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Resilience, Metacognition and Complexity

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The present study is to investigate the relationship between resilience and certain cognitive variables. Resilience was assessed by using Resilience Scale for Adolescents (READ). The Attributional Complexity Scale purports to measure the complexity of the attributional schemata people used to explain human behavior. The scale assessed the individuals with reference to measured seven attributional constructs including a motivational component, preference for complex rather than simple explanations, metacognition concerning explanations, awareness of the extent to which people's behavior is a function of interaction with others, a tendency to infer abstract or causally complex internal attributions, a tendency to infer abstract, contemporary, external causal attributions, and a tendency to infer external causes operating from the past. The sample consisted of 114 high school students in the age group 15-16 years. Both male and female students were included in the study. Criterion groups on resilience were formed using the median scores of the distribution of scores of subjects on READ. Findings showed that among the aspects of attributional schemata investigated in this study, complex explanation and metacognition had significant effect on resilience. The highly resilient had higher preference for complex rather than simple explanations for explaining human behavior and used metacognition concerning explanations more than those who had low resilience.

To describe the children who were exposed to negative conditions of life and yet not succumbed to their ill effects Werner (1971; 1982) introduced the term resilience to psychological literature. Resilience is regarded the human capacity to face, overcome, and even be strengthened by experiences of adversity. It is developed from and nurtured by external supports and resources, inner personal strengths and, interpersonal social skills (Grotberg, 1995). As the positive capacity of individuals to cope with stress and catastrophe psychological resilience indicates characteristic resistance to future negative events. Resilience is analogous to cumulative protective factors and stands in contrast to cumulative risk factors.

Resilience connotes a dynamic process that people exhibit in positive behavioral adaptation when they encounter significant adversity or trauma (Luthar et al, 2000). As a two-dimensional construct it has reference to both exposure of adversity and positive adjustment outcomes of that adversity (Luthar and Cicchetti, 2000). Adversity is construed by any risks associated with negative life conditions that are statistically related to adjustment difficulties. Poverty, being children of schizophrenic mothers, and experiences of the terrorist attacks are a few of the negative life conditions that drastically challenge adjustment. Behavior reflecting social competence or success at meeting any particular tasks in spite of exposure to negative life conditions at a specific life stage construes positive adaptation.

Research on resilience received a philip from studies on children of schizophrenic

mothers (Masten, 1989; Masten et al, 1990).The research on resilience specifically focused on discovering the protective factors that explain people' s adaptation to adverse conditions including maltreatment (Cicchetti & Rogosch, 1997) catastrophic life events (Fredrickson et al, 2003) or urban poverty (Luthar, 1999). Attempts to appreciate the underlying protective process are also reported in literature.

In order to understand the world around them people constantly seek and create explanations for others' behavior. They perceive events and occurrences as having strong cause-effect relationship. In addition they tend to presume that the relationship can be understood in few brief moments. Occasionally one may contemplate others' actions for hours. The process of seeking causes to events as being helpful to predict or control the behavior of others.The process of 'attributing behavior ' involves seeking explanation, gaining understanding, making a meaningful prediction and eventual control of some phenomena (Heider 1958; Jones 1965; Kelley 1967). In reality we miss or skip parts of the model.

Research in recent times has focused on use of schemata in the individual (Fletcher, 1986). Schemata refer to general knowledge constructs that help one to streamline stimuli preference, information gathering, cognitive organization, and decision making. Individuals differ in the relative sophistication of their schemas for organizing and interpreting social stimuli. Attributional complexity (AC) is considered as a personality variable that refers to the extent that one prefers complex explanations of behavior . It is a construct designed to describe individual differences in the motivation and preference for complex attributions for behavior. It describes the degree to which an individual is interested in understanding the causes of other's behavior and considers many different possible causes (Fletcher et al., 1986).

Individuals with higher level of AC are theoretically more likely to consider dispositional factors, situational factors, and factors operating from the past (Fletcher et al., 1986). On the contrary, those with lower level of AC are theorized to be less likely to think about the causes of behavior or to consider multiple causes. Attributionally complex individuals are relatively less prone to errors and bias in social judgment and are more accurate in social judgment. This could be chiefly because when one is interested in understanding behavior, able to think about several possible causes of behavior, and given time to deeply process social information he is less given to errors and bias (Fletcher et al., 1990; Follett & Hess, 2002; Stalder & Baron, 1998).

