

An Actively Caring Model for Occupational Safety: A Field Test¹

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Abstract

Actively caring refers to individuals caring enough about the health and safety of others to act accordingly. Actively caring behavior in an industrial context can take the form of continually looking for environmental hazards and unsafe work practices and implementing appropriate corrective actions when unsafe conditions or behaviors are observed. Individuals presumed most likely to actively care are those high in self-esteem (i.e., feel valuable), optimism (i.e., feel they can make a difference), and group belongingness or cohesiveness (e.g., feel close to members of their work group). In order to test the actively caring model, this study assessed the relationship between self-esteem, group cohesion, and optimism with employees' self reports of willingness to actively care. In addition to self report data, we assessed the occurrence of certain actively caring behaviors in the work setting. Specifically, actively caring was measured by counting the number of "actively caring thank you cards" given or received for actively caring behaviors. Self-esteem, group cohesion, and optimism scores predicted significant and independent variance in self reports to actively care. Furthermore, those workers who either gave or received thank you cards scored significantly higher on measures of self-esteem and group cohesiveness than those workers who did not give or receive thank you cards. Implications for future research and application of the actively caring concept are discussed.

Introduction

Safety equipment is often uncomfortable to use and safe operating procedures are often inconvenient and time consuming to follow. Furthermore, management often gives mixed signals to employees concerning safety issues. On the one hand, employees are told not to work unsafely, but to perform more, faster, or better, and this often entails risky behavior. In addition, the chances of an employee being involved in an accident is relatively low. On average, only about four employees in 100 are involved in lost work time accidents per year (National Safety Council, 1991). Therefore, when workers fail to use safety equipment or don't follow safety procedures they are often rewarded by increased comfort, convenience, or speed of work without experiencing any aversive consequences. In other words, rewards for working unsafely are often soon and probable, whereas the penalties for working unsafely are usually delayed and improbable.

One way to increase the supportive consequences for safe behaviors and the aversive consequences for unsafe behaviors would be for management to make rewards contingent on following safe work practices and penalties contingent on unsafe work behaviors. However, managers are often absent when dangerous work is accomplished. Although managers and supervisors make rounds to check on employees, they are typically in an office during a large percentage of the work day.

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Actually, in most work situations, a person's coworkers are the ones most likely to be present when a work process warrants certain safety precautions.

Some employees work safely because of mandates (or policy directives) from management, but other individuals require more intrusive interventions to motivate their compliance with safety rules. After some individuals achieve the desired behaviors, it would be useful to enlist them as intervention agents to influence the behavior of others (Geller, 1992; Geller et al. 1990). In other words, instead of "preaching to the choir", the choir should be sent out to enroll converts. In fact, Roberts & Geller (1993) recently found a direct relationship between the number of intervention agents and the impact of intervention programs designed to increase the use of vehicle safety belts.

From a brainstorming session with safety leaders at Exxon Chemical Company, Geller (1991) coined the term "actively caring" to refer to an ultimate goal in occupational safety, namely that employees care enough about the safety of their coworkers to act accordingly. In other words, employees actively caring for safety would continually look for environmental hazards and unsafe work practices and implement appropriate corrective actions when unsafe conditions or behaviors are observed. Geller (1991) hypothesized that three individual difference factors increase the propensity for an employee to "actively care" (AC) for the safety or health of a coworker. Individuals presumed most likely to AC are those high in self-esteem (i.e., feel valuable), optimism (i.e., feel they can make a difference), and group belongingness or cohesiveness (e.g., feel close to members of their work group).

Empirical Support for the Actively Caring Model

Self Esteem. Coopersmith (1967) defined self-esteem as the evaluation an individual makes and usually maintains about oneself. This self evaluation process indicates the extent to which the individual feels capable, significant, successful, and worthy. Michilini, Wilson, and Messe (1975) and Wilson (1976) measured subjects' self-esteem with a sentence completion test and then measured whether subjects helped another individual in a bystander intervention paradigm (Darley & Latane, 1968). High self-esteem subjects were significantly more likely than low self-esteem subjects to help another person pick up dropped books (Michilini et al., 1975) and to leave an experimental room to assist a person in another room who screamed he had broken his foot following a mock "explosion" (Wilson, 1976). Similarly, subjects with higher self-esteem scores were more likely to help a stranger (i.e., a confederate) by taking his place in an experiment where they would presumably receive electric shocks (Batson, Bolen, Cross, & Newinger-Benefiel, 1986).

