualitative and quantitative data were also obtained from unstructured and structured key informant interviews and participant observation.

Success

The method used to develop a valid and reliable measure of success is similar to that employed by such researchers as Silverman (1966) Hiebert (1969) Simons (1972) and Casson and Özertuğ (1976) to measure various forms of stratification in agrarian societies. In an attempt to obtain an interval scale of success, informants were first asked to rank fifty fishermen by placing cards with their names on a stick with 50 gradations. This proved to be confusing to informants, but a scale was obtained by asking a panel of six key informants to simply rank them from highest to lowest. The six informants, who were a town elder, a merchant, a fish vendor, an entrepreneur and two fishermen, were able to discriminate individuals at the high end of the success scale but consistently lumped a number of individuals at the low end into a category of "less successful" fishermen. A mean ranking by the six key informants was obtained for each individual. However, because of the degree of lumping, the success variable was used conservatively as a dichotomous variable divided at the median rank of the panel of six key informants.

Reliability of the key informants was determined by means of the split-half technique. The mean ranking of fishermen by one half of the informants was correlated with the mean ranking of the fishermen by the other half. This resulted

in a correlation coefficient of .97 ($p < .001$), indicating considerable agreement (reliability) among the panel members.

Two methods were employed to test the validity of this measure. First a research assistant, after seven months of fieldwork, independently ranked the fishermen according to his estimate of their success. The two independent rankings were highly correlated with each other $r = .67$, $p < .001$.

A second mode of validation was possible from the interview schedule administered to the sample of 50 fishermen, in which respondents were asked to indicate who were the most successful fishermen in the community and why.* The correlation between the fishermen's and the key informants' rankings of the most successful was high ($r = .98$), indicating that there is a high degree of agreement and thus validity to our key informant measure of success. Thirdly, external validity is suggested by the fact that success is significantly correlated with annual income ($r = .29$, $p < .05$) and a measure of self-perception of socioeconomic advance (Cantril 1963 ladder of life questions) over the past five years ($r = .289$, $p < .05$).

Thus we are dealing with a variable that is both valid and reliable in terms of the criteria by which the local people rank individuals and in terms of external criteria.

Beliefs about the Causes of Success

Our intent is to test the hypothesis that one's position in the success hierarchy will be related to one's belief about success (cf. Cancian 1976). As indicated above, we asked the sample of 50 fishermen not only to indicate who

*In response to this question, fishermen would most often mention several individuals as "most successful." Ten individuals were in the group of "most successful," but they varied as to the number of times they were mentioned. Therefore a ranking of success in this case was based on frequency of mention. Thus the measure of validity derived from this ranking applied to the high end of the success hierarchy.

they consider the most successful fishermen in the community, but also why these individuals are most successful.

Having divided the sample of fishermen at the median of their ranking by the panel of key informants into successful and less successful, we then tabulated their responses to the question of who are the most successful and why the most successful are successful. There is considerable agreement between successful and less successful fishermen as to who are the most successful fishermen ($r=.73$ $p<.001$). However, when the reasons they give for success are examined, significantly different patterns of responses emerge. As seen in Table I successful fishermen most frequently cite "fishing often" as the reason for success. This response accounts for 46 percent of the total responses for successful fishermen. "Understanding and competence" is the second most frequent response, accounting for 22 percent of the total. Statements that "wealth" and "equipment" lead to success account for 16 and 14 percent respectively. The category of "luck" has a frequency of one percent and others account for only two percent of the responses. Turning to the less successful fishermen, we note that responses attributing success to "boats and equipment" make up the largest single category. This category by itself accounts for 34 percent of the total responses. "Fishing often" is the second most frequent category but accounts for only 20 percent of the total, while "understanding and competence" is third with 17 percent. "All equal, luck and contacts" accounts for 16 percent, while "experience" and "wealth" account for 12 percent each.