Fletcher et al. (1986)' s Attributional Complexity Scale (ACS) reconciles these two views of attribution: It combines the view that attributional process proposes that people are cognitive misers who rely on simple heuristics when attributing the cause of other's behavior (Tversky & Kahneman , 1974) and another view that the attributional process is complex and that people generate and consider multiple causes (Ross & Fletcher, 1985).

The ACS views that individuals may vary in the extent to which their attributions are sophisticated. While some individuals are 'simpletons' some are 'experts' (Fletcher et al., 1986). ACS purports to measure the complexity of the attributional schemata that people use to explain human behavior.

Attributionally complex individual shows preference for thinking deeply about the causes of behavior . He/she is able to use complex to simple attributions depending on the restrictions of the situation. On the contrary attributionally simple individual is limited to elementary and uncomplicated explanations for behavior. High scorers on ACS are found to be socially astute because they are less prone to make a variety of classic attributional errors. Scores on the ACS have been found

to be related to a lesser propensity to error and greater accuracy in social judgment. Attributionally complex individuals are less likely to form erroneous group stereotypes in conditions where participants do not have to justify their impressions (Schaller , Boyd, Yohannes, & O'Brien, 1995).

High scorers on ACS spontaneously generate a larger number of causes for behavior, prefer complex rather than simple attributions, and take more time in processing difficult problems than their lower scoring counterparts (Fletcher et al., 1992; 1986). Severe depression is associated with reduced AC (Flett & Hewitt, 1990).AC has been shown to predict job performance among employed students (Townsend et al, 2006).

Studies correlating AC with self-reported personality characteristics show a mixed picture of the attributionally complex: some evidence suggests that they may have a positive reputation and behave in a socially skilled man and other evidence suggests that they may be socially detached and awkward. Individuals higher in AC are observed to be relatively open, positive, expressive, and socially skilled (Fast et al, 2007). AC was unrelated to academic achievement or SAT scores. Individuals higher in AC were described by peers as having social wisdom, thoughtfulness, empathy, and openness. AC has a near zero correlation with locus of control (Fletcher et al., 1986).

AC is associated with significant reductions in committing the fundamental attribution error (Blumberg & Silvera, 1998; Devine, 1989; Follett & Hess, 2002). Individuals high on AC follow attributional rules better than those low on AC. When given problems in which one needs to determine whether a behavior was caused by the person, circumstance, or stimulus, individuals higher in AC make more correct attributions. This trend is seen even when the problems increase in difficulty (Fletcher et al., 1992). With those high on AC having enhanced ability to follow attributional rules and reductions in error, they also show increased accuracy in social judgment as well.

Objectives:

The research question mooted in this study is "whether Attributional Complexity has significant effect on Resilience?"

The objective of the present study is to investigate the relationship resilience and the complexity of the attributional schemata that people use to explain human behavior.

Method

Sample:

The sample consists of 114 students studying in higher secondary classes. Both males and females were included. The age group ranged from 15 to 16 years.

Instruments:

The Attributional Complexity Scale (Fletcher, 1986) was used to measure the complexity of the attributional schemata that people use to explain human behavior was used to assess attributional variables. The scale measured seven attributional constructs. The subscales delineate the various ways in which one's attributions may be complex.The subscales focus on the degree to which an individual is motivated to understand behavior, prefers complex rather than simple explanations for behavior, thinks about his own thinking processes involved in attribution, is aware of the influence of interactions with others on behavior , tends to infer internal causes of behavior , tends to infer external causes of behavior, and tends to infer causes from the past to explain behavior (Fletcher et al., 1986). While the scores on the subscales can be combined into a total attributional complexity score (ACS), each subscale also can be treated as separate scales focusing on specific aspect of AC.

Resilience Scale for Adolescents (READ) was used to assess the resilience of the subjects (Friborg, 2005). Five factors of

resilience, namely, Personal Competence, Social Competence, Structured Style, Social Resources and Family Cohesion are assessed by this scale.

Results

The criterion groups on resilience were compared with regard to their various aspects of attributional complexity using one way analysis of variance. The various constructs of attributional complexity used in the analysis are motivational component, preference for complex rather than simple explanations, metacognition concerning explanations, awareness of the extent to which people's behavior is a function of interaction with others, a tendency to infer abstract or causally complex internal attributions, a tendency to infer abstract, contemporary, external causal attributions, and a tendency to infer external causes operating from the past. The mean for the scores of the criterion groups on attributional complexity are presented in Table 1.

