AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

1. SUBJECT CLASSIFICATION

A. PRIMARY: Social Science

B. SECONDARY: Development Planning

2. TITLE AND SUBTITLE

Psychocultural correlates of success among small-scale fishermen in western Puerto Rico

3. AUTHOR(S)

Poggie, J.J.; Bartee, J.C.; Pollnac, R.B.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1976	17 p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

University of Rhode Island, International Center for Marine Resource Development, Kingston, Rhode Island 02881

8. SUPPLEMENTARY NOTES (*Sponsoring Organization, Publishers, Availability*)

(Presented at the annual meeting of the North Eastern Anthropological Association Middletown, Connecticut, 1976)

9. ABSTRACT

An exploration of the concept of success as it applies to small-scale fishermen in Western Puerto Rico. The paradigm followed is an ecological-adaptational one positing that there are psychological, ideational, and social characteristics which are adaptive to the total environment of fishing, and that on the individual level these characteristics are related to relative success of individuals involved in this form of hunting activity. The paper's findings point to the importance of the psychological variable of deferred gratification in understanding why some fishermen are more successful in their occupation than others. The paper also demonstrates the utility of emic measures of success. Further analysis will be necessary to determine the causal links suggested here.

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-AAC-705	
12. DESCRIPTORS	**13. PROJECT NUMBER**
Fishermen Psychological aspects Puerto Rico Success	**14. CONTRACT NUMBER** CSD-2455 211(d) **15. TYPE OF DOCUMENT**

AID 590-1 (4-74)

Psychocultural Correlates of Success Among Small-Scale Fishermen in Western Puerto Rico

by

John J. Poggie, Jr., James G. Bartee, and Richard B. Pollnac
Department of Sociology and Anthropology

and

International Center for Marine Resource Development
University of Rhode Island

Paper Prepared for The Annual Meetings of The North Eastern Anthropological Association, Wesleyan University, Middletown, Connecticut
25-27 March 1976.

Psychocultural Correlates of Success Among Small-Scale Fishermen In Western Puerto Rico

John J. Poggie, Jr., James G. Bartee and Richard B. Pollnac

The concept of individual success in occupation roles has not been widely applied in anthropology. This is probably due to the powerful ethnocentric implications of the concept as viewed by many American anthropologists. Yet it is widely recognized that individual success of hunters in band societies, warriors in tribal societies and agricultural producers in peasant societies is an important element of societal-level adaptation. The successful hunter, warrior and peasant farmer provide the role models that are emulated directly or provide symbolic input to social solidarity through their roles in the population. Success in American and other capitalistic societies has important implications for the functioning of both production and consumption aspects of this type of economic system. Additionally, it may play a role in other aspects of culture such as deviance, mental and physical health.

In this paper we wish to explore the concept of success as it applies to small-scale fishermen in Western Puerto Rico. As a form of hunting activity in hostile environments, small-scale fishing operations seem to select for psychological and social configurations that differ markedly from comparable landbound occupations (cf. Norr 1975; Pollnac, Gersuny, & Poggie 1975, Poggie & Gersuny 1976; Norr & Norr 1974, Aronoff 1967). The diverse and hostile characteristics of the ecological

niche being exploited and the very direct relationship existing between small-scale fishermen and their product are among the contingencies which select for individual psychological, biological, and social organizational features of the society in which they live. These characteristics select for entry into the occupation and directly influence degrees of success. Thus, the paradigm we follow is an ecological-adaptational one positing that there are psychological, ideational and social characteristics which are adaptive to the total environment of fishing, and that on the individual level these characteristics are related to relative success of individuals involved in this form of hunting activity.

The Research Population

The research community, Puerto Real, consists of some 2,000 people and is part of the town of Cabo Rojo in western Puerto Rico. Puerto Real has long been one of the most important fishing communities on the island. Today it is the single largest producer of fish in all Puerto Rico, accounting for nearly 20 percent of the island's total catch. About 200 men in the town derive their livelihood from fishing or fishing related activities. In addition to fishing, Puerto Real is an important agricultural community. A large number of men residing in the community gain their livelihood from working in the cane fields which surround the community on three sides. Within the community there are also a number of merchants, vendors, taxi drivers and other small-scale entrepreneurs as well

as a number of male and a larger number of female factory workers who are employed in the several new factories that have become a common feature of the Puerto Rican landscape in recent decades.