Optimism. Optimism is the learned expectation that life events, including personal actions, will turn out well (Scheier & Carver, 1985; Seligman, 1991). Researchers have manipulated optimistic states (or moods) among individuals by giving them unexpected rewards or positive feedback and then observing the occurrence vs. nonoccurrence of AC

behaviors. Isen and Levin (1972) showed that individuals finding a dime in the coin return slot of a public phone (placed there by researchers) were more likely to help a confederate who dropped a folder of papers than were individuals who did not find a dime. Similarly, students given a cookie while studying at the university library were more likely than those not given a cookie to agree to help another student by participating in a psychology experiment.

Isen, Clark, and Schwartz (1976) delivered free samples of stationery to people's homes and then called them later to request an AC behavior. Specifically, the caller said he had dialed a wrong number but since he had used his last dime, he needed the subject to call a garage to tow his car. Subjects who had received the gifts of stationery were more likely to make the AC phone call than were subjects who had received no gift.

Carlson, Charlin, and Miller (1988) reviewed these and other studies that showed direct relationships between mood (or optimism) and AC behavior. They reported that the following pleasant experiences increased AC (i.e., helping) behavior, purportedly by inducing a positive mood (or optimistic outlook): finding a dime, receiving a packet of stationery, listening to soothing music, being on a winning football team, imagining a vacation in Hawaii, and being labeled a charitable person.

Group Belonging /Cohesion. The social psychological construct most analogous to the AC concept of belongingness is group cohesion- - the sum of positive and negative forces attracting group members to each other (Wheless, Wheeler, & Dickson-Markman, 1982). Staub (1978) reviewed studies which showed that people were more likely to help victims who belonged to a relevant group, with "group" determined by race, nationality, or an arbitrary distinction defined by preference of an artist's paintings. Similarly, Batson et al. (1986) found subjects more likely to help a confederate if they rated her as similar to them.

In a bystander intervention study, pairs of friends intervened faster to help a female experimenter who had fallen from a chair than did pairs of strangers. Thus, with friends as subjects, the bystander intervention effect (i.e., an inverse relationship between group size and victim-helping behavior) may not occur because group cohesiveness (or belongingness) counteracts the diffusion of responsibility that presumably accounts for the bystander intervention effect (Latane & Nida, 1981). In a similar vein, Rutkowski, Gruder, and Romer (1983) manipulated group cohesion experimentally in groups of two and four and found the most AC behavior among subjects in the high-cohesion conditions.

In a retrospective study, Blake (1978) studied real-world relationships between group cohesion and the ultimate in AC behavior- - altruistic suicide. His data was gathered from official records of Medal of Honor awards given during World War II and Vietnam. The independent variable was the cohesiveness of combat units (estimated by group training and size) and the dependent variable was percentage of "grenade acts"- - voluntarily using one's body to shield others from exploding devices. Results revealed that the smaller, more elite, specially trained combat units (e.g., the Marine Corps, and Army

airborne units) accounted for a substantially larger percentage of "grenade acts" than larger, less specialized units (e.g., Army non-airborne units), thus supporting the hypothesis that group cohesion increases AC behavior.

The helping behaviors previously discussed are somewhat different than AC described by Geller (1991). The previously discussed helping behaviors usually occurred as a reaction to an accident which has already happened (e.g., falling off a ladder, explosion) or to an event that will inevitably lead to serious injury (e.g., the introduction of a live grenade). The AC behaviors most relevant to occupational safety, and proposed by Geller (1991), help people avoid an accident that is only possible, even unlikely in any given situation.

In order to test the AC model, this study assessed the relationship between self-esteem, group cohesion, and optimism with employees' self reports of willingness to AC. In addition to self report data, we assessed the occurrence of certain AC behaviors in the work setting. Specifically, AC was measured by counting the number of "actively caring thank you cards" given or received for AC behaviors, defined generally as 1) recognizing and correcting an unsafe condition, 2) reminding a coworker not to perform an unsafe act, 3) removing or cleaning unsafe objects or debris from a work area, 4) giving positive feedback to a coworker for working safely, 5) reporting a near miss, and 6) making a task safer.