These patterns of beliefs are significantly different from each other ($\chi^2=32.88$ $p<.001$), differences in the categories of "fishing often" and "boats and equipment" contribute most to making them statistically significant. Keeping in mind that we are dealing with beliefs about why successful fishermen are successful, we note that successful fishermen as a group emphasize fishing often,

while the group of less successful ones emphasizes technology.

Table I. Successful and Less Successful Fishermen's Beliefs About Success

<u>Beliefs</u>	<u>High*</u>	<u>Success</u>	<u>Low*</u>	<u>Total</u>
Fish Often	23		12	35
Understanding and competence	11		11	22
Experience	0		8	8
Boats and equipment	7		20	27
Wealth	8		8	16
All equal, luck and contacts	1		10	11
Totals	50		59	109

$$\chi^2=32.88. df=11, p<.001$$

*Defined as at or above the median and below the median respectively.

Empirical Correlates of Success

The theory of cognitive dissonance would lead us to predict that the less successful fishermen are defending themselves against self-damage by attributing success to something outside themselves -- technology. Some Marxist theorists would argue that the less successfuls' views are correct; they would be more successful if they had the productive technology now in the hands of the successful class. Others might argue that it is the successful who are correct, as they alone are

in a position to know what "causes" success.

As mentioned above, the research on which this paper is based was exploratory in nature, and for that reason a wide range of variables was measured. The variables included in the survey were derived in part from existing theoretical formulations concerning the psychocultural adaptations of fishermen (e.g. Aronoff 1967; Andersen and Wadel 1972; Norr and Norr 1974; Poggie and Gersuny 1974; Kottak 1966; Norr 1975; Pollnac, Gersuny and Poggie 1975; Poggie, Pollnac and Gersuny 1976; Pollnac, Gersuny and Poggie 1975; Pollnac and Poggie 1976). Because we have measures of some of the variables that fishermen believe cause success, we are able to test some of the fishermen's beliefs against the empirical correlates of success. We were able to test three of the four that most differentiate the two groups. These include the degree of deferred gratification orientation, assumed to be the psychological basis for the behavior of fishing often; years at occupation as an indication of experience, and boat size as a measure of technology. The only one of these independent variables that is not a direct measure of a belief is deferred gratification, which we are assuming to be the psychological basis for fishing often. When a man goes fishing frequently he foregoes the immediate gratification of leisure and consumption now for potential future benefits. Frequent fishing is equivalent to "keeping one's nose to the grindstone." There is no compelling short-term external reason for fishermen to "push hard" at their work, since it is possible to earn an adequate living by fishing only two days a week. We measured the gratification orientation of respondents by means of a content analysis of two hypothetical questions about utilizing a \$200 and a \$2,000 windfall" (cf. Pollnac and Poggie 1976). Boat size is actually a direct measure of "level of technology" in that boat size is related to level of technology which is, in turn, related to level of productivity. "Wealth" and "understanding and competence" do not differentiate the two groups in terms of

beliefs about success and are thus not considered. It was not possible to test the category of "contacts, luck and all equal" because we lacked measures of these variables.

Table II below shows the zero order correlations of the three independent variables of deferred gratification orientation, years experience and boat size to success. All three of the variables which correspond to beliefs about the "causes" of success are significantly correlated with success. Furthermore, the intercorrelations of these variables indicate that they are largely independent of each other (see Table II). They each explain some of the variance in success.

Table II. Intercorrelations Among the Variables

	1	2	3	4
1. Deferred gratification orientation		.102	.014	.393**
2. Years experience			-.184	.298*
3. Boat size				.283*
4. Success ¹				

N=50 * = p .05 ** = p .01

¹The full ranked variable is used here.

We can determine how these variables in concert relate to success by means of a stepwise multiple correlation analysis. In this procedure all independent variables are correlated with the dependent, and the independent variable which explains the most variance in the dependent is entered into the equation first. The next variable entered is the one which explains the most with the first controlled. This procedure is continued until all variables are entered. The results of this analysis can be seen in Table III.

