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BETTER QUALITY COLLABORATION: A PROPOSED FACILITATING RELATIONSHIP BETWEEN HEEDFUL INTERRELATING AND COOPERATIVE LEARNING

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ABSTRACT

Van den Bossche (2006) points out how fruitful collaboration is not merely the case of putting people with relevant knowledge together. Studies on collaborative learning suggest that group outcomes improve when members focus not only on the task but also on the inter-personal group processes (Johnson & Johnson, 2005). However, attempts to improve these processes, through training modules, are often diverse from the main group task. The concept of heedful interrelating (HI) offers a method for addressing the need for high quality inter-personal processes by its focus on the skills necessary for successful interrelating in the moment-by-moment interactions of members working to accomplish a task. HI is defined as interacting with sensitivity to the task at hand while at the same time paying attention to how a person's individual actions affect group functioning. To interrelate heedfully requires that one notice, take careful action, and pay attention to the effect of that action (Weick & Roberts, 1993). HI's focus is on how best to interrelate effectively, in real time, to reach the group goal. This article focuses on how HI provides a tangible framework for facilitating group members' effective engagement in high quality inter-personal processing which, in turn, should translate into an increase in beneficial collaborative outcomes.

Keywords: Heedful Interrelating, Cooperative Learning, Collaborative Interactions.

INTRODUCTION

As researchers and professionals in educational circles work towards improving teaching in the 21st century the dual educational goals of individual learning of content and the learning of effective group work skills come to the forefront. Various researchers have pointed to how effective collaboration implies a process of building and maintaining shared cognitions (Barron, 2003; Van den Bossche, 2006). Theoretical constructs which help to inform researchers about the processes involved in this building and sharing are needed. Heedful interrelating (HI), originally developed in the organizational management literature, is such a construct. Specifically, HI is defined as interacting with sensitivity to the task at hand while at the same time paying attention to how a person's individual actions fit into or affect the rest of the group functioning (Weick & Roberts, 1993). This idea maps well with the interest and need in society to understand how people successfully integrate/encode and share

knowledge through interactions and the elements which make this knowledge sharing beneficial and/or detrimental for all parties involved. HI theory addresses this basic issue that group members need to communicate effectively in order for individual learning to occur.

The purpose of this article is to articulate why a focus on how to best interrelate with others to get a task accomplished successfully is needed for educational groups. In particular, HI's conceptual way of approaching interactions would be a useful idea to integrate into the cooperative learning literature because of its combined emphasis on social, psychological, and cognitive interrelating aspects. As the following exploration of the literature shows, cooperative learning does not focus jointly (with the group task in mind) in facilitating or solving inter-personal and cognitive interrelating factors. In the review that follows, the authors hope to make a case for why an awareness of the tangible framework HI provides for engaging in interactions could play a significant role in

achieving effective cooperative group work.

The Need for Heedful Interrelating in Educational Groups

To interrelate heedfully requires that one notice, take careful action, and pay attention to the effect of one's actions in relation to others and in relation to a joint task (Weick & Roberts, 1993). Increases in HI can correct failures of comprehension, increase capacity for intelligent collective action (Weick, Sutcliffe & Osberg, 2005), enable sustained innovation (Dougherty & Takacs, 2004), and improve performance (Tallia, Lanham, McDaniel, & Crabtree, 2006). Alternately, as interrelating becomes less heedful, team members represent the contributions of others with less attention and detail (Roberts & Bea, 2002). Thus, heedless interrelating could have the profound effect of zapping the positive effects of learning within a group.

The concept of HI could be usefully transferred to the educational context of cooperative learning groups in which students work together to complete an assignment. Educational researchers have long recognized that the quality of inter-personal relationships is critical for learning (Bandura, 2001 Levine & Moreland, 2004; Vygotsky, 1987). Studies on cooperative learning suggest that group performance improves when students focus not only on the assignment but also inter-personal and group processes that are involved in interrelating successfully (D. Johnson, Johnson, & Smith, 2007; Johnson & Johnson, 2005). Thus, rather than focusing only on individuals learning to be smarter, we might also examine individuals' abilities to help or hinder their group becoming smarter which in turn impacts individual learning. (Hewitt & Scardamalia,1998). When such groups achieve effective knowledge sharing it becomes possible to engage in high collaboration which can translate into deeper individual learning.

