

## Potency in groups: Articulating a construct

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This paper examines potency, defined as the collective belief in a group that it can be effective, and its role in determining group effectiveness. The paper illustrates the construct and reviews its origins. The distinctiveness of potency from efficacy and from other collective and motivational constructs is described. The measurement of potency is also examined. The paper concludes with a presentation of a conceptual framework for understanding the determinants of potency and with a discussion of future theory, research and practice.

This paper is about a construct, potency, relevant to group performance. Potency is the collective belief in a group that it can be effective (Guzzo, 1986; Shea & Guzzo, 1987*a*). The construct of potency expresses what we believe to be a genuine, measurable, significant (practically and theoretically), social-psychological phenomenon that is not captured by existing theoretical constructs or models of collective motivation. Although the construct has received some attention in the literature (e.g. Shamir, 1990; Sundstrom, De Meuse & Futrell, 1990), it has not been extensively described and analysed. This paper takes up that task.

The goal of the paper is to communicate an understanding of potency and its implications. The paper begins by examining the empirical origins of the potency construct and illustrates the concept. The relations of potency to other theoretical constructs (such as efficacy) and to existing models of collective motivation are then considered. Addressed next are matters of measurement and the relation of potency to measures of group effectiveness. This is followed by a presentation of a conceptual model of potency and a discussion of the construct's implications for theory, research and practice. We should note that in this paper: (1) we emphasize groups embedded in larger social systems (e.g. organizations) since we believe that attributes of those systems are important influences on groups' beliefs; and (2) our primary level of analysis is the group as a performing unit (rather than, say, an individual level of analysis in which the impact of the group on its members might be emphasized).

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### Origins and illustrations

One of the earliest studies of systematic differences in groups' beliefs about their potential for effectiveness is the work of Sayles (1958). Sayles reported an anthropological-style investigation of work groups in a manufacturing plant. He found that groups could be differentiated on the basis of the strength of their beliefs that they could effect change in the work place. Groups with little belief in their potential for effecting change were labelled 'apathetic'. Those with a relatively strong belief were labelled 'strategic'. Strategic was the chosen designation because these groups seemed to engage in carefully planned and measured courses of action and adapted their tactics (for example, to pressure management or the union) to the situation at hand. Sayles also identified two other types of groups which fell in between apathetic and strategic, labelling them 'conservative' and 'erratic' (the latter displaying occasionally strong beliefs in their capacity to be effective).

There are several other relevant findings reported by Sayles (1958). One is that strategic groups—those which we would characterize as having a strong sense of potency—tended to be quite effective at their work. A second is that success breeds success. That is, groups experiencing their own effectiveness in making changes raised their beliefs about their future success and were consequently more likely to try to exert their influence and to succeed at doing so. Third, Sayles suggests that effective groups gain reputations for effectiveness and that, within an organizational system, these reputations work to groups' advantage. Fourth, Sayles points out that a group's perception of its own efficacy is a function of several factors in addition to past performance. Many of these factors concern the context in which groups are embedded. That is, the position of a group in a work flow (e.g. central or peripheral), the clarity of work goals, and the significance of the group's task to the organization all contribute to groups' beliefs about their likely effectiveness.

Although Sayles (1958) did not use the concept of potency *per se*, his study nonetheless addressed issues fundamental to a current understanding of potency, namely: that groups differ according to members' collective belief about their group's likely effectiveness, that this belief is related to actual effectiveness as both a cause and a consequence, and that this belief is shaped by the context in which groups perform.

The concept of potency (though not always with that label) has been expressed in other, more recent accounts of work groups. Hackman (1990), for example, provides detailed descriptive accounts of 21 quite varied groups-in-context. Many of the themes identified in Sayles's (1958) work also appear in Hackman's (1990) work. For example, the belief in groups being able to change or control their work place, evident in Sayles' work, is paralleled in the account of an airline maintenance group (Hackman, 1990). This group was characterized by a perception that it could influence and improve the organizational context in which it worked and openly discussed 'how to manage the organizational context' (Hackman, 1990, p. 194).

Hackman's (1990) descriptions of work groups also provide several examples in which groups were characterized by either strong or weak beliefs in their potential for effectiveness. Illustrations of this come from two instances in which pairs of teams performed essentially the same jobs in the same organization. One instance concerned two teams of flight attendants; the other concerned two teams engaged in beer sales and delivery. In each case one team was found to be quite strong in its belief that it could perform effectively—and, in fact, performed effectively—while the other team held no such positive

belief and did not perform as well. The differences between these teams are partly attributed to the presence or absence of early success experiences for teams as well as to how the groups were designed and managed.

Hackman (1990) concurs with Sayles (1958) that some groups in organizations gain reputations for effectiveness. Hackman (1990) further argues that some groups label themselves 'good' or 'bad' and that such labels are reinforced by others and affect performance. Good teams, for example, are more likely to be reinforced and to receive favours such as coveted work opportunities, 'thereby adding credence to the view (of members as well as outsiders) that the team is competent and potent' (Hackman, 1990, p. 483). Self-fulfilling prophecies can arise, according to Hackman, sustaining spirals of success and making it difficult for groups to break out of spirals of failure.

Larson & LaFasto (1989) studied, through retrospective interviews, 27 management and project teams in the private and public sectors and found that an elevated sense of confidence among team members about the prospects of success is a critical ingredient in team effectiveness. According to Larson & LaFasto, this sense of confidence is influenced by members' assessments of the adequacy of the skills (technical and interpersonal) represented in a group. That is, members develop a strong sense of confidence that their group can perform effectively when they perceive that the personal resources members bring to the group are proper for the task at hand. This view, in conjunction with the observations reported by Sayles (1958) and Hackman (1990), indicate that a group's sense of potency is a product both of assessments of resources within the group as well as the organizational conditions in which groups perform.

