Causal Attributions for Industrial Accidents:

A Culture-Comparative Analysis

Seth Ayim Gyekye

Department of Social Psychology,
University of Helsinki, Finland

Abstract

Theory and research on causal attribution have primarily focused on Western population samples. Given the important cultural differences that have been noted between Western (individualistic) and Eastern (collectivistic) cultures, l undertook a cross-cultural comparative analysis of causality attributions related to serious accidents between Ghanaian and Finnish industrial workers. The data comprised 529 participants: 73 victims, 65 witnesses, and 71 supervisors from Finland, and 121 victims, 117 witnesses, and 82 supervisors from Ghana. Consistent with my predictions, l found the Ghanaian participants to be more contextual in their causality attributions. Compared to their Finnish counterparts, they externalised their faults and work failures and were rather defensive in their explanations. The discussion is focused on the cultural, cognitive and motivational factors for the divergence causality assignment.

Key Words: Self-defensive attribution, individualism-collectivism, cross-cultural, self-esteem, self-esteem enhancement.

1. INTRODUCTION

Attribution theory basically suggests that people generally make causal attributions for their own and other peoples' behaviour to facilitate understanding and to shape future behaviour. They do this by assessing the *co-variation* between the *cause and effect* variables (Heider, 1958; Kelley, 1973). The importance of causal attributions in both social psychology and safety literature is well documented. In the social psychology literature, the attribution model is considered as one of the most appropriate analytical tools for exploratory and descriptive studies (e.g. Kenworthy & Miller, 2003; Weiner, 1986; Wong, 2000), and has been employed extensively in work environment studies (e.g. Gyekye, 2001, 2003; Gyekye & Salminen, 2004;Martinko, 1995; Weiner & Allred, 1998). For example, in workplace settings, attributional analyses have been used to predict behaviour in hazardous work environments (Hofmann & Stetzer, 1996) and have served as explanatory frameworks for management's decisions to reprimand and or terminate employees (Ashkanasy, 1995; Mitchell & Wood, 1980; Struthers et al., 1992). Additionally, they have provided models for the analysis of behaviour in the face of danger (Hale & Glendon, 1987), as well as models for ergonomic perception of workplace accidents (Woodcock, 1991). From such causal analyses, measures to curtail future accident recurrence have been effectively implemented. Thus, results from these causal analyses have led industrial safety experts (e.g. DeJoy, 1987, 1994; Hofmann & Stetzer, 1996, 1998) to conclude that safety management policies derive more from causal attribution analyses than anything else.

An impressive work on causal attributions has already been done in the work environment, but few has examined this from a cross cultural perspective (e.g. Gyekye, 2001; Gyekye & Salminen, 2005a). The constitutive role that culture plays in the attribution process (Hofstede, 1980; Duda & Allison, 1989; Miller, 1999) and its subsequent impact on accident analyses and safety interventions has therefore been ignored. The present investigation was designed to fill in this gap. The main aim of the study was to identify cultural differences as possible constitutive factors in accident causation, responsibility assignment, and responsibility acceptance between Finnish and Ghanaian industrial workers. The analyses were carried out within the frameworks of Hofstede's (1980) individualism-collectivism cultural dimension and Markus & Kitayama's (1991) self-construals.

1.1 The impact of culture on causal attributions and self-construals

In his landmark study, Hofstede (1980) recognized seven *culture zones*: Nordic, Anglo, Germanic, Near Eastern, less developed Africa, developed Asian, and less developed Latin America. Finland and Ghana represent, respectively, the Nordic and less developed Africa clusters of nations that contrast on most of the characteristics across the clusters. Hofstede has classified most Western European countries, including Finland, to be individualistic cultures in which personal identity, autonomy, individual initiatives, independence, and the right to privacy are upheld against group domination and group goals. In contrast, the collective-oriented cultures of Asian, African and Latin American societies stress social identity, group solidarity, and a general orientation towards group goals. Research by Sarpong (1974) and Osei (1998) have identified central values and traits that support Hofstede's (1980) characterisation of the Ghanaian culture as collectivistic. Smooth interpersonal relations, a high sense of belongingness, interdependence and in-group harmony, all hallmarks of collectivistic cultures (Triandis, 1995), are extremely important in the Ghanaian life-style.

Regarding the constitutive role that culture plays in the attribution process, a remarkable collection of cross-cultural research (e.g. Menon, Morris, Chui, & Hong, 1999; Choi, Nisbett, & Norenzayan, 1999; Peng & Nisbett, 1997; Ybarra & Stephen, 1999) has consistently supported the trend that while individualists tend to offer dispositional attributions, collectivists tend to offer situational or contextual causal attributions. For example, in news articles that described similar crimes (Peng & Nisbett, 1997) and sporting events (Hallahan, Lee, & Herzog, 1997), American (individualists) journalists' explanations had been more dispositional, whereas those of their Chinese (collectivists) counterparts had been more contextual. In a crime study Choi et al. (1999) noted that while their Korean students (collectivists) cited more situational influences as responsible for the murderer's behaviour, American students (individualists) ascribed dispositional characteristics to the murderer.