One question of particular interest in classroom groups is how to foster collaborative environments (conversations and interactions) in which deep, individual learning is the product of group work. Such an environment would be characteristic of a high collaborative group in which individuals are constructing and co-constructing meaning as compared to a low collaborative group in which the focus is on clarifying and sharing knowledge (Volet, Summers, & Thurman, 2009). The concept of HI could be viewed as focusing on the understanding of the types of group characteristics and interactions that need to be present for high collaboration to occur and in turn deep individual learning. Hence, the literature on HI offers a window into addressing individual deep learning within classroom groups through high collaboration.

When HI is embedded in collaborative learning strategies, it addresses the inter-personal and group processes involved in group interactions within the real time context of doing the assignment. These interrelating factors (high vs. low collaboration) can foster or hinder the effectiveness of learning outcomes, but not a lot of attention has yet been devoted to the psycho-social interrelating skills needed for students to work effectively together (O'Donnell, 2006). Research has revealed cases in which large variations in group-work interactions and performance is encountered between groups that seem not to differ in composition or task assignment (Barron, 2003). Van den Bossche (2006) points to how fruitful collaboration is not merely the case of putting people with relevant knowledge together. When inter-personal and group processing skills actually are addressed in such programs as the Johnson & Johnson's Learning Together (1999), these skills tend to be divorced from the task. HI, however, addresses these skills necessary for successful interrelating in the moment-by-moment students are interacting to get the assignment done; its focus is on how best to interrelate with group members to reach group goals, such as task completion. Hence this concept would be a useful idea to integrate into collaborative learning practices because of its combined emphasis on social, psychological, and cognitive interrelating aspects involved in real-time group work.

Melding the HI construct with current educational group work theories (i.e. social interdependency) will enhance and facilitate our current understandings of the types of group characteristics and interactions that need to be present for high collaboration to occur and in turn the fostering deep learning. HI brings a unique inter-personal-

task-process oriented perspective to the study of educational groups complementing such established theories as social interdependency in which the focus is more on the motivational and social cohesion aspects of creating effective groups than on the knowledge elaboration and sharing within the group. Adding HI's point of view to the mix could help educators to better understand how to promote some of the commonly quoted benefits of group work; these advantages are:

> groups provide a larger knowledge base to draw upon,
>
> hearing another's answer stimulates retrieval, and
>
> interacting with group members leads to more substantial knowledge construction and elaboration resulting in deeper individual learning than when such interactions are absent.

HI could be especially beneficial in exploring knowledge retrieval and construction because of it is focus on mapping-out how and why information sharing, elaborating, and/or constructing processes occur in group work. The next sections provide a more in depth look into HI, social interdependency theory, and their complimentary relationship.

Heedful Interrelating

Interrelating is typically defined as entering into a reciprocal or mutual relationship while heedful is defined as attentive, thoughtful, mindful, and careful (Dictionary.com). Weick and Roberts (1993) have united these terms under the umbrella of *heedful interrelating*. Their creation of this term stems from their desire to describe the types of interactions they observed of enlisted naval teams operating on flight decks to safely and reliably land aircraft without losing lives or expensive equipment. These authors observe that people interrelate heedfully when they act carefully, critically, willfully and purposefully with regards to the joint situation rather than habitually and carelessly.

For Weick and Roberts (1993,) the term "heed" does a better job of capturing the multiplicity nature of mind than "cognition." The adverb of heed attaches the qualities of mind (carefully, attentively, conscientiously, etc.) directly to actions, behaviors, and performances. In essence, it includes the mind's monitoring of itself in people's actions. In contrast to heedful performance, *heedless* performance embodies adjectives such as "careless, unmindful, thoughtless, unconcerned, and indifferent" (Weick & Roberts, 1993, p.362). A tangible example is habitual behavior automaticity which often promotes the tendency to become less engaged and interactive during group work.