This sense of confidence we label potency can serve a team in a number of ways according to Larson & LaFasto (1989). It helps groups adapt to unexpected adversity and meet unexpected challenges. It also contributes to a conviction that disagreements will be worked out reasonably, that all individual members will consistently contribute to team performance, and that 'excellence can become a sustainable reality' (p. 71).

The reports of Sayles (1958), Hackman (1990) and Larson & LaFasto (1989) independently document a phenomenon we call group potency. None of these reports, however, relates this construct to other group or collective motivational variables. In the next section we examine the distinctiveness of potency as a motivational construct by comparing and contrasting it to existing constructs and motivational models.<sup>1</sup>

### Potency as a motivational construct

#### *Potency and efficacy*

*Self-efficacy.* As a motivational construct, potency shares a certain similarity with the individual motivational construct of self-efficacy. Bandura (1982) defined self-efficacy as a person's belief that he or she can successfully perform a behaviour required to obtain a desired reward. This belief results from 'self appraisals of operative capabilities' (Bandura, 1982, pp. 122–123) and the belief is thought to influence the energy, persistence and direction of individual behaviour (Bandura, 1989).

<sup>1</sup>We are aware that Hemphill & Westie (1950) used the term potency to describe a different attribute of a group. For Hemphill & Westie, potency referred to the extent to which a group influenced members' core values or satisfied members' needs. There has not been widespread use of the term defined in this way.

Self-efficacy and potency, however, are fundamentally different constructs for at least three reasons. The most basic reason is that self-efficacy concerns an individual's belief about his or her own performance whereas potency concerns the performance of a group. Thus, individuals in a group can hold two distinct expectations simultaneously, one for their own performance and one for their group's performance. These beliefs need not be congruent. For example, a star athlete may have a strong belief in his or her capability to perform effectively as a member of a team in a competition but may have little confidence that his or her team will win the competition. A second difference between potency and self-efficacy concerns the fact that potency is a belief shared by group members. Self-efficacy, on the other hand, is a belief privately held by individuals. A third difference between self-efficacy expectations and potency concerns their generality. As proposed by Bandura (e.g. 1982, 1986), self-efficacy beliefs are specific; they relate to expectation for performance on particular tasks. Bandura argued that self-efficacy in psychological functioning is best elucidated by measures tailored to particular domains of functioning, rather than by measures of global disposition because 'self-perceptions of efficacy vary across different activity domains, different levels of demand within activity domains, and different environmental circumstances of performance' (Bandura, 1986, p. 371). In contrast, potency refers to a more generalized belief. A group's sense of potency is indeed relevant to performance on a specific task, but the construct is meant to refer to a shared belief about general effectiveness across multiple tasks encountered by groups in complex environments. Groups in organizations, for example, are rarely limited to single, isolated tasks. Rather, they are more likely to perform clusters of inter-dependent activities (e.g. planning, coordinating, producing, monitoring, negotiating, communicating) and the sense of potency concerns beliefs about overall effectiveness of groups at work.

The issue of generality versus specificity in the referent of efficacy expectations is a matter of some inconsistency in the literature. Although Bandura's initial position that efficacy is task-specific is clear, others have since construed efficacy as a quite generalized performance expectation. Gecas (1989) points this out in his discussion of the measurement of efficacy, which he describes as 'still rather primitive' (p. 297), and cites several examples of generalized measures of efficacy.

The 'problem' of whether self-efficacy ought to refer to specific or to generalized expectations of performance is not germane to distinguishing it from potency. It is, however, a problem for efficacy theorists. Kirsch (1986), for example, indicates that the construct of self-efficacy in the generalized form may be indistinguishable from the construct of 'generalized expectancies' that is at the heart of Rotter's (1954, 1982) social learning theory of individual behaviour and the manifestation of an internal or an external locus of control in individuals. However, the matter of generality versus specificity does bear on another, related construct, *collective efficacy*, which Bandura (1982) notes 'is rooted in self-efficacy' (p. 143) and which is pertinent to our consideration of potency.

*Collective efficacy.* Collective efficacy 'is related but not identical to the concept of group potency' (Shamir, 1990, p. 317). Specifically, collective efficacy refers to an individual's belief that a group can perform successfully. Like potency (and unlike self-efficacy) the referent of a collective efficacy belief is the group, not the individual. Potency, however, differs from collective efficacy in that potency is a *shared* belief in a group that it can be

effective. Collective efficacy, in contrast, concerns individuals' beliefs not necessarily shared by others. Thus, potency is an attribute of groups whereas collective efficacy is an attribute of individuals.

Does collective efficacy refer to task-specific or to more generalized beliefs about performance? The answer is uncertain. Bandura (1982) calls for the development of 'particularized' (p. 143) measures in his discussion of collective efficacy, suggesting a task-specific view. However, this matter has not been addressed explicitly in published literature and it is indicative of the fact that, as Bandura (1986), Gist (1987) and Shamir (1990) point out, the construct of collective efficacy is in need of considerable development and refinement.

*Political efficacy.* The notion of political efficacy was introduced in 1954 by Campbell, Gurin & Miller who defined it as an individual's feeling that his or her political behaviour (e.g. voting, protesting) has or can have an impact on the political system. Balch (1974) subsequently distinguished between two forms of political efficacy. One form (internal efficacy) concerned an individual's belief about his or her own personal capacity to have political influence. The other (external efficacy) concerned beliefs about system responsiveness, or how conducive government systems and political leaders are to political influence.<sup>2</sup> Notwithstanding some muddiness of measurement, a sense of political efficacy has been found to relate to such things as voting behaviour in the US (Finkel, 1985), participation in political violence in the US (Muller, 1972), political participation in Costa Rica (Seligson, 1980*a,b*), and political mobilization in Israel (Wolfsfeld, 1985). The Finkel (1985) study reported an interesting reciprocal causal relationship: political efficacy influenced voting which subsequently influenced the sense of efficacy.