The Sample

The data for this study were collected 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 111 adult males (19 factory workers, 28 cane workers, 50 fishermen and 14 "others"). Qualitative and quantitative data are from unstructured and structured key informant interviews and participant observation.

Methods

Assuming cultural differences in the definition of success, it was necessary to develope emic definitions and measures of success for the Puerto Real fishermen. In the interview schedule all fishermen were asked to name the most and least successful fishermen and provide reasons for the classification. This was used to derive the criteria which the fishermen themselves believe contribute to success or non-success as a fisherman in Puerto Real. The results of this analysis are presented in Table 1. From this we see that frequent fishing and the individual characteristics of understanding, experience and competence make up 54 percent of the total responses. Owning one's own boat and having good equipment make up 30 percent, while 15 percent attribute success to the characteristics of more wealth,

Table 1. Perceptions of determinants of success among small-scale Fishermen in Puerto Real.

Individual Qualities	Frequency
Fishes often	36
Individual attributes (understanding, experience, competence)	34
Subtotal	70
Percent	54
Equipment	
Own boat	32
Good equipment	7
Subtotal	39
Percent	30
Other	
More wealth	8
Luck	7
Friends and contacts	4
Subtotal	19
Percent	15
Total	128 (100%)
N	50*

*Some fishermen provided more than one response.

luck, friends and contacts. The research design includes variables related to the domains cited by informants as important contributors to success. Thus the subjective structure of success can be compared to its empirical correlates.

Measurement of the dependent variable, success, was carried out in two ways. First a panel of six key informants within the community were asked to rank the sample of 50 fishermen from most to least successful. This was first attempted by asking respondents to place cards bearing the names of fishermen on a ruler-like scale divided into equal units from 1 to 50. This task confused the informants; thus we simply requested that the informants rank the names on the cards. This proved to be more understandable and was carried out. As a means of obtaining a comparative ranking one of the investigators also ranked the fishermen using knowledge gained from seven months of intensive field work among them. The mean rank for each individual was derived from the panel of informants and used as one of the measures of the dependent variable which is referred to here as $SUCCESS_1$. The investigators ranking is referred to as $SUCCESS_2$. The zero-order correlation between these rankings is statistically significant ($r=.691$ $p < .001$), but relatively low as a measure of reliability.

The independent variables consist of age; education; self-rating of religiosity; years experience as a fisherman; self-evaluation of socioeconomic position over time based on Cantril's ladder of life test (1963); acculturation based on whether the

informant speaks English and has been to the U.S.; island level measure of cosmopolitaness based on the sum of frequency of trips to the three urban areas of San Juan, Ponce and Mayaguez in the past year; exposure to written media along a local-island-international scale; fatalism based on responses to a single luck vs. intelligence question; annual income measured for the previous year; immediate or deferred gratification orientation based on summed responses to two hypothetical questions about utilizing a $200 and a $2,000 "windfall"; how long the respondent stays out when he goes fishing; whether the respondent's father was a fisherman; whether he owns his own boat, the type of fishing he does on a inshore-offshore scale.

The rationale for including these independent variables reflect efforts to test the emic propositions (beliefs) derived from the respondents' perceptions of the determinants of success as well as their relevance to theoretical formulations concerning the psychocultural adaptations of fishermen (e.g. Aronoff 1967, Poggie and Gersuny 1974, Pollnac, Gersuny and Poggie 1975, Poggie, Pollnac and Gersuny 1976, Pollnac and Poggie 1976).

Analysis

Because the correlation between success as measured by the panel of key informants ($SUCCESS_1$) and the measure derived by the investigators' ranking ($SUCCESS_2$) is too low to insure interinformant reliability $SUCCESS_1$ and $SUCCESS_2$ are treated as separate variables in the correlational analyses.

Correlations between the dependent and independent variables reveal that a number of the independent variables are

Table 2. Zero-order Correlations between Measures of Success and one Independent Variables.