In order to extend the concept of heed beyond the individual to groups, Weick and Roberts (1999), described heedfulness as a quality of interrelating. Drawing on Asch's (1952) concept of "mutually shared fields," they formulated four defining properties of group performance that are constituted through interrelating:

> Individuals create the social forces of a group when they act as if there are such forces mutually imagined by the group.
>
> When individuals envision a group, they construct their own action (contribution) while envisaging a system of joint action (representation), and then interrelate that constructed action within the conceived system (subordination).
>
> Contributing, representing, and subordinating create a joint situation of interrelations among activities.
>
> Patterns of interrelating can vary in terms of the style (e.g. heedful-heedless) and the strength (e.g. Loose-tight) to which activities are tied together.

To sum-up, when people act as if social forces exist, then they create those forces, and one of the results is a sense of "groupness." Groups enact their "groupness" through interrelating which is constructed from three types of actions: contributing, representing, and subordinating. Acts of *contributing* may be seen when one offers new ideas or critiques of ideas. When *representing*, one envisages other's contributions. *Subordinating* one's activities to the needs of the team can be seen when individuals acquiesce to a plan they didn't initiate (Cooren, 2004). An important thing to note is that these actions of interrelating take place around activities of importance to a group. Contributing, representing, and

subordinating create a joint situation of interrelations among activities.

The activities of interrelating can be carried out with varying levels of heedfulness. First, people can be said to be interrelating more heedfully if their representations of the joint situation include the actions of others and their relationships, and if these relationships are detailed, rich, and broad. Second, their contributions are more heedful if they converge with, supplement, and become defined in relation to the joint situation "the more people can anticipate the responses of others to a common situation, the more they act accordingly" (Dougherty & Takacs, 2004, p. 575). Third, people can subordinate their actions to the requirements of the joint activity if they believe others have similar / consistent representations in their understandings.

If interrelations are heedful, people are mindful of the big picture to which they are contributors, so their situated activities are more likely to also integrate with the activities of others in that particular situation. Weick & Roberts (1993) argue that these activities can be interrelated more or less adequately, depending on the care with which each person is related and the way each person responds to the collective situation. The more heed that is reflected in any pattern of interrelating actions, the greater the capacity for any group to comprehend and address unexpected events for the persons attuned to connecting and sharing ideas. Hence, interrelating is an action (contributing, representing, or subordinating) and heedfully (carefully) is an adverb that describes how the action is carried out. The following adverbs and verbs map onto the concept of heedful interrelating: carefully, critically, attentively, vigilantly, conscientiously, intently, to take notice, to be attentive, to supplement, to weigh, and to support. It is important to emphasize that for Weick & Roberts (1993).

Heedful interrelating has two essential components:

    being sensitive to the task at hand and

    paying careful attention to how your actions affect the group and what the group is trying to do.

Hence, when thought about in a working or learning group context, heedful interrelating provides a useful framework within which to address inter personal and group processing issues intermeshed with completing the assignment and group goals.

Dougherty and Takacs (2004) point to how heedful interrelating is a basic theory of effective social relationships that applies generally to organizations. They utilize heedful interrelating to articulate the different social processes that teamwork displays in organizations specifically focusing on new product productions. While they realize that developing new products is not as dramatic as landing a plane, they maintain that the overall process requires similar levels of heedfulness across the organization. For example, if the telephone company employees failed to be careful and sensitive when creating 100 plus products a year the network would collapse. Heedful interrelating captures the kind of relationships product innovators must have if they are "to figure out ambiguous problems, synthesize unclear user needs, and quickly surface and solve problems as they move the product idea through the development process" (Dougherty & Takacs, 2004, p. 274). All the accompanying aspects of a new product, such as fit with current product-line, marketing, logistics of mass production, also require heedful interrelations to proceed optimally.

Using a naturalistic observation in a nonprofit organization, Francois Cooren (2004) illustrated how heedful interrelating can also be identified in more typical activities such as board meetings through the systematic study of conversations. He points to how "coproducing, amending, and completing utterance" (p. 542) represent patterns of heedful interrelating. Thus, not only are members interacting with each other, but they are also amending, constructing, and adding "textual" pieces to the knowledge-task tapestry which represents the degree of ability the group has to complete what is required (i.e. decisions, projects, etc.). If the conversations are mostly constituted by heedful instead of heedless interrelating the more intelligent and informative the tapestry becomes to the group's end goals. Hence, Cooren's study has particular relevance to classroom learning groups.