Markus & Kitayama (1991) have conceptualised self-construals to be of *independent* and *interdependent* types, found in individualistic and collectivistic cultures, respectively. According to these self-theorists, the cultural ideal of the independent self is to be separate and distinctive from others. High preference for personal values, an inclination to emphasise internal attributes, thoughts and feelings, are thus important features of the independent self-oriented person. Consequently, explanations and actions that highlight one's uniqueness and autonomy serve as a means of enhancing one's self-esteem and self-evaluation (Markus & Kitayama, 1991, 1994; Tafarodi & Walters, 1999). By contrast, the self in collectivistic cultures is defined primarily in terms of relationships, affiliations and conformity. Much emphasis is therefore placed on interpersonal harmony, belongingness, and a strong willingness to sacrifice personal goals for the good of the collective. Harmonious interpersonal relationships and successful adherence to social norms are therefore more important as goals and sources of self-esteem (Kwan, Bond, & Singelis, 1997). By virtue of their individualistic and collectivistic cultural orientations, Finns and Ghanaians, respectively, relate to the self-independent and self-interdependent construals.

This typical dispositional-contextual attribution findings coupled with the contrasting self-construals imply that Finns and Ghanaians analyse differently. Because of their individualistic orientation, Finns, are likely to spontaneously focus on traits and dispositional meanings in their attribution of accident responsibility. On the contrary, Ghanaians, who because of their collectivistic and interdependent-self orientation, tend to be predisposed to see causality as a contextual attribute are likely to focus on situational and contextual meanings in their attribution for accident responsibility.

1.2 Hypotheses

Based on the literature on attributional analyses and the above review, the following hypotheses were formulated:

H1a: l expect the Finnish industrial workers to internalise accident causality and accept more personal responsibility for the accident occurrence.

H1b: On the contrary, l expect the Ghanaian industrial workers to externalise accident causality and deny personal responsibility for the accident occurrence.

2. METHODOLOGY

2.1 Participants

The current study is part of a larger explorative study that examined causality and responsibility attributions for industrial accidents between Ghanaian industrial workers and their Finnish counterparts (Gyekye, 2001). The participants were actual victims involved in workplace accidents, co-workers who were witnesses to the accident occurrence and their supervisors. The Ghanaian participants comprised 320 industrial workers from mines and factories. Their average age was as follows: accident victims 37 years (sd = 9.71), witnesses (co-workers) 35 years (sd = 8.22), and supervisors 44 years (sd = 6.80). All of the accident victims and supervisors were males, whereas 14% of the co-workers were women. The Finnish participants comprised of 73 victims, 65 co-workers, and 71 supervisors from factories. The average age of the accident victims was 49 years (sd = 11.48), that of the co-workers and supervisors was not known. 16% of the victims, 14% of the co-workers, and 5% of the supervisors were women (Salminen, 1997).

2.1 Instrumentation

A questionnaire developed by Salminen (1997) was employed. The original version was translated into English by linguists from the University of Helsinki. To ensure content validity and preservation of the meaning of the original Finnish version, standard back-translation techniques were used (Brislin, 1980) and verified by Salminen. The original and the back-translated versions were virtually identical. The internal coherence and reliability for the External and Internal Causal Scales was tested with Cronbach's alpha coefficient. Coefficients of .45 and .51 were obtained for the Finnish and Ghanaian scales.

2.2 Procedure

The presentation of the interview was such that the respondents felt reasonably comfortable about expressing personal beliefs (religious and otherwise), values and work experiences. The duration varied from 15 to 20 minutes, depending on the context in which they were conducted, and on respondents' level of education. The questionnaire interview was presented in English language. Where respondents were illiterates or semi-illiterates and had problems understanding English language, the services of an interpreter was sought and the local dialect was used. The supervisors were educationally sound and filled in the questionnaire on their own. To ensure accuracy of responses, it was emphasized that the study was part of an academic work and that no person affiliated with their organisation was involved in any way. Participants were also assured that all responses were completely confidential and that their organisations/management would have no access to any information provided. To assure the crucial accident severity dimension that is needed in the analyses of causal and defensive attributions (Kouabenan, Gilibert, Medina, & Bouzon, 2001; Shaver, 1970), all reported cases were classified as serious by the safety inspection authorities of both countries.

2. 3 Data Analysis

Participants' views on the accident process, causation and responsibility were of prime importance. Thus, questions concerning Accident Related-Variables which were meant to solicit causality and responsibility attributions regarding accident causality from the two cultures were analysed. The participants from the two cultures answered either "Yes" or "No", and gave reasons for their answers. The chi-square (c ^{2}) test was employed to examine the statistical significance of the differences in the causal and responsibility attributions between the subgroups and the two cultures.