Potency differs from both internal and external political efficacy in several significant ways. External political efficacy reflects beliefs about the target of influence (e.g. is the castle such that it can be stormed?); internal political efficacy reflects beliefs about one's own impact (e.g. can I contribute to the storming of the castle?); and potency reflects beliefs about the agents doing the influencing as an entity (e.g. can *we* successfully storm the castle?). Political efficacy (in either the internal or external form) is an attribute of an individual and is used to understand individual behaviours (such as casting a ballot or participating in a political movement). Potency, as previously noted, is an attribute of a group, a shared belief potentially useful to understanding collective performance.

#### *Potency and other constructs*

*Group aspirations.* Another, older construct that bears a similarity to potency is that of group aspirations. A group aspiration is an expected level of group performance on a performance trial in the immediate future (Zander & Medow, 1963). More particularly, an aspiration level for a group is said to exist when, through group discussion, members unanimously agree on a specific performance target for their next trial.

<sup>2</sup>While the conceptual difference between internal and external political efficacy largely has been maintained, there is little agreement about how to measure them distinctively (e.g. see Craig & Maggioro, 1982; Finkel, 1985; Miller, Miller & Schneider, 1980).

It is clear that group aspirations are highly task-specific in the Zander & Medow (1963) formulation. They are best understood as exact statements of performance goals rather than beliefs about group effectiveness. The measurement of group aspirations reflects this. As Zander & Medow (1963) demonstrate, the measure of aspiration level is a statement of the *one* level of performance a group seeks to achieve on a task. Separately, group members may also be asked to indicate their confidence in attaining the aspiration level (Zander & Medow, 1963). Confidence in attaining a given level of performance is more akin to the concept of potency than the statement of the group aspiration level *per se*.

However, the aspiration levels adopted by groups are probably influenced by beliefs about effectiveness. Locke & Latham (1990) make such a case at the individual level of analysis when they assert that self-efficacy influences the choice of personal goals. Much the same may be true at the group level of analysis. Note also that a group aspiration level is presumed to be 'shared' by members because it is established with unanimous consent attained through discussion. It is quite possible, though, that sometimes members may publicly consent to an aspiration level without privately accepting it.

Despite the differences between the concepts of aspiration level and potency, research on group aspirations has implications for potency. For example, the raising or lowering of group aspirations following success or failure (Zander, Forward & Albert, 1969; Zander & Medow, 1963) may be due in part to the effects of feedback on potency beliefs. The finding that group aspirations are influenced by the expectations of others outside the group (Zander, Medow & Efron, 1965) may likewise find parallels in the influence of a group's social context on potency. According to this interpretation, social context influences potency which, in turn, influences the choice of aspiration levels and performance.

*Collective self-esteem.* Crocker & Luhtanen (1990) recently introduced the concept of collective self-esteem, defined as 'the extent to which individuals generally evaluate their social group positively' (p. 60). They suggest individuals' self-concept may be divided into two aspects: personal identity, which includes beliefs about their own personal worth, and social identity, defined as 'that aspect of the individual's self-concept which derives from their knowledge of their membership in a social group (or groups) together with the value and emotional significance attached to that membership' (Tajfel, 1981, p. 255). Crocker & Luhtanen (1990) provide evidence that discrimination between in-groups and out-groups may be understood as an attempt to enhance the group in the service of the collective self-esteem rather than an attempt to enhance personal self-esteem.

Potency and collective esteem appear to be conceptually independent. To illustrate, a group may have only a weak belief that it can be effective (that is, have low potency) yet may protect its collective self-esteem by inflating the value and significance of the group on other dimensions and simultaneously devalue other groups against which it can be compared. Thus, collective esteem may be kept high even though potency is low. Also, potency is clearly a performance-related construct while collective self-esteem has not been explicitly tied to group performance effectiveness. We can speculate, though, that a positive, reciprocal relationship between potency and collective self-esteem may be observed over time: high collective self-esteem may contribute to a group's sense of potency and a strong sense of potency may contribute to a heightened sense of collective self-esteem.

*Potency and collectivistic motivation models*

Shamir (1990) found three different orientations regarding the motivational basis of individual contributions to collective work (whether the collective be defined as a group, organization, community, etc.). One orientation is defined by calculative processes. Included in this orientation are theories that emphasize the rewards or sanctions anticipated as a consequence of working in a group. Lawler (1982), for example, offered an expectancy-based motivation model of this sort (adapted from Staw, 1984):

$$\text{collective motivation} = \text{Pr}(P_i \rightarrow P_c) \times \text{Pr}(P_c \rightarrow O_i), \quad (1)$$

where  $\text{Pr}$  = probability,  $P_i$  = individual performance,  $P_c$  = collective performance, and  $O_i$  = outcomes for the individual. According to this model, the motivation for collective performance requires that some individual gain (outcome) be contingent on collective accomplishments. Note that the  $P_i \rightarrow P_c$  link in the Lawler model is essentially 'an efficacy term expressing the belief that individual performance contributes to collective performance. Potency, however, is not subsumed by this model. Indeed, the term could be included in the equation as a unique factor contributing to collective motivation.

An alternative to the calculative orientation identified by Shamir (1990) concerns *identification* as a motivational basis for collective action. An example of this perspective is taken from Staw (1984):

$$\text{collective motivation} = \text{ID} \times \text{Pr}(P_i \rightarrow O_c) \quad (2)$$

where  $\text{ID}$  = identification of an individual with a collective,  $\text{Pr}$  = probability,  $P_i$  = individual performance, and  $O_c$  = outcomes for the collective. Identification is said to exist when a person's self-concept is based on and influenced by membership in a collectivity (group, organization; e.g. Turner, Hogg, Oakes, Reicher & Wetherell, 1987). Note that outcomes for the collective rather than the individual are emphasized, in contrast to the calculative perspective. Again, the concept of potency is not captured in this model and could be added to it further to explain collective motivation.

