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COGNITIVE INTEGRATION AND CAUSAL ATTRIBUTION
IN THE TRAUMA-STREN CONVERSION

by

William Thomas Beaver

A Dissertation Submitted to the Faculty of the
DEPARTMENT OF PSYCHOLOGY
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA

GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my
direction by William Thomas Beaver
entitled COGNITIVE INTEGRATION AND CAUSAL ATTRIBUTION IN THE
TRAUMA-STREN CONVERSION
be accepted as fulfilling the dissertation requirement for the
degree of DOCTOR OF PHILOSOPHY

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that we have read this dissertation and agree that it may be
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William Beaver

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ABSTRACT

The present study attempted to elaborate and clarify the nature of the trauma-stren conversion construct by relating it to the personality characteristics of cognitive style and causal attribution style. It was hypothesized that individuals who were able to convert traumatic events into growth potentiating experiences would be more integrating and differentiating in their cognitive style and more flexible in their causal attribution style than individuals unable or less able to convert. Thirty male and 38 female college students completed an assessment booklet comprised of the Trauma-Stren Questionnaire, the Marlowe-Crowne Social Desirability scale, Locus of Causal Attribution scale, and three other scales included as part of a larger study. All subjects were subsequently interviewed to clarify any ambiguities in the trauma-stren self-report material. During this interview four minutes of verbalizing were tape recorded from each subject. These recordings provided the data needed to determine cognitive style scores. The results indicated that the present study did not replicate previous findings in terms of the proportions of converters and nonconverters. A higher proportion of converters was found in the present study than previously reported. There was a significant

correlation between one index of conversion ability and cognitive style; and one index of conversion ability and causal attribution; otherwise no significant relationships between cognitive style, causal attribution, and conversion ability were found. Questions concerning the validity of the conversion construct are raised and suggestions for future research in the area are made.

CHAPTER 1

INTRODUCTION

Lindemann's (1944) work on grief led him to observe that the additional resources needed to manage extreme and adverse situations resulted in a sense of either mastery or failure. Later, Caplan (1964, p. 53) expanded on this general notion with the rudiments of crisis theory:

Crisis is a psychological disequilibrium in a person who confronts a hazardous circumstance that for him constitutes an important problem which he can for the time being neither escape nor solve with customary problem-solving resources. During the upset, the individual works out a novel way for handling the problem through new sources of strength in himself and his environment.

Currently the phrase "coping with stress" captures this same area of interest and is represented in psychology by Janis (1971); Lazarus (1966, 1974, 1975); and Coelho, Hamburg, and Adams (1974). Their work attempts to explain the actual processes utilized in mediating the stress of adverse situations.

It is reasonable to assume that virtually everyone must cope with stress and adversity at some point in their lives; accordingly, it would seem that a viable strategy for mankind would be to transform as many such inescapable disadvantages into advantages as possible. While this might seem at first glance to be a highly idealistic

approach, it is becoming an increasingly realistic one. Lindemann (1944) initially observed that such transformations did in fact occur. Subsequently it was established that the cognitive mediation of disagreeable events could be produced in the laboratory through instruction (Lazarus and Alfert, 1964). Currently, thought is turning to the notion of training people to make such transformations (Finkel, 1974).

Lazarus' work is particularly of interest because it demonstrates the important role of cognitive manipulation in the experience of stress. Lazarus and his associates assessed responses to a stressful movie under different kinds of appraisal conditions. They found that a subject's stress level as measured by physiological responses and verbal reports could be reduced by providing information suggesting that a viewed circumcision rite did not produce harm (Lazarus and Alfert, 1964) or that the rite and injury were enacted (Lazarus, Opton, Nomikos, and Rankin, 1965). A later study demonstrated that subjects produce similar strategy approaches on their own when instructed only to detach themselves from the stressing film (Koriat, Melkman, Averill, and Lazarus, 1972).

Certainly many external events can aid in the mediation of psychological trauma, but since there is evidence that mediating stress as it occurs can be a cognitive process, it seems a sound line of reasoning that

aftermath mediation might well be cognitive too. A theoretical approach to this possibility was developed by Parkes (1971) as an outgrowth of his previous research on loss. He called the overall process of adjustment to adversity "psychological transitions." Parkes' largely speculative paper contains no substantive results or suggestions for empirical researchers. For that we must turn to the work of Norman Finkel.

The Trauma to Stren Conversion

Finkel (1974, p. 266) provided twenty-six college students with the following definitions for the words trauma and stren:

The word "trauma" and its meaning are quite familiar to most. We can identify and articulate those experiences that have injured, in some way, our personality development.

The anthropologist Margaret Mead has pointed to a deficiency in the English language--there is no antonym for trauma--some event or experience that strengthens our personality. William Hollister has coined the word "stren" to fill the need. A stren "is an experience in an individual's life that builds strength into his personality."

Students were asked to describe strens and traumas in their lives, making sure to include the following details: (1) when it occurred; (2) what, if anything, preceded it; (3) identify the significant people and their part and actions in the experience; (4) what were the consequences of the experience; (5) in what ways did you and your "world" change; and (6) how do you evaluate it now.

He found the following: (1) the prevalence and frequency of stressors and traumas is the same, and (2) that there are some events which were evaluated as stressors by some and as traumas by others. Finkel (1974, p. 268) noted that some subjects "began writing and describing an event in the trauma section only to conclude that it really was a stressor." Finkel concluded that there is actually a third category, the trauma turned to stressor (T-S), and that such a conversion is the result of a reinterpretation of the event.