Method

Subjects

The subjects were 65 hourly workers from one department of one division of a large fiber-manufacturing plant located in a rural section of southwestern Virginia. The subjects ranged in age from early twenties to sixties with an average job tenure of 18 years. The plant operates 24 hours per day, 365 days per year and employs approximately 2000 workers, most of whom are production workers. Most of the hourly workers in the plant (approximately 1800) belong to the local union which has been represented at the plant since it first opened.

Personality Measures

The personality measures were all in the format of a 5-point Likert Scale. The 10-item Self-Esteem Scale (Rosenberg, 1965) was used to measure self-esteem. The Self-Esteem Scale is an established personality measure with reliability estimates ranging from .70 to .90 (Levy & Baumgardner, 1991; Knight & Wadel, 1986). The 12-item Life Orientations Test (LOT) was used to measure optimism. Scheier and Carver (1985) reported an internal consistency coefficient of .76, and a test-retest coefficient of .79 for the LOT. They also reported acceptable convergent and divergent validity with a number of other personality measures. The 18-item Group Cohesion Measure was used to measure belongingness. Wheelless et al. (1982) reported this test to have a split-half reliability coefficient of .90. This measure was modified slightly in order to fit the industrial

worker population. For example, the words "work group" was substituted for "group" in each item.

Actively Caring

Three questions used to measure willingness to AC were embedded within a test battery containing the personality measures and items regarding management response to various safety issues, adequacy of safety training, and attitudes toward other safety related issues. The AC questions were: 1) If I know a coworker is going to do a hazardous job, I am willing to remind him/her of the hazards (even if the employee is familiar with the job), 2) I am willing to warn my peers about working unsafely, and 3) I am willing to do whatever I can to improve safety, even confronting my peers about their unsafe acts. The responses to these questions, measured on a 5-point Likert scale, were added to attain an AC score¹.

Procedure

The subjects were given the test battery by their supervisors, and told the questionnaire was a measure of the "safety climate" within their department, and their answers would be anonymous. However, a special code known only to respondents was used to match the surveys with information taken at a later date. Specifically, a code was formed by employees writing the first letter of the city where they were born, the first letter of their mother's maiden name, and the number of the month when they were born. This process yielded a separate two-letter, one-number code for each employee.

Thank You Cards

During a departmental meeting, area superintendents introduced the concept of AC with the hourly workers. Examples of AC behaviors were discussed, as well as the need to increase AC behaviors. At the end of the meeting subjects were given five actively caring thank you cards (as depicted in Figure 1). The employees were told to give the cards to their coworkers whenever they saw an example of AC behavior for safety. If they ran out of cards, they could obtain more from their supervisors. The thank you cards included examples of AC behaviors and an area to record an anonymous code for the observer and the card recipient as described above for the Safety Climate Questionnaire. This made it possible to match individual questionnaire results with the number of cards given and received. On the bottom of the cards was a perforated stub that could be torn off and redeemed (by the recipient of the card) for food in the company cafeteria (value 55¢). These stubs also included a space for the observer and recipient to write their names in order for management to check for abuses in the system (e.g., to make sure two friends did not always give cards to each other).

Front

C.C. Manufacturing
Thank You for ACTIVELY CARING

Date: _____

Please describe specifically the observed **ACTIVELY CARING** behavior: (see back for examples)

Observer's Code:
The first letter of the city where you work: _____
The first letter of your mother's maiden name: _____
The number of the month you were born: _____

Recipient's Code:
The first letter of the city where you work: _____
The first letter of your mother's maiden name: _____
The number of the month you were born: _____

¢ **Thank You** Limit 55 ¢

Observer's Name: _____

Recipient's Name: _____

Back

Examples of ACTIVELY CARING Behaviors:

- Recognizing and correcting an unsafe condition.
- Reminding a coworker not to perform an unsafe act.
- Removing or clearing unsafe objects or debris from a work area.
- Giving positive feedback to a coworker for working safely.
- Reporting a near miss.
- Making a task safer.
- Other