3. RESULTS

Results of the three main subgroups (accident victims, co-workers and supervisors) are provided below, beginning with that of the accident victims.

3.1 Accident Victims' Perspective

Three statistically significant differences were noted between the Finnish and their Ghanaian counterparts regarding attributions on the variables associated with the accident process,

TABLE 1

Victims' Responses on Variables Associated with the Accident Occurrence

===

Variable	Finnish (%) (n=73)	Ghanaians (%) (n=121)	*p>*
Considered the work as dangerous	56	64	n.s
Possibility of doing things another way	60	41	*
Perception of hazard unfolding	24	37	n.s
Adequate warning signals & signs	66	56	n.s
Previous accidents	22	65	***
Followed company's safety policy	88	97	*

* = p < .05, ** = p < .01, *** = p < .001

Regarding ways of handling situations at work, the Finnish victims mentioned significantly more often than their Ghanaian counterparts that they had *alternative ways of handling job situations* ($c^2 = 6.38$, df = 1, $p<0.05$). The Finnish accident victims accepted responsibility for the accident occurrence, as the majority (60%) felt that the accident could have been avoided if they acted in some other way. On the other hand, fewer Ghanaian victims (41%) saw alternative ways of avoiding the accident. When accidents that had occurred in similar instances on *previous occasions* were scrutinised, a highly significant difference was noted ($c^2 = 30.48$, df = 1, $p<0.001$). Over two-thirds of the Ghanaian victims (65%), but less than a quarter of the Finnish victims (22%) reported a previous accident occurrence under similar circumstances. Responses on *compliance with the company's safety policy* indicated differences of statistical significance ($c^2 = 5.92$, df = 1, $p<0.05$). 12% of the Finnish victims mentioned non-compliance with their company's safety rules as the causal factor in the accident occurrence, while only 3% of the Ghanaian victims felt this way. A greater percentage of the Finnish accident victims than their Ghanaian counterparts thus accepted responsibility for the accident occurrence. There were no significant differences on the following: *considered work as dangerous* ($c^2 = 1.10$, df = 1, n.s.), *perception of a hazard* ($c^2 = 3.74$, df = 1, n.s.), and *adequate warning signals* ($c^2 = 1.94$, df = 1, n.s.).

3.2 Co-workers' Perspective

The second set of analyses on co-workers' attributions revealed three highly statistically significant differences.

TABLE 2

Co-workers' Responses on Variables Associated with the Accident Occurrence

===

Variable	Finnish (%) (n=65)	Ghanaians (%) (n=117)	*p>*
Considered the work as dangerous	31	62	***

Possibility of doing things another way	69	36	***
Perception of hazard unfolding	32	39	n.s
Adequate warning signals & signs	72	60	n.s
Previous accidents	23	60	***
Followed company's safety policy	75	83	n.s

$* = p < .05, ** = p < .01, *** = p < .001$

The Ghanaian co-workers, more than their Finnish counterparts, sided with their work-mate's opinion regarding the danger inherent in the victim's job assignment ($c^2 = 17.79$, df = 1, $p < 0.001$). While two-thirds of them (62%) considered the victim's job assignment as dangerous, only a third (31%) of their Finnish counterparts felt that way.

The difference regarding *possibility of doing things another way* was highly significant ($c^2 = 19.09$, df = 1, $p < 0.001$). Two-thirds of the Finnish co-workers (69%), relative to a third of the Ghanaian (36%) counterparts felt the accident victims could have resorted to alternative means that could have avoided the accident occurrence. The difference regarding the rate of accident occurrence, *previous accidents* ($c^2 = 24.83$, df = 1, $p < 0.001$) was highly significant. Sixty percent of the Ghanaian co-workers had witnessed accidents in similar situations; meanwhile, less than a quarter of the Finnish co-workers (23%) had done so. There were no significant differences on items such as *perception of an imminent hazard* ($c^2 = 0.91$, df = 1, n.s.), *adequate warning signs and signals* ($c^2 = 3.01$, df = 1, n.s.), and *victims' compliance with the company's safety policy* ($c^2 = 1.48$, df = 1, n.s.).

3.3 Supervisors' Perspective

Four statistically significant differences were identified on the third set of analyses which involved supervisors' attributions.