Finkel's next study (1975a) sought to explicate and clarify the nature of the T-S conversion. He added an interview to the same methodology used in the first study and assessed the stressors and traumas in the backgrounds of forty college students. The results relevant to the T-S conversion were: (1) 67.5% of the sample reported a T-S experience, (2) T-S experiences made up 26% of all significant experiences reported, (3) approximately one-third of all traumas are converted to stressors, (4) T-S experiences occur initially at a significantly older age than either traumas or stressors, and (5) T-S experiences are not significantly different from traumas across categories of events. Thus, the following profile of the T-S conversion emerges: The likelihood that a trauma can be converted seems to increase with the age of the individual as well as with the number of prior conversions, but not with any systematic changes in traumatic events themselves; that is,

there are no "easy" traumas. Finkel concludes that the process is cognitive: the initial interpretation of the event is replaced by a new interpretation. However, he does not elaborate or support that conclusion extensively.

Next, Finkel (1975b, pp. 3-5) expanded his inquiry to an adult sample. Using largely the same methodology as previously, he assessed the trauma/stren experiences of forty-five adults between the ages of thirty and sixty. In this study the definition of terms and request for information changed:

Many people think immediately about traumatic events--those experiences in our lives that we feel have injured our personality development in some way. While I am interested in traumas, if they are significant, I am also interested in events which have enhanced the personality or have promoted psychological growth. The word "stren" has been used to stand for "an experience in an individual's life that builds strength into his personality."

[Keeping this information in mind, I wish to find out more about your significant experiences: strens, traumas, or events that have elements of both stren and trauma.]

Results relevant to the T-S conversion were: (1) 67% of the sample reported at least one T-S experience; (2) T-S events comprised 15% of the total reported; (3) T-S experiences are infrequent before age 20, rise between 20 and 30 until after age 36 they become more prevalent than traumas or strens; (4) pre-converters are essentially non-converters until their first T-S experience when the pattern changes decisively, with traumas falling from 62%

of the reported experiences to 28%, and stressors rising from 33% to 44%; and (6) no category of traumatic experience was entirely inconvertible.

Finkel concluded by speculating that the T-S conversion was the type of coping skill that could be taught.

Support for Finkel's general approach and findings has come recently from Vinokur and Selzer (1975) who adapted the Schedule of Recent Events (Holmes and Rahe, 1967) to reflect the subject's evaluation of the event as well as whether or not it occurred. They found that only when an event was evaluated as undesirable was it consistently, significantly, and substantially correlated with anxiety, tension, aggression, paranoia, depression, and drinking. This result points to the importance of the individuals' evaluation and contradicts previous thinking which held that the occurrence of the event was significant regardless of the desirability of the event.

Validation and Elaboration of the T-S Conversion

The first purpose of this study was to replicate Finkel's major findings under some possibly influential "other" conditions. Specifically, can his work be duplicated by another investigator, with another population, in a new setting? If so, this represents a modest but real increase in the validity of his findings.

A second purpose was to further elaborate the nature of the T-S conversion. Cronbach and Meehl (1955, p. 290) say, "'Learning more about' a theoretical construct is a matter of elaborating the nomological network in which it occurs, or of increasing the definiteness of the component. At least in the early history of a construct the network will be limited, and the construct will as yet have few connections." Working in accord with the suggestions made by Cronbach and Meehl, the construct validity of the T-S conversion could be considerably strengthened by locating it in a nomological network of already established theories and substantive results. Thus, this study was an attempt to establish: (1) differentiating characteristics between T-S converters and non-converters and (2) the processes by which converters actually convert.

The study was exploratory, based on speculative rather than substantive direction; but a skeletal theoretical network is presented to give structure to several facets of the study.

Wexler's (1974) investigation into the relationships between self-actualization and various cognitive processes supports the idea that self-actualization involves the ability to differentiate and integrate experiential information. Wexler views maladaptive behavior as essentially derived from restricted information

processing. The common denominator is that they all produce little involvement with events and produce little or no new experience. The ability to differentiate and integrate experiential information is possibly crucial to the re-interpretation of events.

A T-S conversion qualifies as a self-actualizing event on two counts: (1) it is a realization of adaptive functioning, usually in novel contexts; and (2) it is thought to be a primarily cognitive procedure and thus could be conceptualized in an information processing model. Accordingly, converters were expected to score similarly to self-actualizers on measures of cognitive differentiation and integration.

To further delineate possible cognitive processes in the T-S conversion, this study focused on styles of cognitive attribution. Laird and Berglas (1975) speculated that children learn to utilize predominantly person or situation information or both in making causal attributions. They cited several varieties of psychopathological behavior as being examples of restricted styles of causal attribution (psychopaths are impervious to person information and depressives are impervious to situation information). They then reported a study which revealed that a person orientation was significantly correlated with attitude change in the face of induced counter-attitudinal behavior. Comer and Laird (1975) found that subjects

proven to be self-attributors in construing an experimentally induced behavior were significantly more person oriented than proven object-attributors.

Wexler (1974) suggests that the production of new information about a past experience is a positive function of the complexity of people's cognitive constructs. In keeping with a general interactionist viewpoint (Bem and Allen, 1974; Mischel, 1973; Ekehammar, 1974), it seemed likely that an attribution style incorporating both person and situation information would lend itself to more complexity and at the same time enhance the possibility of creating new information. Thus, the attribution style of converters should be flexible compared to non-converters who were expected to have strong person or situation biases.