Like Cooren's managers, students are attempting to utilize and build on each others' knowledge and insights to complete an assignment, and whether their conversations are dominated by heedful or heedless interrelating acts directly impinges on the kinds and quality of the learning and the assignment outcomes.

Bijlsma-Frankema, de Jong, and van de Bunt (2008) completed a longitudinal mixed methods study exploring performance differences in teams using the framework of heedful interrelating. Specifically, they studied the following aspects: performance, trust in team members, and monitoring by team members. Bijlsma-Frankema and colleagues conclude that heedful interrelating of team members, built on a combination of trust and monitoring by team members, is an important factor in promoting team performance. Their findings have particular relevance to application of HI to educational groups, for they are connecting heedful interrelating with increases in group performance. While these finding do not specifically relate to individual performance, researchers have shown that successful group performance can lead to increased individual performance (Johnson & Johnson, 1999; O'Donnell, 2006; Slavin, 1996).

Social Interdependency Perspective on Group Learning

Theories on group learning often attribute greater weight to either social or cognitive processes. Social interdependency perspective could be viewed as the theoretical thread running through these various theories emerging from the Socio-behavioral, Cognitive-Developmental, or Socio-cultural paradigms. Social interdependency exists when the accomplishment of each member's goal is affected by the actions of others (Johnson & Johnson, 2005). In order to accomplish the group's and the individuals' goals, interrelating is required. Heedful interrelating promotes and supports the building of the collective mind, shared vision / purpose (Weick & Roberts, 1993) which in turn facilitates group and individual outcomes (Van den Bossche, 2006). The situating of group learning within the framework of social interdependency provides an apt environment for

displays and growth of heedful or heedless interrelating.

This perspective assumes that the way social interdependence is structured determines how individuals interact, and this, in turn, determines outcomes. Social interdependency theory assumes that cooperative efforts are based on intrinsic motivation generated by interpersonal factors in working together and by joint aspirations to achieve a significant goal. Hence, it is made up of relational concepts dealing with what happens among individuals rather than within a single person. Hence, interrelating in some form (more or less heedful) is inescapable.

David Johnson, Robert Johnson, and Karl Smith (2007) discuss the three aspects of independency (positive, negative, and absence of) that operate within the social interdependency theory. Positive interdependency (cooperation) typically results in promotive interactions as individuals encourage and facilitate each other's efforts to learn. Negative interdependency (competition) results in oppositional interactions as individuals discourage and obstruct each other's efforts to achieve. In absence of interdependency (individualistic efforts), there are no interactions as individuals work independently without any interacting with each other.

Social interdependency theory maintains that the motivational circumstances created by positive interdependency enable several psychological processes to occur: substitutability, a state in which one person's actions can substitute for another's; inducibility, a state of being open to influence of another; and positive cathexis, projecting positive psychological energy into things outside one's self (Johnson et al, 2007). These processes explain how self-interest is expanded to joint interest. Johnson et al. (2007) point to how mutual interest arises through people's actions substituting for one's own. This substitution takes place through the emotional investment in achieving goals and through an openness to being influenced. Demonstrating the transition from self-interest to mutual interest is an immensely important aspect of the theory (Johnson, et al., 2007).

Johnson and colleagues (2007) explain how negative

interdependency and no interdependency lead to intensified self-focus. Negative interdependency induces the following psychological processes:

> Non-substitutability in which the actions of one person do not substitute for the actions of another person;
>
> resistance to being influence by other, and
>
> Investing negative psychological energies in the group processing (negative catharsis).