The third orientation addressed by Shamir (1990) is one in which collective motivation is regarded as a result of the internalization of norms, values and morals shared by a collective. In this orientation, means-end connections (whether those ends are individual or collective outcomes) are not essential to explain why individuals contribute to collectivities.

Each of the three orientations examined by Shamir (1990) speaks to different motivational dynamics in groups. Like Shamir, we believe that all three orientations may be valid and useful, although their applicability may vary by circumstance and level of analysis. Identification, for example, may be a more viable explanation for patriotic collective motivation while the internalization of norms may better characterize motivational dynamics in religious collectivities. Further, we believe that the concept of potency expresses an important motivational element not reflected in these orientations. Potency is a construct with specific reference to groups, although it may eventually prove to be applicable to collectivities at other levels of analysis.

In summary, the concept of potency is distinct from existing self-, collective, and political efficacy constructs and is not incorporated in any of the three existing theoretical orientations to collective motivation. An important next consideration is the empirical

status of potency. More specifically, to what extent can it be measured reliably and related to criteria of group effectiveness?

### **The measurement of potency: Empirical data**

This section concerns the measurement of potency and the empirical relations between potency and other variables. Accordingly, alternative ways of measuring potency are discussed and consideration is given to yardsticks for judging the adequacy of potency measures. As we will see, in recent work potency has predominantly been measured via questionnaires. A particular example of a questionnaire-based measure of potency is presented and its use illustrated. The section concludes by presenting empirical data on the measurement of potency and on its relationship to other variables, notably criteria of group effectiveness.

As with most psychological constructs, potency can be assessed in many ways. One way is through observations and informal interviews carried out in a fluid manner over an extended time. Sayles (1958), in fact, adopted such a qualitative method in his research. More structured observational and interviewing approaches can be applied as well. For example, structured observations (by a participant or observer) of the frequency or intensity of particular behaviours can be taken as indicators of the strength of a group's potency belief. These behaviours might concern task avoidance (stalling), seating patterns (e.g. group members seated in disarray versus in 'tight' formation) and attendance at group meetings (number of absences, prematurely leaving meetings, participating with full versus divided attention). Because behaviours such as these can be multiply determined, the extent to which they actually indicate the strength of a group's potency belief will often be ambiguous. Nonetheless, observational measures have their place and may indeed be most useful when examining groups at work in field settings.

Verbal statements spontaneously made during the course of working in a group can also be coded as a means of assessing potency. The expression of encouraging ('we can do it') versus disparaging ('oh, what's the use?') comments about a group's likely effectiveness can be taken as indicators of potency. The extent of off-task comments, too, may be indicative, as when group members avoid working by telling stories or chatting about daily news.

Formal interviews are another potential source of data on potency. Interviews could be done with group members one at a time or, on the other hand, a single interview could be conducted with a group. Note that individual interviews require the researcher to integrate data from the multiple interviewees to form a single indicator of a group's sense of potency. In contrast, a group interview could be conducted in such a way that, through group discussion in response to interview questions, the group arrives at a consensually established single indicator of potency, thus relieving the researcher of forming such an index.

Note that all the above methods of assessing potency rely on information from the target group of interest. Alternatively, sources outside the group may provide valuable data about a group's sense of potency. This is especially true if groups acquire reputations in a social system, as Sayles' (1958) and Hackman's (1990) works suggest. In an organizational setting, for example, managers one to two hierarchical levels above that of a work group may have the necessary information to accurately rate a group's sense of potency. Peer groups, too, might usefully provide such ratings.



Perhaps the most common approach to assessing potency will be through the use of questionnaires administered to group members. We turn now to such questionnaire-based measures of potency, few as they are. Later in this section we examine scales used to assess potency in groups and we report empirical data about those measures. We also discuss the relationship of potency to criterion variables. Before reporting these results, though, we discuss some yardsticks for judging measures of potency.

### *Considerations in the measurement of potency*

Measuring an attribute of a group, such as potency, based on members' reports or ratings raises certain requirements that are not applicable to the more common exercise of measuring attributes of individuals. Three such requirements are: (1) the questions asked of members must be about the group; (2) measures must discriminate among groups; and (3) agreement among members must be demonstrated. Meeting these requirements is necessary but not sufficient for establishing the validity of a measure of a group attribute, whether that attribute is potency or some other construct.

The first requirement is that the focal entity must clearly be the group and not the individual. This point is obvious, perhaps, but it is not an unknown practice to construct indices of group attributes based on responses about individuals. For example, assessing the personal self-efficacy of each member and then, say, averaging that score as an indication of the group's sense of potency would be wrong. The resulting score would still be an indicator of beliefs of the individuals about themselves as individuals, not about the group as an entity. The second requirement also is obvious yet important. The extent to which a measure discriminates among groups can be shown through analyses of variance that test the amount of between-group variance relative to within-group variance.

Fulfilling the third requirement (members must agree) gives the researcher a firm basis for combining members' ratings into a single score and for accepting that score as a meaningful indicator of an attribute of a group. One way of fulfilling this third requirement is through statistical analyses of agreement among multiple judges (group members) rating a single target (their group). James, Demaree & Wolf (1984) present methods for estimating such inter-rater agreement and Schmidt & Hunter (1989) offer alternatives.