Hoechst Celanese

Blaine George Dave Salyer
Tom Tillman Jim Woods

Department 1600

Results

Survey Findings. Relationships between self-esteem, group cohesion, optimism and self reports of willingness to actively care (AC) were tested using a stepwise multiple regression procedure. For this analysis all workers who completed the questionnaire (n=31) were included, even if they did not complete the identifying code (n=6). To test whether each personality factor accounted for unique variance in AC scores, each personality factor was entered separately as the last step of the multiple regression. As shown in Table 1, the partial correlation for optimism (1) with AC (2) with the effects of belonging (3) and self-esteem (4) partialled out was significant, $r_{12.34} = .354, p < .05$; the partial correlation for self-esteem with AC with the effects of group cohesion and optimism partialled out was significant, $r_{42.13} = .361, p < .05$; and the partial correlation for group cohesion with AC with the effects of optimism and self-esteem partialled out was significant, $r_{23.14} = .441, p < .05$. The terminal multiple regression model including group cohesion, self-esteem, and optimism accounted for a significant amount of variation in AC, $R^2 = .362$.

Variables	Partial R.	Model R	R ²	F to Enter
Group Cohesion and Self-Esteem Forced First				
Group Cohesion + Self-Esteem		.520	.271	
Optimism	.354	.601	.362	3.856 *
Group Cohesion and Optimism Forced First				
Group Cohesion + Optimism		.516	.266	
Self-Esteem	.361	.601	.362	4.034 *
Optimism and Self-Esteem Forced First				
Optimism + Self-Esteem		.456	.208	
Group Cohesion	.354	.601	.362	6.520 *

Table 1. Multiple Stepwise Regression Analysis with Group Cohesion, Self-Esteem, and Optimism Each Entered as the Last Step and the Celco Actively Caring Sub-scale Score as the Dependent

Thank You Card Findings

Eight different workers gave 23 thank you cards to 15 different employees. However, only six of these cards from four different workers had codes which matched the codes from the Safety Climate Survey. Nevertheless, the hypothesis that workers who gave or received actively caring thank you cards will score higher on the self-esteem, group cohesion, and optimism scales was partially supported. In order to assure the comparison group did not include any questionnaires from workers who gave or received thank you cards, the analysis of the thank you card data only included those questionnaires which included an identifying code (N=25). Independent t-tests were used to compare the four participants in the thank you card program with the 21 employees who did not participate.

As can be seen in Table 2, the one-tailed independent t-tests indicated the self-esteem scores for the four workers who either gave or received thank you cards (M=34.75, SD=3.77) was significantly higher than the self-esteem scores of those who did not give or receive thank you cards (M=30.85, SD=4.25), $t(23)=1.71$, $p=.05$; and the group cohesiveness scores for those workers who either gave or received thank you cards (M=70.25, SD=8.45) were significantly higher than those workers who did not give or receive thank you cards (M=54.19, SD=15.54), $t(23)=1.99$, $p=.029$. However, no significant difference in optimism scores was found between the participants (M=21.25, SD=1.26) and nonparticipants (M=20.71, SD=1.55), $t(23)=.65$, $p=.262$.

Scale	Mean	SD	t-Score	
Group Cohesion (G/R)	70.25	8.54	1.99	*
Group Cohesion (NG/NR)	54.19	15.54		
Self-Esteem (G/R)	34.75	3.77	1.71	*
Self-Esteem (NG/NR)	30.85	4.25		
Optimism (G/R)	21.25	1.26	.65	
Optimism (NG/NR)	20.71	1.55		

Table 2. Means, Standard Deviations, and One Tailed t-Scores for Group Cohesion, Self-Esteem, and Optimism Measures of Workers Who Gave or Received (G/R) "Actively Caring Thank You Cards" (N=4) and Workers Who Did Not Give or Receive (NG/NR) "Actively Caring Thank You Cards" (N=21). * $p < .05$

Discussion

Self-esteem, group cohesion, and optimism scores predicted significant and independent variance in AC, thereby supporting the AC model proposed by Geller (1991). Furthermore, those workers who either gave or received thank you cards scored significantly higher on measures of self-esteem and group cohesiveness than those workers who did not give or receive thank you cards.

These results are promising given the small sample size and the small number of individuals from whom both thank you cards and questionnaire data were available. However, a problem with this study was the few number of items to measure AC behaviors. Another problem with this study was that 17 thank you cards (from 4 different people) were returned without codes to match the codes on the survey. Therefore, these people could not be used in the thank you card analysis. However, even if the additional four people who turned in thank you cards could have been identified, the overall number of cards exchanged was well below what was expected.