In summary, the study tested the following hypotheses:

1. The results of Finkel's prior work with college age subjects is replicable in terms of distributions of traumas, stressors, and T-S conversions.
2. Conversion is positively and significantly correlated with an integrating and differentiating cognitive style.
3. Conversion is positively and significantly correlated with an interactionist causal attribution style.

CHAPTER 2

METHOD

Subjects

The subjects were 38 female and 30 male University of Arizona students recruited on a voluntary basis from upper division liberal arts classes.

Experimenters

Two investigators conducted the study. One was a male, fourth year graduate student in clinical psychology. The other was a female, first year graduate student in clinical psychology.

Instruments

The Trauma, Stren, and Trauma-Stren
Questionnaire

The instructions read as follows:

I am interested in studying significant experiences--those experiences or events in people's lives which they subjectively feel have altered and shaped their personality. I am going to ask you to detail those events which you can point to as being truly significant in your own life and personality.

Many people think immediately about traumatic events--those experiences in our lives that we feel have injured our personality development in some way. While I am interested in traumas, if they are significant, I am also interested in events which have enhanced the personality or promoted psychological growth. The word "stren" has been used to stand for "an experience in an individual's life that builds strength into his/her personality."

Keeping this information in mind, I wish to find out more about your significant experiences: stressors, traumas, or events that have elements of both stress and trauma. In the next hour or so, I would like for you to think about and then write down from your own life, beginning as far back as you can remember, and include your most recent experiences. I would like to know the following things about each experience: (a) approximately when it occurred; (b) what, if anything, preceded it; (c) describe the experience in detail, as best you can remember it; (d) mention any significant people who were involved in the experience and describe what part they played; (e) in looking back, how would you evaluate the experience in relation to your personality development.

I realize that I am asking relatively personal questions. But keep in mind that I am interested in learning more about significant events in general. Your information will be handled in the strictest confidence, and if it is reported, all material that would identify you individually will be left out.

Remember, significant experiences are unique to each individual--what was significant for you may not be for someone else. Don't leave out an experience because it might be "silly" or "embarrassing" or because someone might not "understand" it. To make sure I understand, I would like to speak with you in an interview to be arranged after you return these questionnaires.

Please think about your experiences, put them down in detail, and designate whether you feel it has been a stressor, a trauma, or some combination. Feel free to take as much time as you feel you need. Thank you for your time and cooperation.

Please follow this format for each described experience and write as legibly as possible.

1. When it occurred.
2. Preceding events.
3. Detailed description of experience.
4. Description of parts played by other people.

5. Description of what happened as a result of the experience.
6. Changes in you as a result of the experience.
7. Effect of the experience on your personality development.
8. Indicate if the experience was a trauma, a stren, or a combination of the two.

The format and legibility instructions at the end are additions to Finkel's original instructions.

Cognitive Integration/Differentiation

Wexler (1974) devised a method of assessing an individual's level of differentiation and integration which involves the scoring of transcribed samples of a subject's verbalizations. In order to prepare the transcripts for scoring they were first unitized by sectioning the stream of verbalization into word phrases and clauses. The criteria and procedures are described in greater detail elsewhere (Wexler, 1972). Interrater agreement on unitization in that study exceeded .85 on 10 randomly chosen protocols.

The unitized transcripts were scored by categorizing each group of words as a differentiation, an integration, or neither. A unit was scored as a differentiation if it represented the formation of a subordinate structure to the target subject or to a preceding unit that distinguished a more particular aspect of its meaning.

For example, if the subject said, "I feel empty," followed by, "like all excitement in living is gone," the second unit would be categorized as differentiating since it elaborates a more particular facet of the preceding unit. A unit was scored as integrating if it represented the formation of a superordinate structure that synthesized the meaning of two or more preceding units in the protocol. Thus, given the three units "I have a sense of things missed/and opportunities that have slipped me by/It's very much a feeling of regret," the third unit would be categorized as integrating since it represents a common meaning abstracted from the two preceding units. Units were categorized as neither if they did not function descriptively to differentiate or integrate the meaning of the experience described. (Scoring examples are from Wexler [1974].) To control for length of the protocol subject differentiation and integration scores were derived by summing the number of units scored as differentiating or integrating in the protocol and then dividing the sum by the total number of units in the protocol.

Locus of Causal Attribution Scale

The LCA is a 15-item scale refined by Laird and Berglas (1975) from an earlier developed scale (MacArthur, 1970). Recent users of the scale report no reliability data, but the LCA is proving to be a reliable predictor

of various conceptually related behaviors (Comer and Laird, 1975; Laird and Berglas, 1975; Laird, 1976).

The general item format is as follows:

Bill is anxiously awaiting a phone call.

What do you think caused Bill to be anxiously awaiting a phone call?

(Circle one of the following.)

- a. Something about Bill probably caused him to be anxious
- b. Something about the phone call probably caused Bill to be anxious.
- c. Something about the participating circumstances probably caused Bill to be anxious about the phone call.
- d. Some combination of a, b, and c above can best explain what probably caused Bill to be anxious about the call.

If you circled d, write down the combination of causes a, b, and c (i.e., a and b, a and c, or a, b, and c) which you think can satisfactorily explain why Bill was anxious about the phone call.