Variables	$SUCCESS_1$	$SUCCESS_2$
Age	-.020	-.238*
Religiosity self rating	.299**	.168
Years experience	.298**	.091
Education	-.116	.244*
Speaks English	-.246*	-.134
Been to U.S.	-.344**	-.061
Media exposure	-.031	.205
Success depends on...	-.081	-.192
Annual income	.290**	.450****
How long stay out	-.199	-.126
Fish father	.067	.084
Own boat	.143	.063
Type fishing	-.080	.028
T_0-T_{-5}	.289**	.375***
T_{+5}-T_0	.215	.024
T_{+5}-T_{-5}	.084	.320**
Cosmcpolitanness (summed)	-.070	-.023
Gratification orientation	.393***	.369***

N=50 *=p $<$.10, **=p $<$.05, ***=p $<$.01, ****=p $<$.001

significantly related to both versions of the success scale. While there is considerable similarity among the correlates of $SUCCESS_1$ and $SUCCESS_2$, it is clear that there are differences in both the variables concerned and the strength of correlations (see Table 2). The independent variables that are significantly and positively related to $SUCCESS_1$ are: religiosity, years experience fishing, annual income, self perception of socioeconomic advance T_0-T_{-5}, and a deferred gratification orientation. Having been to the U.S.A. is negatively related to success. While not quite reaching the .05 level of significance, the closely related variable of speaking English is also negatively related with success. Comparing these results with those on $SUCCESS_2$, we note that neither religiosity or years experience are significantly related to this version of the dependent variable and that perception of socioeconomic advance between five years from now and five years ago T_{+5}-T_{-5} is significantly related to $SUCCESS_2$ and not to $SUCCESS_1$. Along with these variables significant at the .05 level, we note that $SUCCESS_2$ is negatively related to age and positively related to education both at the ten percent level of significance. It is clear that $SUCCESS_1$ and $SUCCESS_2$ are two different conceptual versions of success. The reasons for the differences are discussed below.

In order to determine how the independent variables in combination relate to the success measures a stepwise multiple correlation procedure was used. 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 or until a previously set cutoff point is reached. Entry into the regression equations in this case was limited to variables whose partial correlation with $SUCCESS_1$ and $SUCCESS_2$ are statistically significant at the .05 level with previously entered variables controlled. The results of these analyses can be found in Table 3.

The significant multiple predictors of $SUCCESS_1$ include deferred gratification, religiosity, years experience, perception of socioeconomic advancement from five years ago to today (T_0-T_{-5}) and having been to the U.S. The total multiple correlation is .67 explaining 45 percent of the variance, an amount that is well above the average for social science research.

The significant multiple predictors of $SUCCESS_2$ include annual income, deferred gratification and perception of socioeconomic advancement (T_0-T_{-5}). As was seen in the zero-order correlations, there are differences in the correlates of $SUCCESS_1$ and $SUCCESS_2$. Annual income, which does not enter the $SUCCESS_1$ equation is the variable that explains the most variance in $SUCCESS_2$. Also religiosity and years experience fishing do not enter the $SUCCESS_2$ equation.

These differences appear to reflect differences in the criteria of ranking between the panel of Puerto Rican key informants and the ranking of the field researcher. Examination

Table 3. Multiple Correlations between Measures of Success and The Independent Variables.

Variable	R	R^2	Increase in R^2
$SUCCESS_1$ (Dependent)	-	-	-
Deferred gratification 200 + 2,000	.3928	.1543	.1543
Religiosity self rating	.4847	.2349	.0806
Years fishing experience	.5499	.3024	.0675
$T_0 - T_{-5}$	.6054	.3665	.0641
Been to U.S.	.6685	.4469	.0805
$SUCCESS_2$ (Dependent)	-	-	-
Annual income	.4503	.2027	.2027
Deferred gratification 200 + 2,000	.5558	.3090	.1062
$T_0 - T_{-5}$	.6070	.3685	.0595

N=50

of the variables that are more related to $SUCCESS_2$ than $SUCCESS_1$ are interesting and have important methodological implications. The differences in correlates suggest that $SUCCESS_2$ is based more on youth, sophistication derived from education, the outward manifestations of income, and the informant's optimism. These attributes reflect some general attributes of American culture. Thus, despite the statistically significant correlation ($r=.69$ $p<.001$) between $SUCCESS_1$ and $SUCCESS_2$, the importance of using an emic measure of success even in a culture that is considered by many to be extremely "Americanized" is obvious.

Discussion

We shall confine our discussion to $SUCCESS_1$; since, as argued above, it represents more an emic measure of success than does $SUCCESS_2$. The results in Table 1 reveal that fishing often and having the individual attributes of understanding, experience or competence along with owning your own boat are the most salient in the minds of our respondents as contributors to success in fishing. These results imply the emic propositions mentioned above.

