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Emotional and Social Intelligence Competencies of Incident Team Commanders Fighting Wildfires

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Abstract

Incident Management Teams (IMTs) combat the toughest wildfires in the United States, contending with forces of nature as well as many stakeholders with different agendas. Prior literature on IMTs suggested roles and cognitive sensemaking as key elements for success, but the possible importance of emotional and social intelligence competencies in leadership has not been empirically explored. Sixty critical incidents from interviews of 15 incident commanders were analyzed for emotional and social intelligence competencies in incident management leadership. Seven competencies were found to significantly differentiate outstanding leaders from average leaders. Emotional self-control, adaptability, empathy, coach/mentor, and inspirational leadership significantly or near significantly differentiated the outstanding leaders. Five additional competencies appeared as threshold competencies: achievement orientation, organizational awareness, influence, conflict management, and teamwork. Implications for further research, training, and development are explored.

Keywords

social intelligence competencies, emotional intelligence competencies, team leaders

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Incident Management Teams (IMTs) manage the largest and most complex wildland fires for the wildfire fighting and management community of the U.S. Forest Service (USFS) and related agencies. The people they lead are frequently in harm's way when they go to work. Any observer will be impressed by the courage and precision of what they do. Multiple leadership and coordination skills are necessary to get the job done and keep people safe (Mockenhaupt, 2014). Wildfires, particularly the large fires considered in this study, are complex situations. Fuel conditions vary. Weather conditions are constantly changing. Terrain can be difficult to navigate. Time is of the essence.

The organizational and interpersonal situation for the IMT is equally complex with intersecting layers of federal, state, county and local law enforcement, fire fighters, politicians, and community representatives involved. Often these groups have conflicting agendas or priorities. Emotions run high in all parties involved as people's lives, homes, and livelihoods are at stake.[1]

Incident commanders (ICs) represent the pinnacle of wildland fire training and expertise, often with 25+ years of wildland fire experience. They are charged with managing the largest, most challenging fires with a team of 7 to 50 or more people responsible for the hundreds to thousands of on-the-ground firefighters assigned to their incident. The IC is the person who makes it all work, or not. While people can assume that technical abilities are a must, as well as courage and perseverance, the job requires managing, motivating, and coordinating a lot of different people. While in the midst of fighting a wildfire, tensions and possible conflicts are frequent. Technical knowledge and skill will possibly not be sufficient to convince others as to what they should do. These interpersonal and team demands suggest that emotional and social intelligence (ESI) of the IC might make a substantial difference in the performance of these teams.

The purpose of this study was to determine the degree to which ESI and other personal characteristics might make a difference in the effectiveness of ICs and add a new dimension to the existing scholarship of incident command. Training and development of ICs could be improved with more specific identification of intrapersonal and interpersonal capabilities linked to effective performance. In addition, this could help development of other types of team leaders in high-reliability jobs but also in jobs thought to be primarily technical in nature, like emergency and safety jobs. We explore the ESI competencies shown by "outstanding" versus "average" performing ICs in wildfire events. Specifically, we ask the following research questions:

Research Question 1: Which ESI competencies differentiate more effective ICs from less effective ones when fighting wildland fires?
Research Question 2: Are there other perspectives or capabilities that differentiate the more effective ICs from less effective ones?

The Research Question 1 could be posed as 12 hypotheses. We contend that each of the 12 generic ESI competencies would be more frequently demonstrated by the more effective ICs than the less effective ICs.

The remainder of this article is structured as follows. First, we provide some contextual information to help situate our analysis. When then provide a brief overview of existing literature on ESI. Following the methods and results, the article concludes with a discussion of the future research and developmental implications for the findings.

Literature Review

Contextual Background

Incident Management Teams. IMTs usually work together only during a wildland fire assignment, often for 14 to 21 days at a time, 24 hours a day, every day. Often, there are a few new members on the team. IMT members have "day jobs," working in different capacities for different agencies—state, local, and various federal land management agencies (National Park Service, Bureau of Land Management, Bureau of Indian Affairs, USFS). The IMT is on call. It is up to the IC to deploy an effective team on a moment's notice. Each also has a single position on the IMT. At the highest level or organization, is the IC, who is often assisted with external partner coordination by a Liaison officer. Just under the IC are the leads for six functional areas: Safety, Public Information, Logistics, Operations, Planning, and Finance. The structure of each functional areas can expand as needed to accommodate incident requirements.