A subject's score was to be obtained by assigning a +1 to all a responses (person), -1 to all b responses (situation), and a 0 to all c or d responses (interaction style). It was possible to obtain a score of +15 (complete person bias) to -15 (complete situation bias). There were two ways to obtain a near zero score, one was to have counterbalancing a and b items, and the other was to have predominantly c and/or d responses. Accordingly, there were two scoring systems for the LCA. One considered an interaction style to be represented by offsetting situation and subject choices (LCA1). The other considered an

interaction style to consist of selecting primarily c and d options and assigns a +1 to both a and b selections. Both systems were tested. The "offsetting" will be referred to as the LCA1, and the "pure" as the LCA2.

Control Measures

Every other word from the WAIS vocabulary subtest was administered. Wexler (1974) found that differentiation and integration are not significantly correlated with verbal intelligence, but to be safe this study sought to replicate this finding.

The Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe, 1960) was given in order to control for the influence of social desirability. Since volunteer subjects tend to have high needs for social approval (Rosenthal and Rosnow, 1976), social desirability scores were included as a covariate in all analysis of variance tests. The relationship of social desirability to other variables was also tested directly.

Procedure

Recruitment

The two investigators went together to upper division liberal arts classes to recruit volunteers to participate in a "study on people's significant life events." While one investigator briefly discussed the

purpose and format of the study, the other investigator distributed a two-page handout to every student in the class. The first page asked for the following information: name, address, telephone number, age, sex, college class (freshman, sophomore, junior, senior, other), major, religious affiliation, and number of religious activities attended in an average month. Immediately following this and on the same page was a participation consent form, which read as follows:

We are studying people's significant life events. We want to know what kinds of events they are what people do about them, and what consequences they have. We are also interested in determining if there is a relationship between various personality characteristics and the types of experiences people have.

If you sign this form, you are consenting to aid us in completing research in this area. If you agree, we will be asking you to do the following: (1) to complete a number of questionnaires and to describe your significant life events, and after that (2) to participate in a brief interview. We are talking about a time commitment of 1-1/2 to 2 hours for the questionnaire and approximately 1/2 hour for the interview. Times for these will be negotiated, and we will attempt to schedule convenient times as much as possible. Since your participation is on a voluntary basis, you may decide to discontinue your participation in this project at any time.

We assure you that your identity and questionnaire responses will be kept in the strictest confidence. Your name and all other identifying material will only appear on this consent form, with a number system used on all additional forms and questionnaires.

We thank you for your cooperation.

At the bottom of the page were spaces for a signature, date, and session which the individual planned to attend. The second page provided the information on five times and sites which had been arranged for the completion of questionnaire materials.

All students were asked to fill out the demographic information, even if they chose not to participate. In this case, they were asked not to sign at the bottom. Those who decided to participate were instructed to sign the consent form in the place provided below the form, put the data, and indicate which session, 1-5, they planned to attend. They were told that they could tear off the second page to keep as a reminder of the time and place to meet. If none of the sessions were convenient but they wished to participate, they were asked to put a note at the bottom of the first page, and the investigators would call them to arrange a different time.

The investigators alternated tasks of discussing the study and distributing the handouts. The information discussed verbally was similar in content to that provided in the consent form.

Group Testing

As subjects arrived for the group testing sessions, they were handed the assessment booklet, an answer sheet, and three blank pages of paper. An I.D. number was placed

on the answer sheet and blank paper which matched the number on the consent form. This was done to provide anonymity; following the interview, names on the consent form were deleted and subjects were identifiable only by number. Each subject was instructed to complete the "Significant Life Events" questionnaire, using the three blank sheets of paper, before moving on to the personality scales. They were also told that additional paper would be provided should they need it. The answer booklet was then to be used with the remainder of the questionnaire packet.

The group testing sessions lasted an average of two hours, and subjects were encouraged to finish within that time period. After one hour, it was announced that they "should be finishing up the life events questionnaire and moving on to the other scales." At two hours, those remaining were told that they had been working two hours and should try to finish soon.

Following the completion of the test booklet, each subject was scheduled for an individual interview session with one of the two investigators. Interview assignments to the investigators were on a random basis except that an effort was made to assign an equal number of males and females to each interviewer. This was done in order to control for possible effects due to sex of the interviewer.

Interview

The interview consisted of three parts. The first section focused on the trauma-stren questionnaire to follow up on unclear points, fill in omissions, and add details which were sketchy or absent in the written descriptions. The second section involved obtaining a four-minute tape recording of the subject's description of how he/she experiences the emotion of sadness. This was an exact replication of Wexler's (1974) procedure for determining cognitive styles of integration/differentiation. To prevent subjects from being influenced or distracted by any non-verbal or verbal cues from the interviewer during the descriptions, the interviewer left the room during the taping. The last part of the interview consisted of telling subjects the purposes of the study, and answering any questions or concerns they had.

The interview procedure was standardized between interviewers and between interviews by the same interviewer as much as possible. Scheduled for 30 minutes, the interviews typically lasted 20-30 minutes with only a few extending beyond a half hour. Also, it should be noted that as many subjects as could be reached were telephoned the night before their interview to remind them of their appointment. It was necessary to reschedule a number of subjects when they either missed the interview or called

to cancel. Eventually, however, all subjects who had completed all previous parts of the study were interviewed.