No interdependence detaches a person from others by also creating non-substitutability, no resistance and no cathexis of only one's own actions. Thus, through these two psychological processes, self-interest is strengthened. Such an intensification of self focus leads to heedless interrelating with reference to the group's goals. The individual is no longer engaging in the interactions with group members that have been shown to facilitate individual and group learning (Johnson and Johnson, 2005; Prichard, Bizo, & Stratford, 2006). This environment of positive interdependency provides the context within which facilitating interactions heedful interrelating can take place. Group membership and inter-personal interaction among students do not produce higher achievement unless positive interdependence is clearly present and function in the group. Positive interdependency can be seen as providing a context for heedful interrelating to operate. Johnson and Johnson (1999) point to how each member is assigned complementary and interconnected roles that specify responsibilities that the group needs in order to complete a joint task. Such a connection between roles and the task creates a framework in which heedful interrelating can take place. Such interrelating with care entails keeping the group's task in mind as one attends to one's roles/responsibilities and how those roles/responsibilities relate with others and the requirement of the group tasks.

The Usefulness of HI in Cooperative Groups

Although a number of researchers have argued for the importance of interrelating skills for successful learning to occur in group settings (Johnson & Johnson, 2005; Prichard et al., 2006; Slavin, 1995; Druskat & Kayes, 2000), this inter-personal interrelating component often seems to be missing in practice. Two prevailing assumptions seem to dominate practices in the classroom. The first belief is that student participants either already possess the necessary skills to work together effectively, or that these skills are developed by simply working in groups. The second assumption is that collaboration will occur naturally if the teacher sets up the right environment. These assumptions suggest that there is no need for any training in group processing and inter-personal skills such as heedful interrelating. There is, however, little evidence to support this position. In fact, research shows that training students in group interrelating skills resulted in an increase in both group performance and individual performance in learning outcomes for cooperative groups (Johnson, Johnson, Stanne, and Garibaldi, 1990).

Group work requires interrelating skills (Johnson & Johnson, 2005; Van den Bossche, 2006). Practitioners of group work often simply address this need by focusing on group composition and possibly, although more rarely, training in inter-personal and small group skills, either before the members engage in an assignment or intermittently while the group is together (Johnson & Johnson, 1999). Hence even when group skills training are added, they are divorced from the assignment and can lead students down the slippery-slope of wanting to be "liked and appreciated" by group members rather than successfully accomplishing the assignment and engaging in individual learning in the process.

This focus on the teacher doing adequate planning before the group begins an assignment (e.g., strategy for formulating group composition, well defined procedure, and completely conceptualized task) reflects the heavy influence of the functional perspective (Cummings & Ancona, 2006). This conceptualization focuses on the inputs (organized before group work engagement) that lead to or facilitate effective or ineffective group processes (the established structure in which a student operates such as rules, rewards, and roles) which are followed by outcomes that are considered either successful or not (Van den Bossche, 2006). Sparse attention is paid to the nitty-gritty of facilitating the students' moment-by-moment interactions with the intent

of accomplishing the assignment and facilitating the learning of all group members, a goal of learning groups. HI offers a useable framework for teachers and students to accomplish these goals during collaborative learning.

Research shows that high-quality peer interactions lead to better group outcomes (Johnson & Johnson, 1999, 2005; O'Donnell, 2006). Within such a context, optimal interrelating (HI), group members may experience increases in willingness to accept ideas, actively and respectfully listening, and willingness to express disagreement. Alternately, as interrelating becomes less heedful, group members represent the contributions of others with less attention and detail (Roberts & Bea, 2001). These potential increases and decreases resonate with HI for within its conceptual framework, group members focus simultaneously on completing an assignment and increasing individual learning through the process of interacting. The umbrella of HI strategically unites two goals of cooperative learning, positive group outcomes and individual learning.

Conclusion

The purpose of this article is to make a case for why HI is a useful concept to explorer in classroom group work. Specifically, the authors have focused on how HI meshes successfully with social interdependency theory by showing how the more heedful the interrelating is among group members the more likely becomes the fostering of positive interdependency which is considered the backbone of successful cooperative learning. Such a conceptual way of approaching group interactions would be a very useful idea to integrate into the cooperative learning literature because of its combined emphasis on social, psychological, and cognitive interrelating aspects. The existence of group knowledge sharing and building processes infused with HI could be viewed as a powerful component for effective solving of complex problems. Hence, measuring functioning levels of HI during group work could give insights into aspects of interrelating behaviors and inter-personal contexts that differ between high and low collaborating groups. Considering the richness of this construct, its application in

the educational setting could help facilitate the kind of group work they want to occur in classroom groups at all levels of academia.

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