Just how much inter-member agreement is enough? If one adopts the James *et al.* (1984) perspective in which group members are viewed as multiple judges rating the same stimulus, then guidelines from classical test theory can be applied to inform the judgement of whether an observed level of inter-member agreement is sufficient. Nunnally (1967, p. 226) makes the case that the sufficiency of a measure's reliability depends on the use to which the measure is put. Reliabilities of .50 to .80 can be quite sufficient for research purposes, according to Nunnally, but reliabilities in excess of .90 may be required for certain applied purposes.<sup>3</sup>

One other comment about the interpretation of high inter-member agreement is in order. Consider the statement: 'The group believes it can be very effective' as a possible item on a questionnaire intended to measure potency. Responding to this item calls on an awareness of one's own and one's fellow group members' beliefs. That is, any one group member must have knowledge of what other group members believe about group effec-

<sup>3</sup>The James *et al.* (1984) statistic, strictly speaking, is not a reliability coefficient in the classical test theory sense although it is analogous in terms of its meaning and usual range.

tiveness in order to respond to the item meaningfully. Consequently, high inter-member agreement in the responses to such an item demonstrates not only that a belief is shared but also that group members are similarly aware that they share the belief. As will be reported below, questionnaire items currently in use to assess potency are of this sort. Thus an index of inter-rater agreement like that offered by James *et al.* (1984) serves as an estimate of the extent to which beliefs are knowingly shared among group members.

A second way of dealing with inter-rater agreement is to assess potency using, for example, a group interview in which members provide a single response *as a group*, as suggested by others (e.g. Gist, 1987). For example, groups could be presented with a rating scale (e.g. 1 to 7) to use in forming a single response to a question about its sense of potency. The single response could be attained through discussion to consensus. Using this approach eliminates the calculation of statistical indicators of inter-member agreement. We believe this approach is a quite acceptable way of measuring a group's potency, under the right circumstances. As noted with regard to the specification of group aspiration levels, we must keep in mind that sometimes group members may publicly consent to a response without truly believing it. Circumstances in which the press for 'politically correct' responses are strong, such as might be the case when members' organizational superiors are present, may make this approach unsuitable.

In general, what do we make of disagreement among group members in the measurement of potency? Disagreement may have diagnostic value, if there is confidence that the measurement technique is valid. Low agreement might indicate that the group is not a consequential entity to its members (for example, perhaps the organization is about to disband the group) or that the unity of the group is doubtful, perhaps because it is divided into cliques or coalitions. The detection of substantial disagreement can be the start of a process of diagnosing the sources of disagreement, a process that would require additional information from a group or from other sources.

For research purposes, though, substantial disagreement can be problematic. A researcher might properly choose to exclude from further analyses those groups having insufficient inter-member agreement on a measure of potency. In our own work using questionnaire measures of potency we have found such low agreement to occur in less than 5 per cent of the groups studied. Disagreement, though, could itself become a worthwhile target of research. For example, research on changes in the level of disagreement over time could yield insights into group functioning and performance.

### *Questionnaire measures of potency*

An initial attempt to assess potency via a questionnaire was made by Shea & Guzzo (1987b). They constructed 33 items and administered them as part of a larger survey to a sample of 88 sales teams in a retail organization's stores dispersed across the US. Team members responded to the questionnaires individually while at work. The sales teams were mostly populated by women and averaged about nine members. Examples of items include: 'This team is well prepared for its work'; 'Hard work in this team leads to completing the team's work on time'; and 'As a team, we feel that we can solve most problems that affect our team'. Items were responded to on a seven-point scale anchored by 'strongly disagree' (1) and 'Strongly agree' (7). Members' responses to items were averaged and the items were combined to form a potency score for their group, after documenting inter-member agreement.

The data revealed substantial agreement among members' ratings of their groups on these items (average  $r = .88$  as estimated by the James *et al.*, 1984, approach). Additionally, analysis of variance indicated that potency scores significantly differed among the teams ( $F(87, 245) = 1.44, p < .02, \omega^2 = .34$ ). The  $\omega^2$  estimates that 34 per cent of the variance in potency scores was accounted for by group membership (Hays, 1973).

Guzzo, Campbell, Moses, Ritchie, Schneider, Shaff, Wheeler & Gustafson (1991) also measured group potency using a dramatically smaller number of items: five. These were derived from the work of Shea & Guzzo (1987b) and were administered as part of a larger questionnaire to 59 teams in a large communications firm. Responses were made individually by team members while on the job. An example of an item is: 'To what extent does the team have confidence in itself?'. Items were responded to on a five-point scale ranging from (1) 'To a very small extent' to (5) 'To a very great extent' and the five-item scale had an internal consistency reliability of .86. The teams were quite heterogeneous in that they worked in different geographical locations, were at different hierarchical levels, and performed different work including direct marketing, production and general management. Results again showed substantial within-group agreement (average  $r = .81$  and between-group differences ( $F(58, 636) = 6.28, p < .01, \omega^2 = .31$ ).

There were several reasons underlying the decrease from 33 to five items in the above two studies. One reason was that, on reflection, 33 were too many, especially considering the audience to whom the new measure was administered. Second, certain of those 33 items seemed worded in such a way as possibly to confound the measurement of the potency belief with the measurement of its antecedents. These items were discarded. Also discarded were items that did not unambiguously meet the criterion of referring to a group rather than to an individual or subset of individuals in the group. Further, it is important to note that items in the Guzzo *et al.* (1991) study became the property of the organization in which the data were collected. This proprietary consideration constrains the use of these items in research outside that organization. Consequently, new items were written to measure potency in a subsequent study.

A revised eight-item measure of potency is currently in use in ongoing research. In this work potency is assessed in a questionnaire survey of 19 teams from one geographic locale of a consumer products company. The eight items were responded to individually by group members using a five-point scale anchored by (1) 'To no extent' and (5) 'To a great extent'. Table 1 displays these eight items, which we expect to use in our own continuing investigations. As before, members' responses to each item were averaged and average item responses were combined into a scale score (with an internal consistency reliability of .88). Analyses indicated intra-group agreement (average  $r = .95$ ) as well as differences by team ( $F(18, 89) = 1.60, p < .08, \omega^2 = .09$ ) and by hierarchical level ( $F(2, 105) = 3.72, p < .03, \omega^2 = .05$ ). The strength of between-team differences appears weaker than in other research, a result which we think reflects the lack of heterogeneity in this small sample (for example, all teams worked out of the same office, all teams shared a common superior two levels up the hierarchy) as compared to that found in the previous, larger samples.