TABLE 3

Supervisors' Responses on Variables Associated with the Accident Occurrence

==

Variable	Finnish (%) (n=71)	Ghanaians (%) (n=82)	*p>*
Considered the work as dangerous	52	49	n.s
Possibility of doing things another way	69	51	*
Perception of hazard unfolding	37	74	***
Adequate warning signals & signs	72	82	n.s
Previous accidents	23	63	***
Followed company's safety policy	72	42	***

$p < .05, ** = p < .01, *** = p < .001$

Regarding *possibility of doing things another way* ($c^2 = 5.03$, df = 1, $p < 0.05$) the Finnish supervisors (69%), felt more significantly than their Ghanaian counterparts (51%) that the accident victims could

have resorted to alternative work methods. While two-thirds of the Finnish supervisors brought out the victims' responsibility and implicated personal variables in the accident causation, only half of the Ghanaian supervisors did so. With regard to *perception of hazard unfolding* ($c^2 = 21.89$, df = 1, p<0.001), the Ghanaian supervisors (74%), felt more significantly than their Finnish counterparts (37%) that the victims should have realised the danger build-up, perceived the inherent hazard unfolding, and avoided the accident. Almost three-quarters of the Ghanaian supervisors, as compared to a third of their Finnish counterparts held the victims responsible for the accident occurrence.

Evaluations on *similar accidents in the previous years* was highly significant ($c^2=28.66$, df=1, p<0.001). Two-thirds (63%) of the Ghanaian supervisors and only a quarter (23%) of the Finnish supervisors reported accidents in similar situations in the previous years. Regarding accident victims' compliance with safety management policies *(compliance with the company's safety policy* ($c^2=14.71$, df=1, p<0.001). The Finnish supervisors (72%), more than their Ghanaian counterparts(42%), felt that the victim's work behaviours were in compliance with the company's safety procedures. No significant differences were recorded on two items; *adequate warning signals* ($c^2 = 0.21$, df = 1, n.s.) and *work considered as dangerous* ($c^2 = 2.25$, df = 1, n.s.), respectively.

4. DISCUSSION

This study reveals considerable differences in the causality attributions between Ghanaian industrial workers and their Finnish counterparts. Except for the supervisors who seemed to have equal perceptions on the accident causality, the Finnish accident victims and co-workers attributed the accident causality more to the traits and factors inherent in the accident victims, while their Ghanaian counterparts attributed to external and contextual factors. The observed differences in causality attribution were based on the premise that the two cultures differ on the individualism-collectivism cultural construct. The findings supported this contention.

The first explanation that could account for the divergent attributional tendencies between the Ghanaian and Finnish participants can be found in the different *implicit theories* of agency within the differing social-structural systems. Shweder and Bourne (1982), for example, have argued that cultural differences in attributions exist because basically people may be *culturally primed* to emphasise either dispositional or situational factors. Additional research following this tradition has shown that people from different cultures differ in their perceptions as to which attributions are dispositional and which are situational (e.g. Heider, 1958; Krull, 1993; Morris & Peng, 1994). In the Finnish individualistic culture, in which personal attributes receive greater causal attention in the determination of people's behaviour, theories that implicitly support trait or disposition explanations are more prevalent. On the other hand, in Ghana's collectivistic culture, in which behaviour is seen as more dynamic and guided by context, theories that implicitly support contextual determinants of behaviour are more common. In effect, this implicit theory, in which cultural orientation plays a significant role, could have predisposed the Ghanaian and Finnish respondents' attributions towards situational and dispositional directions, respectively. Accordingly, while the Finnish respondents focused on traits and dispositions that led to more internal attributions, their Ghanaian counterparts concentrated on the situational and environmental factors that led to more external attributions.

A rather intriguing and appealing aspect of these findings is the observation on the supervisors' scale, where contrary to expectations, the two cultures did not differ significantly in their attributions. The expectation that the Ghanaian participants would be more external in their causality attributions did not manifest as anticipated, as the supervisors from both cultures had equally high internal attributions. The main plausible explanation for this finding could be assigned to the impact of socio-economic factors on the individualism-collectivism cultural dimension. Research to research reports by Triandis (1995) and Altrochi & Altrochi (1995), value orientations of a culture tend to evolve with changes in the socio-economic conditions, causing collectivists with increasing affluence to be more individualistic. As Ghanaian supervisors are usually wealthier than their subordinate workers, their traditional collectivistic values might have diminished. Their secular had been more individualistic and less collectivistic, and thus made their evaluations of the accident process to be influenced more by individualistic moral beliefs than the usual collectivistic norms.

Yet another interpretation for this finding could be deduced from the *coexistence model* of individualism-collectivism and the independent-interdependent self-constructs (Triandis, 1995). According to this theory, not everybody in a culture is programmed exactly the same way, as both the independent and interdependent aspects of the self can coexist within an individual and within the same culture. In this case, internal attributions to the workers' traits and dispositional qualities were significant in the Ghanaian supervisors' causal analyses, while contextual factors in the work environment were emphasised by their Finnish counterparts.