CHAPTER 3

RESULTS

Demographic Information

The sample consisted of 68 subjects (30 males and 38 females) with a mean age of 21.8 years (range = 17 to 42). All classes were represented, freshman through graduate standing, with 70.6% at the junior level or above. Forty-one (60.3%) were psychology majors, while 27 (39.7%) were majors in other areas including: business, sociology, anthropology, history, humanities, home economics, nursing, and foreign languages. Forty-four per cent reported some religious affiliation and participated in one to nine activities per month, with a mean of 1.2.

Control Measures

The relationship between verbal intelligence and the ability to integrate and differentiate was tested with a Pearson product moment correlation coefficient. The resulting correlation ($r = .125$) was not sufficiently strong to account for a meaningful proportion of the variance.

The possibility of significant sex differences was examined by comparing male and female subjects on age, class, major (psychology versus non-psychology), social

desirability (MCS), verbal intelligence, avowed religious affiliation, conversion ratio, LCA1 (offsetting), LCA2 (pure), conversion status (converter or nonconverter), conversion rating (high = 3, medium = 2, low = 1), and integration/differentiation. The results are presented in Table 1. Significant sex differences were found for only one conversion ratio ($p < .04$) with males converting at a higher rate. To control for any effects of the difference sex of subject was included as a factor in all analyses of variance.

Potential differences due to reactions to the sex of the interviewer were tested by comparing the group of subjects interviewed by a female to the group interviewed by a male on the same variables used in the previous analysis. These results are reported in Table 2. Age was the only variable demonstrating a significant difference ($p < .05$), with the female interviewing an older sample than the male (23.0 to 20.5). This difference did not appear to have a biasing influence on the data of interest.

The relationship between social desirability and the three indices of conversion was examined by use of Pearson product moment correlation. The results are in Table 3. The results showed a mild negative relationship between social desirability and conversion rating, significant at the .02 level.

Table 1. t Test results for sex of subject by dependent variables.

Variable	Male means	Female means	df	t-Value	P
Age	22.50	21.24	66	1.266	.20
Class	3.07	3.03	66	.169	.86
Major	1.67	1.61	66	.515	.62
MCS	14.78	13.76	66	.854	.40
Verbal IQ	30.47	30.40	66	.057	.95
Religion	.37	.50	66	-1.093	.28
Sex of interviewer	1.53	1.47	66	.482	.64
Conversion ratio	68.90	52.24	66	2.106	.04
LCA1	1.17	1.08	66	.272	.78
LCA2	3.43	2.87	66	.779	.44
Conversion status	.90	.82	66	.966	.34
Conversion rating	2.20	1.95	66	1.286	.20
Integration/ Differentiation	36.47	37.97	66	-.379	.71

Table 2. t Test results for sex of interviewer by dependent variables.

Variable	Male means	Female means	df	t-Value	P
Age	20.51	23.00	66	-2.600	.01
Class	2.99	3.14	66	-.864	.39
Major	1.66	1.63	66	.066	.95
Verbal IQ	31.66	29.29	66	1.930	.055
MCS	14.61	13.83	66	.665	.52
Religion	.42	.46	66	-.269	.78
Conversion ratio	60.61	58.63	66	.224	.78
LCA1	1.03	1.20	66	-.531	.60
LCA2	3.15	3.09	66	.091	.92
Conversion status	.85	.86	66		.92
Conversion rating	2.00	2.11	66	-.580	.57
Integration/ Differentiation	36.06	38.40	66	-.616	.55

Table 3. Correlations between social desirability (MCS) and conversion.

	MCS	P
Conversion status (converter vs. nonconverter)	-.174	.08
Conversion ratio (TS/TS+T)	-.149	.12
Conversion rating (high, medium, low)	-.258	.02

The relationship between social desirability, conversion status, and sex was further examined by a two-way (sex of subject, conversion rating) analysis of variance with social desirability as the dependent variable. See Table 4 for the means, standard deviations, and significance levels. No significant main effects were found.

Replication of Trauma, Stren, and
Trauma-Stren Conversion

Of the 69 individuals, 58 were converters while 10 were non-converters. The frequency, percentage, mean number, and standard deviation per individual of reported traumas, strens, conversions, and the category "other" are shown in Table 5, as is mean age and standard deviation of event occurrence. The t test comparisons of the mean age of occurrence for each event revealed that traumas occurred before strens ($t = 1.146, p < .001$) and conversions ($t = 3.304, p < .001$), but strens and conversions occurred at about the same time ($t = .136, ns$). The distribution of events prior to age eight is reported in Table 6. Twenty-three conversions were reported prior to age eight (24%). It is not possible to get a precise comparison from Finkel's graphs, but conversions were reported at a frequency below 10% prior to age eight in both the second college sample and the adult sample in Finkel's report.

Two analyses tested whether the current study replicated Finkel's findings in terms of (1) the occurrence

Table 4. Conversion rating and sex of subject differences on social desirability.

Variable	Conversion							Sex of Subject				
	L		M		H		F	Male		Female		F
	M	SD	M	SD	M	SD		M	SD	M	SD	
Social Desirability	16.13	3.97	13.72	4.66	12.96	5.02	2.45**	14.92	5.24	13.62	4.29	1.12*

*p < .294, df = 1, 62.

**p < .093, df = 2, 62.

Table 5. Frequency of occurrence, percentage, mean number, and mean age of event occurrence for traumas, strens, and conversions.

	Trauma	Stren	Trauma-Stren	Other	Total
Frequency	96	187	151	2	436
Percentage	22%	43%	34.6%	.4%	100%
Mean Number	1.41	2.75	2.22	.03	
S.D.	1.43	2.21	1.70	.17	
Mean Age	11.86	14.28	14.37		
S.D.	5.92	6.23	5.76		

Table 6. Life events distribution prior to age eight.