Overall, the data from these studies indicate that (1) potency can be reliably measured in groups and that (2) groups differ in their potency scores. Both types of information speak to the validity of the measure as an indicator of a group-level attribute. However,

Table 1. Items for the measurement of potency

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*Items*

1. This team has confidence in itself.
2. This team believes it can become unusually good at producing high-quality work.
3. This team expects to be known as a high-performing team.
4. This team feels it can solve any problem it encounters.
5. This team believes it can be very productive.
6. This team can get a lot done when it works hard.
7. No task is too tough for this team.
8. This team expects to have a lot of influence around here.

*Response scale*

1. To no extent
  2. To a limited extent
  3. To some extent
  4. To a considerable extent
  5. To a great extent
- 

more telling evidence in support of construct validity concerns the relation of potency to criterion variables indicating group performance.

*Potency and criterion variables*

Shea & Guzzo (1987b) provide evidence of the relation of potency to criterion measures of group effectiveness. They found that potency and team customer service effectiveness were correlated ( $r = .31, p < .01$ ). Measures of customer service were obtained through ratings made by supervisors and by team members. A separate indicator of team performance taken from store records, the gain in the dollar volume of sales of teams in a current month over the volume of sales in the same month of the preceding year, did not correlate significantly with potency in the Shea & Guzzo (1987b) study.

Guzzo *et al.* (1991) report significant correlations between potency and measures of service to others inside the organization ( $r = .29, p < .05$ ) and of service to customers ( $r = .34, p < .01$ ). All data in the Guzzo *et al.* (1991) study were obtained through a common method—ratings—but respondents who provided ratings of potency were different from the respondents who provided ratings of service. That is, while the methods of obtaining potency and criterion data were the same (ratings), the sources of data were independent. The Guzzo *et al.* (1991) study also found that potency was influenced by factors such as group composition (e.g. see Larson & LaFasto, 1989) and the clarity and challenge of group goals (e.g. see Sayles, 1958). Additionally, they found statistical support for potency as a mediator of the effects of composition and goals on team effectiveness when tested against alternative models that placed other variables (e.g. goals) in a mediating role.

Potency, the collective belief that a group can be effective, thus has been found to be a reliably measurable attribute of groups and a predictor of group performance. The empirical research on the construct is, obviously, at an early stage, though it is consistent with reports by Sayles (1958), Hackman (1990) and Larson & LaFasto (1989). The advancement of research will depend on several things, such as adopting a common set of items when questionnaire measures are used, establishing the validity of alternative

methods of assessing potency, extending the range of samples and situations in which potency is assessed, and further relating potency measures to performance criteria.

### A conceptual framework of potency

The conceptual model underlying our examination of potency appears in Fig. 1. Our goal in this section is to make explicit that conceptual framework and to discuss in some detail the causes of potency in groups. The relation between potency and a consequence of central interest, group effectiveness, has been addressed in our discussions of the origins of the concept in the works of Sayles (1958), Larson & LaFasto (1989) and Hackman (1990) and in our review of the relation of empirical measures of potency to criteria (Guzzo *et al.*, 1991; Shea & Guzzo, 1987*b*). Thus, in this section we give greater attention to the causes of potency. However, an additional observation about potency, expressed by Shea & Guzzo (1987*a*) and Gist (1987), is in order. Excessive potency, or overconfidence, may be detrimental to group performance. Janis (1982), for example, provides examples of how the overestimation of a group by its members leads to faulty decision making. We know little, though, about how frequently such overestimation occurs.

The model in Fig. 1 depicts a group's sense of potency as having a causal role in determining group performance, as discussed. Further, performance is itself an important influence on a group's sense of potency. Two other sets of factors, those internal and external to a group, are also depicted as influences on potency. The distinction between internal and external is more easily maintained for some factors than others. Keep in mind that the framework we discuss is not that of a general multivariate model of group effectiveness; factors other than those appearing in Fig. 1 contribute to group effectiveness (e.g. rewards). Some of those factors may eventually be shown to have all or part of their impact on effectiveness mediated by potency while some may be shown to have a direct influence on effectiveness. The relations shown in Fig. 1 are described more fully below.

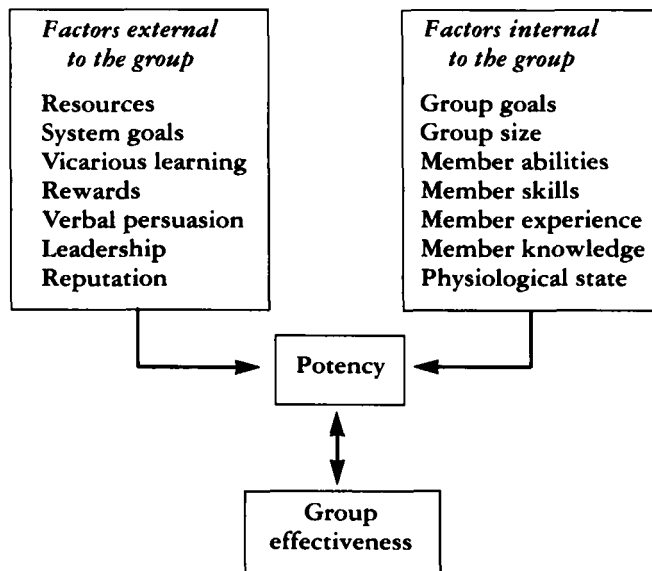


Figure 1. A conceptual model

*Potency and effectiveness*

A consistent finding from the work of Sayles (1958) and Hackman (1990) is that success fosters a belief in work groups that they can be effective in the future. This closely parallels the efficacy literature in which past performance on a task has been shown to be a strong determinant of individuals' self-efficacy (e.g. Bandura, 1982). As Bandura (1982, p. 126) puts it, 'authentic mastery experiences' and 'enactive attainments' are the most powerful influences on self-efficacy because of the amount of first-hand information they provide. With regard to individual self-efficacy, Kirsch (1986) also notes the strong influence of performance feedback but also notes that the effects of performance feedback may decrease as the number of performance trials increases. It is possible that such a dynamic holds for the development of a group's sense of potency, too.