IMT's are listed on a national rotating roster for the wildland fire season, which is increasing in length. For predefined periods of time during the season, each team is on immediate call. A regional or national coordinating committee determines when to deploy an IMT and where they will go. When the team is assigned to a fire, the IC notifies members where to report. Members are generally en route within 8 hours. Depending on the size and complexity of the fire, this team is responsible for up to several thousand other people, many of whom are directly at risk on the fire line. Beyond this suite of incident personnel are the myriad partners from various agencies and governments—local sheriff's departments, local and state fire agencies, media, politicians, those directly affected, and the general public.

Prior research on IMTs and the larger systems within which they operate has focused on their structure, roles, and cognitive sense making in these highly volatile situations (Bigley & Roberts, 2001; Roberts, 1990; Weick, 1993). The challenge is managing complexity with "baffling interactions" and "time dependent processes" (Roberts, 1990). In his study of the tragic Mann Gulch disaster, Weick (1993) identified four sources of resilience, which he argued would allow individuals to perform effectively in these highly volatile situations: improvisation and bricolage, virtual role systems, the attitude of wisdom, and respectful interaction. Of these, "respectful interactions" is particularly relevant to our study as it speaks to the importance of interpersonal abilities. These scholars concluded that more flexibility was needed. Weick (1993) called it "improvised firefighting." Weick (1993) concludes that disruption of the typical sensemaking during the fires results in a "sudden loss of meaning." He focused on the decision-making and cognitive representation aspects of the experience

of the Mann Gulch wildfire disaster. In recommending that sources of resilience would improve "improvised firefighting" and "respectful interactions," Weick (1993) was suggesting that the ESI of the ICs could be a vital part of their ability to be flexible and adapt in successfully combatting these fires and saving lives as well as property.

The Incident Commander. The wildland fire ICs are leaders of teams, and often multiple subunits (teams and crews). Their role is to supervise and direct the wildfire management effort. The IC works with the local Agency Administrator (i.e., area line officer) to identify and communicate an overall strategy. He or she is responsible for the entire operation—from public information and safety, to planning and operations, to camp logistics, communication and the financial shop that order resources, ensures all are paid, and tracks costs. He or she prepares tactics to implement the plan and contingencies in case these fail.

In addition to the teams fighting the wildfire, there are many teams and groups of people involved in the effort to minimize the potential damage of the wildfire on people's lives, livestock and animals, buildings, businesses, and communities. One of the IC's main roles is managing these different stakeholders to ensure the firefighting strategy effort is successful. There are community-based groups of interested citizens or residents and business owners. There may also be environmental advocacy and ecological groups. In some cases, there may even be groups of local residents who reject the concept of U.S. Federal authority and make the work of fighting a wildfire difficult because they refuse to allow USFS personnel on their property.

Because of the diversity of agendas of the people involved, as well as the uncertainty and complexity of the wildfire itself, the IC role requires a high degree of technical competence and cognitive capacity. Indeed, much of their current training focuses on the development of these technical skills. Far less attention is given to the possible importance of ESI. Given the large number of people involved in these operations and the emotionally charged context, it seems that the ability to manage emotions, one's own emotions and those of others, would be critical in the effective leadership of these teams.

ESI and Team Leadership

Emotional intelligence (EI) is informally defined as "the ability to manage your own and other's emotions" (Goleman, Boyatzis, & McKee, 2002, p. 6). Social intelligence has been defined as the ability to "manage other's emotions and build and maintain healthy relationships with others" (Goleman, 2006, p. 14). A great deal of the controversy within academic circles about ESI has revolved about the measurement of ESI (Matthews, Zeidner, & Roberts, 2002). Currently, it is said that there are four "streams" or approaches to EI research as characterized by the measures used (Ashkanasy & Daus, 2005; Boyatzis, 2017; see also O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011). *Stream 1* operationalizes EI as an ability that can be measured by assessing a person's direct processing ability (i.e., the Mayer–Salovey–Caruso Emotional Intelligence Test). *Stream 2* also operationalizes EI as ability, but is based on

self-assessment measures, which raises questions regarding the accuracy of one's own assessment of their ability. *Stream 3* is described as measures of "mixed models" because it combines ideas from many different approaches. In their comprehensive meta-analysis, O'Boyle et al. (2011) showed that although all measures of EI had predictive ability regarding job performance, *Stream 3* measures had the strongest relationship to performance, also shown by Joseph, Jin, Newman, and O'Boyle (2014) in a later meta-analysis.