Another plausible explanation for the observed divergence in causal attributions could be explained within the framework of the Self-defensive Attribution Theory (Blass, 1996; Shaver, 1970; Walster, 1966). According to this theory, workers in an accident process tend to explain the accident occurrence in a way that minimizes their personal responsibility (Gyekye, 2001; Gyekye & Salminen, 2004, 2005b). This they do by externalizing causality and invoking alternative explanations to protect their self-esteem (Zuckerman, 1979). Workplace studies have essentially shown that accident causality is the result of both human error (internal factors) and environmental factors (external factors), with the role of human factors being considered as the main antecedent to the accident process. Overwhelming objective evidence exist in the literature to show that a high proportion of accidents (80-85%) is attributable to human error - internal causal factors (Heinrich, Petersen & Roos, 1980; Salminen & Tallberg, 1996; Sherry, 1991). All other things being equal, the responses of the accident victims should at least have reflected the impact of internal factors to a greater extent than recorded.

According to Leary's (1990) *Social Exclusion Theory,* a perspective on self-esteem that is believed to best explain the emotional and motivational aspects of self-esteem protection (Baumeister & Leary, 1995), self-esteem preservation is associated with people's inclusionary status, i.e. the degree to which people perceive they are being included or excluded by society. Thus for Leary, *people behave in ways that maintain self-esteem, not because of a need to preserve self-esteem per se but because such behaviours decrease the likelihood that they will be ignored, avoided, or rejected. Behaviours that have been conceptualised previously as attempts to maintain self-esteem - approval seeking, self-handicapping, self-serving attributions, and the like - are, at a more basic level, ways of maintaining or improving one's inclusionary status* (Leary, 1990, p. 225).

This fundamental need for inclusion is largely dependent on the kind of self-construal that predominates in the person's cultural context. As suggested in Markus and Kitayama's (1991, 1994) delineation of self-construals, Finnish self-construal is guided by Western individualistic and independent self-construal assumptions that promote an approach to social relationships that is quite different from that of the average collectivistic Ghanaian. Current cultural theory suggests that within the Finnish socio-cultural environment emphasis is more on the preservation of autonomy, individuality, uniqueness, and on independence and confident self-assertion (Nurmi, 1992). A clear boundary is perceived to separate the self from others and relationships with others are thus relatively unimportant for self-definition. To that effect, shame-sharing which threatened the Finnish workers' social inclusion in the society was perceived to be a personal issue. Social exclusion for them would presumably be less stressful and thereby decrease the motivation for defensive attributions.

On the contrary, in Ghana's socio-cultural world where social harmony and good relationships are viewed as integral parts of a person's very being, there is a general orientation towards group goals and an inclination to co-operate in group endeavours. Belongingness and social interrelationships are highly esteemed, and great emphasis is placed on interdependence, social acceptance and group identity thereby promoting a strong collectivistic and interdependent concept of the self (Markus & Kitayama, 1991; Triandis 1995). This sense of collectivity is conveyed in proverbs and adages, and by this the typical Ghanaian is constantly reminded of himself / herself as essentially a member and a representative of a collective unit. A paramount one is: *If one finger is sore, the whole hand gets sick*. It is such that when an individual Ghanaian is stigmatised or devalued in the eyes of the society, he / she shames not only himself / herself but also all those with whom he / she is affiliated. An entire community is thus collectively held responsible and accountable for any offence committed by one its members.

Because shame and the subsequent face-devaluation are positioned among socially and culturally prescribed relationships in Ghana's collectivistic settings, its impact is contagious and threatens the high premium placed on social harmony in the community. Thus for the collectively-culturally inclined

Ghanaian who derives self-esteem from contributing to a harmonious social order (Tafarodi & Walters, 1999), the fear of alienation and rejection, and of being culturally ostracised for an inappropriate behaviour is threatening. Under the threat of social exclusion and the fear of being ostracised, the Ghanaian industrial workers, particularly the accident victims, who would have experienced greater psychological distress in a relationship conflict than their Finnish counterparts, were motivated to resort to contextual attributions and defensive explanations to minimise their implication in the accident occurrence.

This line of reasoning does not suggest that Finnish people, because of their individualistic orientation and independent self-construals, are totally oblivious to shame, guilt and embarrassment. Rather, unlike the average Ghanaian, their shortcomings and failures are virtually accepted as part of their self-contained ego in which the impact of shame and guilt is not as contagious or devastating. Compelling support for this argumentation comes from an array of cross-cultural studies on topics ranging from emotional responses to motivation for deception after failure events. In their investigations on affective responses to predicaments, Cocroft & Ting-Toomey (1994) and Imahori & Cupach (1994), found and explained differences in self-attribution strategy between individualists and collectivists as basically due to the difference in the degree of autonomy and individuality that exist in their socio-cultural settings. In cross-cultural linguistic studies, the collectivists' norms for face-saving and devaluation avoidance is known to provoke a spiral logic pattern, indirect communication, deception and the regular use of approval-seeking and defensive strategies (Aune & Waters, 1994; Kim, 1994).