*Factors internal to a group*

Factors internal to a group that contribute to a sense of potency largely concern the qualities and attributes of the individual members. The findings of Larson & LaFasto (1989) that members' appraisals of the skills represented in a group influence a group's sense of confidence, and of Guzzo *et al.* (1991) that group composition relates to potency, support this link. Other attributes that can be expected to influence potency include member experience and knowledge. A factor associated with the adequacy of skills, experience and information in a group is group size. Groups that are under- or overstaffed, we predict, will have a lowered sense of potency. Guzzo *et al.* also report that clear, challenging group goals relate positively to a sense of potency. There is little evidence bearing on the effects of physiological states on a sense of potency. However, Bandura's (1982) assertions that physiological states such as fatigue or stress can diminish the sense of self-efficacy may also apply to groups. We would expect effects of members' physiological states on potency to be temporary.

*Factors external to a group*

Factors external to the group largely concern the social system in which groups are embedded. For example, organizations that provide ample resources for groups (by way of opportunities for training, information, materials, budget and so on), we predict, promote a sense of potency. In interviews done in connection with the Shea & Guzzo (1987*b*) study, it was found that the sense of potency in some retail sales groups was lowered because members of those groups regarded the organization as not giving them the resources needed to do their work effectively. Resources, in this instance, included such things as shelf space for displaying merchandise and day-to-day supplies such as staple guns.

The potential of the group to contribute to the goals of the larger social system can also influence the development of a sense of potency within a group and can influence the extent to which groups acquire reputations of potency. Potency can vary as the potential to influence the effectiveness of the broader social system varies. The potential of groups to contribute to organizational effectiveness is a function of several things, including the fit of group goals with broader organizational goals (Guzzo & Campbell, 1990), the position of a group in an organization (Sayles, 1958) and the nature of a group's work (Sayles, 1958).

In his analysis of the causes of self-efficacy, Bandura (1982) cites 'external' influences such as vicarious experiences and verbal persuasion. That is, self-efficacy can rise or fall as a result of witnessing others' success or failure and as a result of persuasive messages from others concerning one's own likely performance. Such processes could well operate to influence a group's sense of potency. In an organizational setting these processes may often originate with the leader of a group. Our concern here is with leaders who typically are not full members of the group they lead but rather are one to two hierarchical levels above the group and who may well have responsibilities for managing more than one group.

Shamir (1990) notes that there are few theoretical bridges between theories of leadership and collective action. We propose one such bridge. It is built on the effects of leaders on groups' sense of potency. That is, leaders' ultimate impact on group effectiveness can be understood in part as mediated by leaders' impact on group potency.

Recent theorizing on leadership largely concerns two different but related styles, *transactional* and *transformational* leadership (e.g. Clark & Clark, 1990; Hollander & Offerman, 1990). Transactional leadership emphasizes the leader's role in planning, controlling, monitoring and rewarding others. This involves setting goals, managing group *vis-à-vis* organizational goals (Campbell & Campbell, 1988), and helping groups obtain resources such as tools, equipment and talented people. The process by which such things are accomplished involves transactions between the leader and subordinates or between the leader and others in the organization. In a similar vein, Hackman & Walton (1986) examine what they call the 'functional' perspective on the leadership of groups. We propose that transactional (or functional) leaders indeed influence potency in groups and do so indirectly, by changing the internal and external factors that shape potency (see Fig. 1).

Transformational leaders, on the other hand, do the same necessary functional activities as transactional leaders but do something else as well. Transformational leaders, we propose, directly influence group potency. Transformational leaders are often described as charismatic (Bass, 1985; Conger, 1989; Conger & Kanungo, 1988; House, 1977), as energizing and inspiring others, and as enlisting commitment to group and higher-level goals (Bass, 1985). They communicate high performance expectations. Work by Eden (1990*a,b*), for example, shows that leaders' expectations influence the performance of those whom they lead. Transformational leaders also are described as boosting the confidence of followers and developing in them a belief that they will succeed by modelling beliefs and behaviours (Conger, 1989; Conger & Kanungo, 1988). Transformational leaders' influence on a group's sense of potency thus can be thought of as occurring in part through vicarious processes and verbal persuasion (Bandura, 1982).<sup>4</sup>

In summary, one of the aspects of the social context that influences potency is the leadership style to which groups are exposed. A transactional style appears to have indirect effects on potency while a transformational style has both indirect and direct effects.

We close by noting that Gecas (1989) provides one of the few extended discussions of how self-efficacy is affected by social conditions. For example, Gecas discusses the impact of family structure and social class on the strength of self-efficacy beliefs. Although

<sup>4</sup> The label 'transformational' sometimes has been reserved for use with those few leaders who have directed major organizational changes (e.g. Tichy & Devanna, 1986). Others take the position, and we agree, that elements of transformational leadership are common and can be found in the daily functioning of organizations (Bass, 1985; Burns, 1978).

Gecas' discussion is not wholly relevant to the concept of potency, it does make the point that the social system in which one is embedded influences beliefs about effectiveness. We emphasize this point in light of Levine & Moreland's (1990) observation that the impact of social environments on groups is often not appreciated.

### Discussion and implications

This concluding section briefly addresses three concerns. The first is the fit of potency with existing theories of group effectiveness. The second is what we regard as desirable qualities of future research on potency. And the third is interventions to raise group potency and effectiveness.