Table III. Stepwise Multiple Correlation of Success and Three Independent Variables.

<u>Variable Entered</u>	<u>(multiple R correlation)</u>	<u>Cumulative Percent Variance</u>
1. Deferred gratification orientation	.393**	15
2. Boat size	.481**	23
3. Years of experience	.576**	33

p < .01
N=50

We see in Table III that the three variables account for 33 percent of the variance in the success variable, a considerable amount given the fact that we have purposely limited ourselves to three independent variables. The explanatory power of each individual variable is not dramatically different for the others. Deferred gratification orientation explains 15 percent, boat size 8 percent, and years at occupation 10 percent.

Discussion

What these results show is that both successful and less successful fishermen are "correct" to a degree in their beliefs about what causes success. The pattern of beliefs is based on whether one is inside looking around (the successful) or outside looking in (the less successful). Successful fishermen who have the more productive technology tend to see success as coming from the frequent application of that technology, while the less successful see success more as a matter of having the technology and having had it for a long time. In each case, beliefs reflect realistic necessary conditions for success as seen in our analysis of the

empirical correlates of success. For whatever reason they exist, I feel that these differences in beliefs about success have important applied significance.

In carrying out a development program in this population designed to enhance the economic well-being of the less successful, we might think it wise to determine what the less successful feel they need to enhance their well-being. Or, decision makers might decide in an a priori manner that more productive technology in the hands of the less successful will upgrade their economic well-being. Both these plans have considerable "face validity" and are ones which are not uncommon.

In fact, it was reported that just such a scheme was carried out during the Johnson administration. Some of the less successful fishermen were given grants of money with the stipulation that the money could be used only to purchase fishing equipment. Our informants reported that a number of fishermen upgraded their equipment by means of this grant but that a number of others used the money to buy equipment but then immediately sold it and lived off the money for a time.

I am not trying to argue that we should discount the beliefs of the target population. On the contrary, I am suggesting that we need to consider all the beliefs concerning success in a given fishery by both the successful and less successful in conjunction with the empirical correlates of success in the design of technology transfer or other development schemes. We cannot expect people in less successful positions to perceive the necessary conditions for being more successful. This is the task of the applied anthropologist, and it is one which can greatly enhance the probability of the success of development schemes designed to help the less successful. By understanding the empirical correlates of success and the beliefs that people have about success we can design development schemes that do more than naively involve the transfer of technology. As Morss et al. (1976) have shown in their comprehensive review of the results of development schemes, sociocultural factors are the main contributors to failure. I suggest

that the method outlined in this paper would help uncover some of the sociocultural pitfalls by making clear some of the prerequisites to success and how they relate to peoples' beliefs about success. This would help us understand what is necessary to raise the level of success of the less successful. In the Puerto Rican case discussed in this paper, perhaps training sessions which teach fishermen the potential value of a deferred orientation in combination with the introduction of more productive technology would help. However, there is no guarantee, and the identification of less successful fishermen who have the psychocultural prerequisites for effective utilization of new technology would be another option, particularly if development funds were limited. We should also be prepared for the possibility that, given the constraints of the situation, the requirements for success are not obtainable by some.

Summary

In this paper I have made several interrelated points. These are as follows:

- (1) It is possible to obtain a valid and reliable measure of success among fishermen using the technique of key informant ranking.
- (2) Beliefs about success vary because of differences in perception of success dictated by situational factors associated with being a successful or less successful fisherman.
- (3) Success is a multidimensional phenomenon related to a number of psychocultural variables including those identified by the beliefs of fishermen themselves.
- (4) Change agents who rely on people's beliefs about success, no matter how plausible they seem, may be well-intentioned but will probably not be able to accomplish the results they desire because beliefs depend on situation.
- (5) The applied anthropologist by studying the empirical correlates of and

the full intraoccupational range of beliefs about success can help design change plans which will increase the chances of accomplishing desired objectives.

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