One might be tempted to challenge the current findings and arguments on the grounds that the participants in the study encountered different scenarios and hence the divergent responsibility attributions. Admittedly, the accident environments were different for the Ghanaian and Finnish industrial workers. However, my argument that it was primarily the different socio-structural systems in the two cultures that effected on the attribution processes still holds. A legion of cross-cultural studies, already referred to above (e.g. Choi et al., 1999; Peng & Nisbett, 1997; Hallahan et al., 1997; Higgins & Gira, 2001) had the same social stimuli presented to participants with different cultural backgrounds but always found collectivists to externalise causality and less susceptible than individualists to hold agents accountable for their actions. Of particular interest is Higgins & Gira's (2001) recent observation. In their culture-comparative analyses on a revised Attributional Style Questionnaire, they noted that their Indian (collectivists) participants did not only generate more contextual explanations for negative events, but also displayed a stronger self-serving bias than their Canada (individualists) counterparts.

From these findings and the current one, it seems to be that the conceptualisation of Heider's (1958) empirical generalisation about the prominence of the actor as engulfing the perceptual field of the perceiver could be culture specific. As noted, for the Ghanaian industrial workers, it was rather the environment that engulfed the field, and hence their sensitivity to the work environment and situational factors. The current findings appear to substantiate what certain attributional theorists (e.g. Hewstone, 1994) have expected regarding defensive attributions. The notion had been felt that people with collectivistic cultural orientations, relative to those with individualistic orientations, would employ more self-defensive attributions for incidents that threaten self-esteem and face. Until now, no empirical evidence has confirmed this idea.

4.1 Implications of findings for the work environment

From a practical perspective, the current findings make important contributions to workplace accident investigation and hence safety management policies. As causal attributions for accidents tend to be very vital to the formal analysis of workplace hazards and accidents (DeJoy, 1987, 1994; Hofmann & Stetzer, 1996, 1998), such culturally-oriented dispositional-contextual attributions, can adversely affect safety interventions drawn from these analyses. They can lead to the implementation of inappropriate and faulty accident remedial policies.

To remedy this situation, accident analysts should take into consideration workers' socio-cultural orientations, values and beliefs that underlie their causal attributions before the implementation of safety interventions. Such a perspective of accident causal analysis would create a more responsible and balanced approach to safety as it will likely address the root causes of unsafe behaviour and those of environmental factors.

The research is limited by its reliance on self-reported instruments. The findings may therefore be inflated by participants' tendencies to respond in a consistent manner or desire to impress researchers. However, the promise of anonymity and confidentiality might lower this tendency, Besides, recent meta-analytic research by Crampton & Wagner 1994) indicates that the magnitude of distortions from issue is rather minimal.

While this study was basically cross-cultural, the current findings are equally applicable to local work environments with or without a multi-cultural setting. Evidence presented by Earley (1989, 1993) and Wagner (1995), suggest that the distinction between individualists and collectivists may still exist within the same culture or nation in the form of individual differences. Although the study compared only two nations, a large number of other nations have similar cultural characteristics. The results may thus apply to numerous African and Latin American countries with cultural characteristics similar to those of Ghana, and to Western countries that are culturally similar to Finland. However, interpretation of these findings for universal application should be undertaken with caution.

REFERENCES

Altrochi, J., & Altrochi, L. (1995). Polyfaceted psychological acculturation in Cook Islanders. *Journal of Cross-Cultural Psychology, 26*, 426-440.

Ashkanasy, N. M. (1995). Supervisory attributions and evaluative judgements of subordinate performance: A further test of the Green and Mitchell model. In M. J. Martinko (Ed.), *Attribution Theory: An Organisational Perspective* (pp. 3-6). Delray Beach, FL: St Lucie Press.

Aune, K. S., & Waters, L. L. (1994). Cultural differences in deception: Motivations to deceive in Samoans and North Americans. *International Journal of Intercultural Relations, 18*, 159-172.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.

Blass, T. (1996). The Milgram obedience experiment: Support for a cognitive view of defensive attribution. *Journal of Social Psychology, 136*, 407-410.

Brislin, R. W. (1980). Cross-cultural methods: Strategies, problems, applications. In I. A. Altman, A. Rapport, and J. F. Wohlwill (Eds.), *Human behaviour and environment (Vol. 4)*. New York: Plenum.

Choi, I., Nisbett, R., & Norenzayan, A. (1999). Causal attribution across cultures: Variation and universality. *Journal of Personality and Social Psychology, 125*, 47-63.

Cocroft, B. K., & Ting-Toomey, S. (1994). Face work in Japan and the United States. *International Journal of Intercultural Relations, 18*, 469-504.

Crampton, S. M., & Wagner, J. A. (1994). Percept-percept inflation in micro organizational research: an investigation of prevalence and effect. *Journal of Applied Psychology, 79, 67 - 76*.