#### *Potency and theories of group effectiveness*

Potency is an example of a group belief. 'Group beliefs are defined as convictions that group members (a) are aware that they share and (b) consider as defining their 'groupness' (Bar-Tal, 1990, p. 36). According to Bar-Tal, group beliefs receive comparatively little attention in social psychological theorizing even though there is ample support for their importance.

The reluctance to investigate group beliefs has been traced to Allport's (1924) attack on McDougall's (1920) thesis of a 'group mind' and Allport's subsequent attempt to dismiss altogether the concept of groups as targets of social psychological inquiry. Brown (1988) succinctly shows that it is indeed possible to accept Allport's (1924) critique of the group mind and yet not be compelled to dismiss the usefulness of the concept of 'group'. Citing Mead (1934), Sherif (1936), Asch (1952) and Lewin (1952), Brown (1988, pp. 3–5) makes the case that people's perceptions of themselves as members of a group define the reality of groups and that there is considerable value in regarding groups as more than the mere aggregation of constituent parts. Bar-Tal (1990), too, similarly analyses the origins of social psychology's hesitant use of group beliefs. Rather than avoiding group beliefs we believe that theories of groups can be enriched by the addition of such constructs.

As a case in point, the potency belief may be best regarded as a variable that can augment existing models of group performance rather than replacing those models. Earlier it was pointed out how potency could be added to existing models of collective motivation. Additionally, potency could be added to input—process—output models of group performance such as that put forth by Hackman & Morris (1975) to fortify those models' capacity to explain group performance. Similarly, models that emphasize contextual influences on group performance (Guzzo & Shea, in press; Sundstrom *et al.*, 1990) could be supplemented by the concept of potency, too.

#### *Research*

Future research on potency could take many directions. Those which have the following qualities, we believe, will do the most to advance the development of the concept of potency.

Comparative research will be valuable. Specifically, research that contrasts potency with expectancy and efficacy constructs applicable to groups would be valuable, as would



research which makes comparative tests of models of group performance with and without potency in them. Also, longitudinal research is needed that addresses the evolution of potency in groups, including its decline. Issues to be addressed by such longitudinal work include the effects of membership changes on potency and the process by which groups acquire reputations for potency and how those reputations subsequently affect groups.

In addition to the benefits of comparative and longitudinal research, we emphasize two other qualities as especially desirable for future research. One is that research be interventionist in nature, such as is done in experiments. Such a mode of inquiry is absent from the observational works of Sayles (1958), for example, or the correlational work of Guzzo *et al.* (1991). The other quality we emphasize concerns the setting of future research. While we do not rule out laboratory settings as places to investigate potency, we think that naturally occurring settings should dominate as the research sites of choice. The reasons for this are simple but fundamental. McGrath (1991), for example, argues that most theories fail to appreciate the impact on groups of the social system (organization, school, community) in which groups are embedded. They fail to do so because most research is conducted on 'limited, context-stripped groups' (McGrath, 1991, p. 149). To fail to study potency with groups-in-context would be to repeat a mistake of the past and would restrict our appreciation of the phenomenon, in large part because groups' beliefs about their effectiveness are products of contextual influences (see Fig. 1). Others stressing the importance of research on groups-in-context include Ancona (1987), Guzzo & Shea (in press), Levine & Moreland (1990), and Sundstrom *et al.* (1990).

### *Practice*

What can be done to enhance the sense of potency in a group? Although there is a distinct need for research to evaluate the impact of interventions to enhance potency, it is clear that certain actions are likely to have a positive impact.

Creating success experiences for groups is the one form of intervention that appears to hold the greatest potential for raising potency. Because past performance is a strong determinant of beliefs about future performance, success or mastery experiences in groups should have the effect of elevating the sense of potency. Hackman (1990) makes a similar point. Sometimes groups may indeed already be effective but may not be receiving the feedback that tells them so. An example of this we have encountered involved a research and development group in an organization which, by many indicators (e.g. innovations produced, appraisals by superiors, retention of members) was a successful group. Members, however, did not perceive themselves this way. Communicating feedback about their effectiveness reoriented their beliefs about their group's future effectiveness.

Other interventions to raise potency might include training to improve members' technical and other skills. The greater the abilities of group members, the greater the likelihood that the group will develop a strong sense of potency. Additionally, training and developing leaders to behave in accord with a transformational style, as discussed earlier, may be a viable route to enhancing group potency.

Intervening to improve potency does not stand apart from considerations of research on potency. That is, research done while attempting to solve real performance problems of groups in field settings can be very valuable because of its dual contributions. Not only can such research yield practical knowledge about how to improve potency but it can also

result in the development of better, more complex theories of groups in part because such field-based, practice-oriented research stimulates the investigation of 'more complex and interesting problems' (Levine & Moreland, 1990, p. 621) than otherwise might be encountered. In summary, potency is a construct well-suited to being investigated in field contexts through research oriented toward improving group performance effectiveness while simultaneously extending our theories of group effectiveness.

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## Erratum

C. McCarthy & J. C. Turner (1992). The effects of categorization on social judgement. *British Journal of Social Psychology*, 31, 253–268.

Paragraph 2, page 265 should read:

The hypothesis that making a classification more meaningful (by providing information about it) will tend directly to increase categorization effects failed to find support in either study. In Expt 1, in addition, there was no support for the idea that the differentiated meaning of an accessible categorization would contribute to category salience. These data seem to represent strong evidence against a simple accessibility view of category salience. The finding in Expt 1 of enhanced categorization effects for moderately extreme categories is definite evidence for the importance of fit (in interaction with accessibility) in determining category salience (Oakes, 1987, Oakes *et al.*, 1991; Turner, 1985). One inconsistent finding is the apparent failure to replicate this result in Expt 2. An explanation of this apparent inconsistency can be proffered in terms of an interaction between social influence, uncertainty and fit.

The Editor apologizes for any confusion caused by the error in the published text.



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