Age	Strens	Traumas	Trauma-Stren	Other	Totals/ per cents
0-3 yr.	5	4	4	0	13 (13.5%)
4-5 yr.	17	10	9	1	37 (38.5%)
6-7 yr.	15	20	10	1	46 (48%)
Totals/ per cents	37 (38.5%)	34 (35%)	23 (24%)	2 (2%)	96 (100%)

of traumas, stressors, and conversions; and (2) the frequencies of converters and nonconverters. Although two studies using a college population have been reported by Finkel (1974, 1975a), only the former provides the frequencies of traumas, stressors, and conversions. It should be noted that these data were recategorized after data collection from an initial two categories, T and S, to a second schema including T, S, and TS conversion when the conversion event unexpectedly was found to occur in addition to traumas and stressors. Thus, although not derived identically, the frequencies of traumas, stressors, and conversions in the Finkel (1974) study were compared with those obtained in the present study. The present results did not differ significantly from those of the previous studies ($\chi^2 = 1.54$, $df = 2$, $p < .25$).

The frequency of converters and nonconverters in Finkel's (1975a) data and the present study were compared by Chi-square analysis. Finkel found 27 of 40 college students (67.5%) were converters while 58 of 68 (85.3%) were converters in the present study. This difference was highly significant ($\chi^2 = 2.178$, $df = 1$, $p < .001$). Thus, the present data do not replicate Finkel's findings in terms of the proportion of converters and nonconverters. Also, the present data find the occurrence of conversions prior to age eight much more frequently than previously reported.

Conversion and Verbal Information
Processing Style

One main hypothesis tested was that there would be a positive and significant relationship between an individual's ability to convert traumas to stressors and the ability to process information in an integrating and differentiating style. Two statistical techniques, correlational analysis and analysis of variance, evaluated this hypothesis.

The variables in Tables 1 and 2 were all correlated with the subjects' integration/differentiation scores using a point biserial correlation coefficient. Of particular interest in the analysis were the correlations between the various measures of conversion and the dependent measure of integration/differentiation. These correlation results are presented in Table 7. Directionally, there was a tendency for the two continuous indices of conversion to correlate more strongly with an integrating and differentiating style than the dichotomous index (conversion status), though only conversion rating was significant ($p < .03$).

The relationship between conversion, sex of subject, and integration/differentiation was assessed by use of a two-way analysis of variance (conversion rating, sex of subject) with the integration/differentiation score as the dependent variable and the MCS-D Scale score as a covariate. Three levels of conversion rating were employed: high

Table 7. Correlations between conversion and integration/differentiation.

	Integration/Differentiation	
		P
Conversion status (converter or nonconverter)	.058	.32
Conversion ratio (TS/TS+T)	.174	.08
Conversion rating (high, medium, low)	.222	.03

(.68-1.00), medium (.34-.67), and low (.00-.33) groups on the basis of scores on the conversion ratio (TS/TS+T). This procedure resulted in groups with comparable n 's (H = 24, M = 27, and L = 17). The results of the analysis are reported in Table 8. There were no significant main effects indicating that subjects with differing conversion ratios do not differ in integration/differentiation.

Conversion and Interaction Causal Attribution Style

The other main hypothesis tested was that there would be a positive and significant relationship between an individual's ability to convert traumas to stressors and the ability to make causal attributions about social situations in an interactionist style. Again both

Table 8. Conversion rating and sex of subject differences on integration/differentiation with MCS as a covariate.

Source	SS	df	F-ratio	P
Covariate				
MCS	42.58	1	.165	.686
Main Effects				
Conversion (A)	1304.52	2	2.535	.087
Sex (B)	94.62	1	.368	.546
Interaction				
AB	424.59	2	.825	.443
Residual	<u>15694.3</u>	<u>61</u>		
Total	17496.41	67		

correlational analysis and analysis of variance evaluated this hypothesis.

Correlations between the various measures of conversion and two interpretations of interactionist causal attribution style, LCA1 and LCA2, are presented in Table 9. It is quite apparent that the offsetting scoring interpretation (LCA1) is more strongly correlated with conversion than the pure interpretation (LCA2), with conversion ratio significantly correlated with the LCA₁ at the .04 level.

Table 9. Correlations between conversion and causal attribution.

	LCA1	P	LCA2	P
Conversion status	.140	.13	.005	.48
Conversion ratio	.217	.04	.072	.28
Conversion rating	.167	.09	.087	.47

The relationship between conversion, sex of subject, and causal attribution was assessed by use of two, two-way analyses of variance (conversion rating, sex of subject) with the two causal attribution scores the dependent variables and the MCSD Scale score as a covariate. The sample was divided into high, medium, and low groups as reported in the preceding section. The results are reported in Tables 10 and 11. There were no significant main effects indicating that causal attribution is not significantly related to conversion.

Table 10. Conversion rating and sex of subject differences on LCA1 with MCS as a covariate.

Source	SS	df	F-ratio	P
Covariate				
MCS	.176	1	.001	.97
Main Effects				
Conversion (A)	2.551	2	.756	.47
Sex (B)	.922	1	.001	.98
Interaction				
AB	9.515	2	2.822	.06
Residual	<u>102.856</u>	<u>61</u>		
Total	115.058	67		

Table 11. Conversion rating and sex of subject differences on LCA2 with MCS as a covariate.