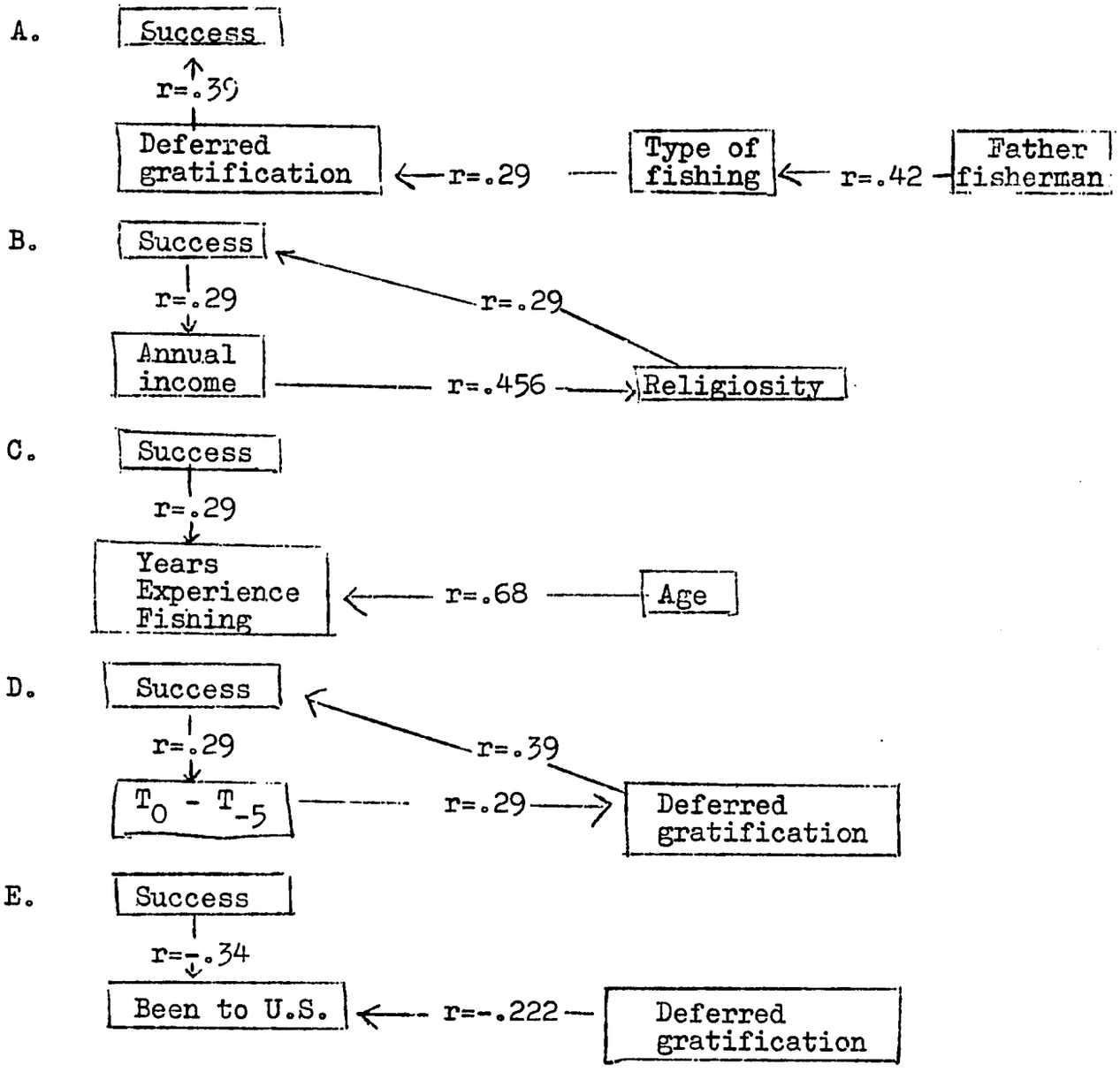
Although we do not have the exactly comparable data needed to directly test all these emic propositions, we are able to do this through logical transformations. Frequent fishing is in good part a behavioral expression of the psychological characteristic of deferred gratification. When a man goes fishing he forgoes 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 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. The data show that in addition to being successful ($r=.39$ $p<.01$), fishermen with a deferred orientation are also those most involved in time consuming, intensive, long-distance offshore fishing activities ($r=.29$ $p<.05$). Furthermore it is interesting that this type of fishing is related to whether father was a fisherman ($r=.42$ $p<.01$). Thus there appears to be a link between father being a fisherman, type of fishing, deferred gratification and success as illustrated in Table 4.