DeJoy, D. M. (1987). Supervisor attributions and responses for multiple workplace accidents. *Journal of Occupational Accidents, 9*, 213-223.

DeJoy, D. M. (1990). Toward a comprehensive human factors model of workplace accident causation. *Professional Safety, 35(5),* 11-16.

DeJoy, D. M. (1994). Managing safety in the workplace: An attributional theory analysis and model. *Journal of Safety Research, 25*, 3-17.

Duda, J. L., & Allison, M. T. (1989). The attributional theory of achievement motivation: Cross-cultural consideration. *Journal of Intercultural Relations, 13*, 37-55.

Earley, P. C. (1989). Social loafing and collectivism: A comparison of the United States and the People's Republic of China. *Administrative Science Quarterly, 34,* 565-581.

Earley, P. C. (1993). East meets West mideast: Further exploration of collectivistic and individualistic workgroups. *Academy of Management Journal, 36,* 319-348.

Furnham, A., Brewin, C., & Kelly, O. (1994). Cognitive **style and attitudes to work**. *Human Relations, 47,* 1509-1522.

Green, G., & Mitchell, R. (1979). Attributional processes of leaders in leader-member interactions. *Organisational Behaviour and Human Performance, 23,* 429-458.

Gyekye, A. S. (2001). *The Self-Defensive Attribution Theory Revisited: A Culture- Comparative Analysis between Finland and Ghana in the Work Environment*. Helsinki: Yliopistopaino.

Gyekye, A. S. (2003). Causal attributions of Ghanaian industrial workers for accident occurrence: Miners and non-miners' perspective. *Journal of Safety Research, 34, 533-538.*

Gyekye, A. S., & Salminen, S. (2004). Causal attributions of Ghanaian industrial workers for accident occurrence. *Journal of Applied Social Psychology, 34, 11, 2324-2342.*

Gyekye, A. S., & Salminen, S. (2005a). Responsibility assignment in the workplace: Finnish and Ghanaian perspective. *Scandinavian Journal of Psychology, 46, 43-48.*

Gyekye, A. S., & Salminen, S. (2005b). The self-defensive attribution hypothesis in the work environment: Co-workers' Perspectives. *Safety Science (In Press).*

Hale, A., & Glendon, A. (1987). *Individual behaviour in the face of danger*. Amsterdam: Elsevier.

Hallahan, M., Lee, F., & Herzogg, T. (1997). It is not just whether you win or lose, it's also where you play the game. A naturalistic, cross-cultural examination of the positivity bias. *Journal of Cross-Cultural Psychology, 28,* 768-778.

Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: Wiley.

Heinrich, H. W., Petersen, D., & Roos, N. (1980). *Industrial accident prevention* (5th ed.). New York: McGraw-Hill.

Hewstone, M. (1994). Societal attributions: Collective beliefs and explanation of social events. In M. Hewstone (Ed.), *Causal attribution. From cognitive processes to collective beliefs* (pp. 205-239). Oxford: Blackwell.

Higgins, N. C., & Gira, B. (2001). Culture moderates the self-serving bias: Ethic and emic features of causal attributions in India and in Canada. *Social Behaviour & Personality: An International Journal, 29(1), 49 – 62.*

Hofmann, D., & Stetzer, A. (1996). A cross-level investigation of factors influencing unsafe behaviours and accidents. *Personnel Psychology, 49,* 307-339.

Hofmann, D., & Stetzer, A. (1998). The role of safety climate and communication in accident interpretations: Implications for learning from negative events. *Academy of Management Journal, 41,* 644-657.

Hofstede, G. H. (1980). *Culture's Consequences*. Beverly Hills, CA: Sage.

Imahori, T. T., & Cupach, W. R. (1994). A cross-cultural comparison of the interpretation and management of face: US Americans and Japanese responses to embarrassing predicaments. *International Journal of Intercultural Relations, 18,* 193-210.

Kelley, H. (1973). The process of causal attribution. *American Psychologist, 28,* 107-128.

Kenworthy, J., & Miller, N. (2003). Attributional biases about the origins of attitudes: Externality, emotionality, and rationality. *Journal of Personality and Social Psychology, 82,* 693-707.

Kim, M. S. (1994). Cross-cultural comparisons of the perceived importance of conversational constraints. *Human Communications, 21,* 128-151.

Kouabenan, D. R., Gilibert, D., Medina, M., & Bouzon, F. (2001). Hierarchical position, gender, accident severity and causal attribution. *Journal of Applied Social Psychology, 31,* 553-575.

Krull, D. S. (1993). Does the grist gangue the mill? The effect of the perceiver's inferential goal on the process of social inference. *Personality and Social Psychology Bulletin, 19,* 340-348.