Source	SS	df	F-ratio	P
Covariate				
MCS	1.515	1	.184	.67
Main Effects				
Conversion (A)	12.744	2	.744	.47
Sex (B)	4.453	1	.541	.46
Interaction				
AB	65.523	2	3.977	.02
Residual	<u>502.446</u>	<u>61</u>		
Total		67		

CHAPTER 4

DISCUSSION

Failure to Replicate the Trauma- Stren Conversion

One of the main aims of the present study was to replicate the general distributions of traumas, strens, and conversions that Finkel (1975a, 1975b) has reported. Of primary interest was the conversion event since conversion ability was viewed as a potential key to the process called "coping." The proportion of subjects reporting conversion ability (translating a traumatic event into a "strenful" event) was considerably greater in the current study than previously reported by Finkel. Eighty-five per cent (58/68) of the present sample converted traumas into strens as compared with 67% reported in previous studies (Finkel, 1975a, 1975b). Also, T-S events made up 35% of all events, whereas in previous reports they made up only 15% (Finkel, 1975b) and 26% (Finkel, 1975a). And, finally, in the present study 24% of events reported prior to age eight were conversions while all previous work by Finkel show less than 10% conversions reported before age eight.

These results, of course, warrant some explanation. An important factor in any replication attempt is an analysis of divergences between methodologies. There are

several divergences between the current study and Finkel's previous work. The current study used a trauma-stren booklet that was identical to Finkel's except that it included at the end of the instructions an additional reminder of eight points of instruction to consider while writing the report. A number of additional measures were included in the booklet, and additional information was collected in the interview via tape recording. However, the same procedure for interviewing as Finkel used was completed prior to taking additional measures. One would not expect the trauma-stren material to be affected by this aspect of the procedure.

It was recognized that the differences in personality, sex, and style of interviewer were a potentially distorting factor in the procedure of obtaining subjective, self-report data. In the present study no differences on any dependent measure were found to result as a function of the interviewer as determined by t tests. Nonetheless, since the process of interviewing is to some degree an unreportable and consequently somewhat unreplicable factor, differences between these interviews and Finkel's are possible.

Another concern was the composition of the samples used in the studies. First, this study differed from Finkel's sample in that the subjects were obtained from classes other than introductory psychology. Although

effects due to this difference were not directly comparable, several analyses indicate that important effects are unlikely. In the current work, conversion (any index) did not correlate with major (psychology versus nonpsychology) as tested by correlation coefficients. The samples differed in age (means: current study 21.8, Finkel 19.8 and 19.9 for college samples), but there is no reason to believe that this difference is of the magnitude to account for the divergent results since in the current study age did not correlate with any index of conversion.

Another noticeable difference in sample constitution is geographic location and type of college. Finkel's (1975a) college sample study was conducted in the east at a small, private, rather elite university with a strong religious affiliation while the present study was conducted at a large, western, state university. Although it is not clear why geographical location or type of school attended should necessarily have an influential effect, it is possible to speculate as follows: The reasons people go to college differ. Schools of different types attract students with different modus operandi. Chief among such differences may be greater or lesser levels of seriousness about life and self. Perhaps there is a skew in the general student population of a large, heterogeneous, land-grant college that would set it apart from the general population of a more academically oriented,

preprofessionally dominated school in the mid-Atlantic region of the country. In conjunction with this, since conversion ability has heretofore been theorized as a largely cognitive skill, a less structured and constricted orientation toward life might have more to do with conversion ability than an interactionist attribution style.

Two other possibilities for explaining the general lack of replication and construct validation have been posited by Marks (1976). She suggests on the basis of a close examination of trauma-stren booklet protocols, that the tripartite trauma, stren, and T-S conversion construct is suspect. She reports two irregularities. First, she found that subjects report that some life events are experienced as being simultaneously traumatic and "strenful." This is not a condition that results from reflective reinterpretations, but it is rather seen as inherent in the initially experienced event. Also, some events are reported as partial conversions, that is, either the event was seen as primarily a stren or a trauma but that it contained either a residual traumatic quality or had developed a somewhat "strenful" quality. Marks speculates that the original research schema is not sufficiently complex to validly capture the phenomena of interest.

Thus, although the present data do not support the null hypothesis of comparable trauma-stren conversion findings across investigators, samples and geographic

location, it is impossible to determine whether conversion is a meaningful construct differentiating individuals in terms of adjustment and coping abilities, or whether it is an artifact influenceable by different investigators and subject populations. Further research on the generality and validity of conversion is needed to clarify this question.

Trauma-Strain Conversion and Cognitive Style

The other main objective of this study was to examine the construct validity of the conversion phenomenon by establishing relationships between conversion ability and compatible mental characteristics of an integrating, differentiating verbal information processing style and an interactionist orientation toward causal attribution.

It was unclear which scoring interpretation of the Locus of Causal Attribution scale legitimately represented the most comprehensive and flexible, which is to say, truly interactive causal attribution style. Since the scale was developed primarily to differentiate strong person attributors from strong situation attributors, it may well be that it is an instrument ill-suited to measure attribution style based on reciprocal influence (interaction).