Table 1 Mean for the scores of the criterion groups on attributional complexity.

Variable	Criterion Groups on Resilience	N	Mean	SD
Motivational Component	Low Resilience Group	57	-.18	5.90
	High Resilience Group	57	.98	5.65
	Total	114	.40	5.78
Complex Vs Simple explanation	Low Resilience Group	57	-1.21	4.56
	High Resilience Group	57	-3.19	3.93
	Total	114	-2.20	4.35
Metacognition	Low Resilience Group	57	4.02	5.04
	High Resilience Group	57	5.53	4.11
	Total	114	4.77	4.64
Awareness of Behavior as function of Interaction	Low Resilience Group	57	1.77	4.49
	High Resilience Group	57	2.04	4.94
	Total	114	1.90	4.70
Abstract Vs Concrete	Low Resilience Group	57	2.84	3.71
	High Resilience Group	57	3.60	3.99
	Total	114	3.22	3.85
External Causes	Low Resilience Group	57	2.98	4.00
	High Resilience Group	57	2.26	4.48
	Total	114	2.62	4.24
Past Causes	Low Resilience Group	57	2.95	4.65
	High Resilience Group	57	3.32	5.43
	Total	114	3.13	5.04
Total Attributional Complexity	Low Resilience Group	57	13.18	21.21
	High Resilience Group	57	14.53	19.13
	Total	114	13.85	20.12

The test of homogeneity of variance of the criterion groups on various aspects of attributional complexity was carried out.

The F-ratio relating to complex versus simple explanations {F = 6.18 at (1,112), $p<0.01$} and the F-ratio relating to metacognition {F= 3.07 at (1,112), $p<0.08$} are significant. As may be seen in the Table of Means (table 3.1), the high group on resilience are significantly lower on complex explanations and higher on metacognitions aspects of attributional complexity as compared to the high group on resilience.

The F-ratios relating to motivational component, awareness of behavior as function of interaction, abstract versus

concrete, external causal attributions, and past causes are not significant. The low group on resilience does not differ significantly from the high group on resilience with regard to motivational component, awareness of behavior as function of interaction, abstract versus concrete, external causal attributions, and past causes aspects of attributional complexity. Similarly, the criterion groups do not differ significantly from each other with regard to their overall score on attributional complexity.

Discussion

The findings show that the high and low resilient do not differ from each other with regard to certain aspects of attributional complexity like motivational component, awareness of behavior as function of interaction, abstract versus concrete, external causal attributions, and past causes in addition to showing similarity in their overall attributional complexity. However, certain aspects of attributional complexity seem to be significantly contributing to resilience: highly resilient seems to employ more complex explanations to behavior than simple explanations. They also employ more metacognition concerning causal attributions. Metacognition is a type of thinking that is oriented to the underlying framework of mental processes.

The findings imply that attributional complexity is a complex variable and perhaps, only a few aspects of it significantly effect on resilience. Individuals high on resilience prefer more simple attributions rather than complex ones. Perhaps, the resilient individuals are satisfied with a straight-forward explanation to others' behavior than being skeptic in comprehending the causes behind others' behaviors. Similarly individuals high on resilience are found to use more of metacognitions in explaining behaviors. They have a higher need to use metacognitive thinking to resolve the varying cognitive elements involved in an issue. High resilience group has greater need for understanding than that of the low resilience group (Annalakshmi, 2008). Perhaps being oriented towards understanding one's thought process helps an individual to avoid attributional errors and bias. This eventually leads to enhanced judgment which helps one to stay alert to available resources. Being aware of resources available to him may induce optimism in the individual and hence helps him to bounce back during times of trouble.

The highly resilient and less resilient do not differ with regard to the level of interest in attributions, understanding that ones behavior is a product of dealings with other people, frequent use of abstract internal attributions and abstract external attributions, external causes operating from the past. Motivational component related to attributions did not influence resilience. Resilience could be seen as predominantly a personality variable with motivation playing a less significant role. The highly resilient and the less resilient did not differ from each other with regard to using abstract attributions, be it internal attributions or external attributions. Earlier studies have shown that resilience is linked with higher level abstract thinking (Bernard, 1997). This relationship, however, is not reflected in the present findings. This is intriguing. More studies may be needed to clarify this deviation of the present finding from the trend of results already reported.

As far as the present findings are concerned, constructs like understanding that ones behavior is a product of dealings with other people, abstract external attributions and external causes operating from the past are not found to be differentiating the highly resilient from the less resilient.

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