Thus the data support the emic proposition that fishermen who fish often are most successful. Nevertheless the interrelationships are more complex than suggested by this simple proposition. It is the behavior of frequent fishing that is most observable to the respondents, while systematic research reveals that both the psychological variable of deferred gratification and the social structural variable of having a father who was a fisherman are involved.

The respondents did not mention religious beliefs in their reasons for success, but in the multiple and zero-order correlation this variable is significantly and positively related to success. There are two interpretations of this relationship. One interpretation is that religion is serving as a ritualistic adaptation to the dangers of long distance and frequent fishing

Table 4. Suggested Causal Links between Emic Success and Independent Variables.



(cf. Poggie, Pollnac and Gersuny 1976, Poggie and Gersuny 1973). However, the data do not support this hypothesis. There is a negative and weak (r=-.10) relationship between type of fishnig and religiosity. The other interpretation is that religion is a consequence of success and reflects the involvement of the successful fishermen in one of the remaining elements of the traditional community social stratification system. The fact that all but one of the fishermen are Catholic, the Traditional religion, and that income is related to religiosity ($r=.456$ $p<.01$) offers some support to this interpretation. These relationships are illustrated in Table 4B.

The next three variables in the multiple correlation, years experience fishing, perception of socioeconomic progress over the last five years and not having been to the U.S. are, like religiosity, seen as consequences of success. Years fishing reflects the selective process by which successful fishermen accumulate the greatest time in the occupation, while less successful ones have tried other types of work. It is interesting to note that this is not just a function of age, as this variable is not directly correlated with success (r=-.02), although as one would expect age is significantly correlated with years experience fishing ($r=.68$ $p<.001$). The correlation ($r=.29$ $p<.05$) of perception of socioeconomic progress with success reflects the realization of successful fishermen that they have advanced over the past five years. It is of interest that $T_{5} - T_{-5}$ is related to deferred gratification ($r=.29$ $p<.05$)

and is interpreted as the reinforcer of the original deferred gratification which produced the initial success (see Table 4D).

Finally it should be noted that having been to the U.S. is negatively correlated ($r=-.34$ $p<.01$) with success. This is interpreted as reflecting the exodus (and later return) of the unsuccessful to the U.S. to seek other forms of work. It is also interesting to note the negative, although nonsignificant, correlation of deferred gratification and having been to the U.S. (see Table 4E).

This analysis strongly suggests that the psychological quality of deferred gratification is the most important determinant of a successful adaptation to the local marine environment through fishing technology. It also supports the "individual qualities" emic proposition suggested by our informants. The second emic proposition in which owning one's own boat is implied as a cause of success is not supported by our data. The correlation between owning your own boat and success is weak ($r=.14$) and not significant. The other group of reasons in Table 1 are not particularly salient in the minds of our informants and seem more like rationalizations than causes.

Conclusion

These findings point to the importance of the psychological variable of deferred gratification in understanding why some fishermen are more successful in their occupation than others. The paper also demonstrates the utility of emic measures of success. Further analysis will be necessary to determine the causal links suggested in the paper.

REFERENCES CITED

Aronoff, J.
1967 Psychological Needs and Cultural Systems. Princeton: Van Nostrand and Co.

Cantril, H.
1963 A study of aspirations. Scientific American 108:41-45.

Norr, K.
1975 The organization of coastal fishing in Tamilnadu. Ethnology 14:357-371.

Norr, K. and J. Norr
1974 Environmental and Technical factors influencing power in work organizations. Sociology of Work and Occupations 1:219-251.

Poggie, J. and C. Gersuny
1974 Fishermen of Galilee. Marine Bulletin 17, University of Rhode Island, Kingston, R.I.

_____
1973 Risk and ritual: an interpretation of Fishermen's folklore in a New England Community. Journal of American Folklore 85:66-72.

Poggie, J, R. Pollnac, and C. Gersuny
1976 Risk as a basis for Taboos among fishermen in Southern New England. Journal for the Scientific Study of Religion (in press).

Pollnac, R., C. Gersuny, and J. Poggie
1975 Economic gratification patterns of fishermen and millworkers in New England. Human Organization 34:1-7.

Pollnac, R. and J. Poggie
1976 Economic gratification orientations among small-scale fishermen in Panama and Puerto Rico. Paper delivered at The 36th Annual Meeting of The Society for Applied Anthropology, Saint Louis.