A problem in the attempt to establish cognitive correlates of conversion ability was the lack of sufficient numbers of non-converters to compare with converters. The

current sample yielded only 10 non-converters when roughly 22 (33% as predicted from Finkel's findings) were expected. Consequently the index of conversion ratio ($TS/TS+T$) was used as the basis for forming high, medium, and low groups. This index of conversion was significantly correlated with integration/differentiation and the LCAI. These results conflict with Finkel's original conceptualization where the main distinction between people was stated in terms of conversion being a dichotomous, either-or ability as opposed to being a continuously acquired skill. However, when subjects in this study were dichotomized along these lines, correlations between conversion status (either-or) and cognitive measures were not statistically significant.

It may well be that specific cognitive attributes underlying conversion ability are as yet unelucidated and therefore reliable measures of them have not been developed. Since previous findings have shown that any type of event can be converted, the ability to convert traumas into stressors seems to lie within the person and not in the events (Finkel, 1975b). At this point the ability to integrate and differentiate information can not be entirely ruled out as a facilitating skill to conversion, but until conversion can be measured more validly and reliably the search for the cognitive correlates seems premature. The next section discusses some possible improvements in conversion research.

Possible Revisions in the Conceptual Approach
to Conversion Research and the
Conversion Construct

Finkel's (1975b, p. 9) own misgivings about the difficulties in measuring subjective, memorial reports accompanies all of his articles, for example:

To close on a methodological note, the problems endemic to self-report research (e.g., forgetting, suppressing, repressing, impression management) and to using self-selected subjects (i.e., a non-representative group) in general haunt this study.

The exact nature of the difficulties in memorial self-reports has not been analyzed. However, some of the problems inherent in this kind of research can be clarified, and suggestions for counteracting them can be made.

First, an examination of the task itself reveals that (1) the trauma, stress, and conversion conceptual schema is imposed on subjects and (2) this schema is the retrieval code for the recollections produced. This paradigm may represent an entirely novel task to some subjects insofar as (1) they are generally non-reflective people, and/or (2) they are reflective in terms of much different retrieval codes. A major area missed entirely by investigators in the conversion area has been the consideration of important parameters influencing the memory process. Recent formulations of memory (Chandra, 1976; Berger and Luckman, 1966; Vromen, 1974) view it as a kind of goods-on-demand process where people in general are seen as remembering and reporting what they are asked to

remember and report. The ability to remember and report is shaped to differing levels of accuracy depending on how often it is done (practice) and how important it is to do it accurately. In line with these task considerations three recommendations for future conversion research are made: (1) a pretest measure for reflectiveness (possibly the repressor-sensitizer scale [Byrne, 1961]) should be used as a covariate or control in some way; (2) the time given to subjects for the recall of significant life events should be stretched out over several days and followed-up with a more thorough interview in order to facilitate a less cursory and situationally influenced memory effort; and (3) the effects of social desirability should be partialled out as was done in the current study.

Second, an examination of the retrieval code (trauma-stren instruction booklet) reveals that the life events reported should be defined by the subject as "significant." Finkel (1975b) has identified the conversion process as being one of post hoc reinterpretation or re-evaluation. His view implies that it is not the reality of the event, but the stand we take toward it, that determines its impact on us. It seems plausible that the events undergoing reinterpretation would change from one developmental level to another. Finkel (1975b) reports, for example, that his adult sample listed events having to do with death, harm, and illness more frequently than his

college age sample, who were more likely to list peer-related concerns. It might appear that this factor could be adequately controlled by making each cohort sample relatively homogeneous; but as Erikson (1968) has pointed out, development movement is only partially a function of age. A twenty-year old college student might as easily be concerned with issues of intimacy-versus-isolation as with identity-versus-identity-diffusion. These two potential subjects might interpret the word "significant" differently. In terms of cohort homogeneity it seems, then, a mistake to assume that age is the most heuristic dimension to consider. A homogeneous cohort sample could better be determined through an assessment of the subject's preoccupying developmental issues or levels of maturity.

A final issue is the flexibility of the conversion process. Is it, for example, labile enough to make a trauma-to-stren-to-trauma conversion a possibility (in light of shifting life situations)? It is true that no such phenomenon surfaced in the protocols, but it might be that if such a possibility were added to the retrieval code then some substantiation of it would follow. One indication of the lability of the reinterpretation of life events is the finding in the present study that 24% of all events prior to age eight were interpreted as conversions. Finkel's (1975a) view is that conversions take place within 4 months of the event, but it seems more likely that

conversions occurring before age eight happen considerably more than 4 months later. It may even be that a considerable number of conversions occur during the testing/reporting sessions themselves, particularly for non-reflective subjects. It would be interesting to have subjects report significant events without the trauma, stren, conversion schema and then see if raters can reliably categorize them.

Finally, it would seem that an important population for future conversion research would be the well-functioning elderly. This group would seem to provide some interesting additional opportunities because they would be (1) generally more reflective, since they have more to look back at than forward to; (2) less developmentally pre-occupied and cognitively less labile; and (3) a priori cohort homogeneous since, by and large, they are the survivors, hence the successful copers.

Conclusion

In conclusion, this study raises more questions than it answers. Whether the T-S conversion is a valid and reliable construct useful for discriminating among people in terms of specific coping abilities and capable of predicting adjustments to life's stresses, or such a generalized characteristic that it is not theoretically or predictively useful in understanding human coping behavior

remains to be determined. If conversion does indeed prove to be a reliable and valid construct, the questions of whether it can be quantified, whether it is reversible, (and under what conditions), and what its cognitive correlates are need to be explored. Clearly, the effects of developmental level and basic differences in memorial ability need to be investigated as well.

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