Kwan, S.Y., Bond, M. H., & Singelis, T. M. (1997). Pan cultural explanations for life satisfaction: Adding relationship harmony to self-esteem. *Journal of Personality and Social Psychology, 73,* 1038-1051.

Leary, M. L. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology, 9,* 221-229.

Markus, R. H., & Kitayama, S. (1991). Culture and self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224-253.

Markus, R. H., & Kitayama, S. (1994). A collective fear of the collective: Implications for selves and their selves. *Personality and Social Psychology Bulletin, 20,* 568-579.

Martinko, M. J. (1995). The nature and function of attribution theory within organisational sciences. In M. J. Martinko (Ed.), *Attribution theory: An organisational perspective*. Delray Beach, FL: St. Lucie Press.

Menon, T., Morris, M., Chui, C. Y., & Hong, Y. Y. (1999). Culture and the construal of agency: Attribution to individual versus group dispositions. *Journal of Personality and Social Psychology, 76,* 701-717.

Miller, G. J. (1999). Cultural psychology: Implication for basic psychological theory. *Psychological Science, 10,* 85-91.

Mitchell, T., & Wood, R. (1980). Supervisors' responses to subordinate poor performance: A test of an attribution model. *Organisational Behaviour and Human Performance, 25,* 123-138.

Morris, M. W., & Peng, K. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology, 67,* 949-971.

Nurmi, J. E. (1992) Cross-cultural differences in self-serving biases: Responses to the Attributional Style Questionnaire by American and Finnish students. *Journal of Social Psychology, 132,1,69-76.*

Osei, E. K. (1998). *Social Structure and Traditional Organisation of the Akans of Ghana. Clanship Systems and Marriages*. Accra, Ghana: Tell Africa Communications.

Peng, K., & Nisbett, R. E. (1997). Cross-cultural similarities and differences in the understanding of physical causality. In M. Shield (Ed.), *Proceedings of Conference on Culture and Science*. Frankfort: Kentucky State University Press.

Salminen, S. (1997). *Risk taking, attributions and serious accidents* (People and Work, Research Reports 13). Helsinki, Finland: Finnish Institute of Occupational Health.

Salminen, S., & Tallberg, T. (1996). Human errors in fatal and serious occupational accidents in Finland. *Ergonomics, 39,* 980-988.

Sarpong, P. (1974). *Ghana in Retrospect: Some Aspects of Ghanaian Culture*. Accra, Ghana: Ghana Publishing Corporation.

Shaver, K. G. (1970). Defensive attributions: Effects of severity and relevance on the responsibility assignment for an accident. *Journal of Personality and Social Psychology, 14,* 101-113.

Sherry, P. (1991). Person-environment fit and accident prediction. *Journal of Business and Psychology, 5,* 411-416.

Shweder, R. A., & Bourne, E. J. (1982). Does the concept of the person vary cross- culturally? In A. J. Marsella and G. White (Eds.), *Cultural Conceptions of Mental Health and Therapy.* Boston: Reidel.

Struthers, W., Colwill, N. L., & Perry, R. P. (1992). An attributional analysis of decision making in a personnel selection interview. *Journal of Applied Social Psychology, 22,* 801-818.

Tafarodi, R. W., & Walters, P. (1999). Individualism-collectivism, life events, and self-esteem: A test of two trade-offs. *European Journal of Social Psychology, 29,* 797-814.

Triandis, H.C. (1995). *Individualism and Collectivism.* Boulder, CO: Westview.

Wagner, J. A. L. (1995). Studies of individualism-collectivism: Effects on competition in groups. *Academy of Management Journal, 38,* 152-172.

Walster, E. (1966). Assignment of responsibility for an accident. *Journal of Personality and Social Psychology, 3,* 73-79.

Weiner, B. (1986). An attributional theory of achievement motivation and emotion. *Psychological Review, 92,* 548-573.

Weiner, B. (1995). *Judgements of responsibility: A foundation for a theory of social conduct.* New York: Guilford.

Weiner, B., & Allred, K. (1998). Effects of causal attributions on personnel decisions: A social motivation perspective. *Basic and Applied Social Psychology, 20,* 155-166.

Wong, M. (2000). The relations among causality orientations, academic experience, academic performance, and academic commitment. *Personality and Social Psychology Bulletin, 3,* 315-326.

Ybarra, O., & Stephen, W. G. (1999). Attributional orientations and the prediction of behaviour: The attribution-prediction bias. *Journal of Personality and Social Psychology, 76,* 718-727.

Zuckerman, M. (1979). Attribution of success and failure revisited: The motivational bias is alive and well in attribution theory. *Journal of Personality, 47,* 245-287.

Address correspondence to:
Gyekye, Ayim Seth (GAS),
Department of Social Psychology,
University of Helsinki, Unioninkatu 37,
00014 Helsinki, Finland.
Tel. +358 44 33 22122

E-mail: gyekye@mappi.helsinki.fi