Although relatively few people completed the AC thank you cards, a great deal was learned from this first attempt at a novel intervention to increase employee involvement regarding industrial safety. Two of the major reasons given for the low rate of card exchange, as discussed at follow-up meetings with the experimental group were embarrassment and inconvenience. Potential solutions to these problems were suggested by some of the workers. One suggestion was to be able to give the cards indirectly. For example, the cards could be placed in a sealed box on the operating floor where they could be collected later by a supervisor. A supervisor or other leader could then individually recognize each employee who exhibited the AC behavior or publicly post the names of those caught actively caring on a feedback board. Another suggestion was to have the cards available on the operating floor instead of being kept by the supervisors. In this way, those employees uncomfortable about interacting with their supervisors

would be more likely to acquire the cards. It is possible, however, that these conveniences could decrease the predictive utility of the AC scale.

Furthermore, it was learned that a 55¢ food item in the cafeteria was not perceived as very valuable, and that it may have actually diminished the intrinsic value of looking out for the safety of a coworker. As an alternative method for allocating the same rewards, it was suggested that each time a card was given, 50¢ be credited to a departmental "good-will fund", which could be spent by the employees as they saw fit. A popular suggestion was to donate the pool of money to a charity, decided on by those employees who gave or received the most cards.

Although person factors (such as knowledge, intelligence, personality, motives, attitudes) are not objectively measurable nor directly controllable, they certainly influence acceptance of changes in the environment and in safe operating procedures. Indeed, Skinner (1971) wrote of the indirect person effects (i.e., perceptions of "freedom") resulting from different behavior change contingencies (i.e., positive vs. negative reinforcement). Differential perceptions of self-esteem, ownership, teamwork, commitment, empowerment, and optimism can result from objective manipulations to environments, behaviors, and environment-behavior contingencies. For example, to help employees achieve a "total safety culture," we teach employees that the individual difference (or person) factors represented in the AC model are states or expectancies (not traits) which influence one's propensity to get involved in a safety process to benefit other employees, and these person factors can be influenced by environmental and behavioral manipulations (e.g., Geller & Roberts, 1993; Geller, Gilmore, & Roberts, 1992). Indeed, a critical group exercise involves the listing of specific situations and incidents in the employees' particular work setting that increase (or facilitate) and decrease (or inhibit) the relevant person characteristics related to AC behavior.

Variables consistently listed as determinants of self-esteem include communication strategies, reinforcement and punishment contingencies, and leadership styles, and our discussions have led to a number of suggestions for building self-esteem, including a) soliciting and following up employee suggestions, b) providing opportunities for personal learning and peer mentoring, c) increasing management and peer attention to the occurrence of safe behaviors as well as unsafe behaviors, and d) increasing recognition of personal competence and accomplishments. Common suggestions for increasing a sense of group cohesion among employees in a corporate culture have included decreasing the frequency of top-down directives and "quick-fix" programs obtained from other facilities, and increasing team-building discussions, group goal-setting and feedback, group celebrations for both process and outcome achievements, and the use of self-managed (or self-directed) work teams (cf. Geller, 1991).

Suggestions for increasing a sense of optimism have included a) breaking down overwhelming tasks into discrete smaller ones that are more easily managed (e.g., continuously monitored in terms of behaviors and/or outcomes), b) setting short-term goals and tracking their accomplishments, c) offering frequent rewarding and correcting feedback for process activities (e.g., safe work practices, actively caring intervention for

safety) rather than only for outcomes (e.g., number of injuries or lost work days), d) providing opportunities for employees to set their own goals, e) teaching coworkers to record and chart "small wins" (Weick, 1984), f) teaching employees to define, observe, and record desired (e.g., safe) and undesired (e.g., unsafe) environments and behaviors, and giving them opportunities (i.e., time and resources) to conduct environmental and behavioral audits, g) teaching employees basic behavior change and behavior support strategies (e.g., feedback and recognition), and providing them time and resources to implement and evaluate the impact of their corrective and supportive actions.

Many of the above techniques are commonly used as part of organizational behavior management interventions. This research further validates the appropriateness of such techniques and suggests ways of assessing the needs of a particular work group, ways of increasing employee involvement in industrial safety programs, and ways of evaluating these programs. Future research in this area should focus on whether interventions that increase relevant personality characteristics lead to increases in AC behaviors, and whether increases in AC behaviors lead to reduced occupational injuries.

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