Finally, most recent commentaries, and the approach we take in this article, suggest that *Stream 3* measures should be further separated into self-assessment (*Stream 3*) and other assessed behavioral level and measures of EI, referred to as *Stream 4* (Boyatzis, 2017). Fundamentally, a behavioral approach to EI conceptualizes ESI competencies as a set of behaviors directly related to managing one's own emotions and those of others, as well as relationship building and maintenance capability.

EI and EI competencies are different levels of the same phenomenon. More specifically, ESI competencies are the behavioral level of ESI (Boyatzis, 2009; Cherniss, 2010). Boyatzis (1982) defined competencies as, "the underlying characteristics of a person that lead to or cause effective and outstanding performance" (pp. 20-21). The main difference between the *Stream 4* behavioral approach and the *Stream 2* and *Stream 3* measures is that the behavioral approach to EI does not rely on self-assessment. Behavioral research since the 1950s has shown that humans are poor assessors of their own behavior (Hollander, 1958).

Prior research adopting a behavioral approach to ESI have found that ESI competencies predict outstanding leadership across a variety of professions and many countries (Boyatzis, 1982, 2009), financial services, family business (Miller, 2014), bank executives (Hopkins & Bilimoria, 2008; Van Oosten, 2014), community college presidents (Babu, 2016), product innovation (Kendall, 2016), school principals (Williams, 2008), R&D chiefs (Dreyfus, 2008), Indian CEOs (S. Spencer, Rajah, Narayan, Mohan, & Lahiri, 2007), and many others. Most relevant to this article is the substantial number of studies showing the direct link of ESI to effectiveness in U.S. Navy and Marine Corps senior enlisted and officers (McBer and Company, 1985) and the British Navy (Young & Dulewicz, 2009). At the level of team leadership, ESI has been shown to predict effective team leadership in the U.S. Navy for both team commanders and the team EI (Koman & Wolff, 2008), knowledge workers (Mahon, Taylor, & Boyatzis, 2014) and emergent leaders (Wolff, Pescosolido, & Druskat, 2002).

Methodology

Behavioral Approach to ESI Using Competency Analysis

As discussed earlier, in this study, we adopted a behavioral approach to ESI (*Stream 4*), which uses observations from others to measure a person's ESI. These others may include any combination of supervisors, peers, and/or subordinates or direct observation of behavior from videotapes of simulations or audiotapes of critical incidents interviews. Critical incidents have been shown to capture what people actually did,

said, and felt in work situations (Boyatzis, 1982). The basic design was a criterion-referenced, qualitative study to assess Research Question 1 and an inductive, open-coding method to determine possible answers to Research Question 2 (Boyatzis, 1998). Our process included three key steps: (a) Sample selection, (b) critical incident interview, and (c) coding of interviews. Each of these steps is discussed in detail below.

Sample Selection. To determine the criterion of effectiveness, we collected nominations from peers, bosses, and subordinates of wildland fire ICs to determine a sample of outstanding leaders. Using nominations as a measure of effectiveness has been validated as significantly better than ratings (Lewin & Zwany, 1976). A second comparison sample was composed of "average" ICs that were randomly selected from a group who did not show any nominations. A master list of all currently active and eligible Type 1 and Type 2 ICs and Operations Section Chiefs (who are the subordinates of the ICs) was compiled by the USFS[2] ($n = 50$). Type 1 ICs are the most senior and are eligible to command more complicated incidents than Type 2 ICs.

Each person on this list was sent an e-mail from our USFS Research partner with information about the study, including letters of support from the USFS's and Department of Interior's national Fire Directors. This was followed by an e-mail from the principal investigator inviting the ICs to visit a website to respond to the nominations request. The request was as follows:

> Please write in the name of any Incident Commander whom you think is an *outstanding leader*. You can write in as many or as few names as you feel appropriate. When you do, please also select Type [level of IC] (1, 2, or 3) and their Geographic Area with the dropdown menu. If you choose no one, please leave the boxes blank and skip to the next question.

The ICs nominated by multiple people at different levels were chosen and labeled as a sample of "outstanding performers" ($N = 17$). Then, an additional sample of 17 "average performers" was randomly selected from those who were not nominated as outstanding by anyone (Boyatzis, 1982; L. M. Spencer & Spencer, 1993). The sample selection was compiled by a member of the research team who was not involved in the interviewing. Neither the interviewer nor the participants knew which criterion group to which the interviewees were assigned. Difficulties in contacting the ICs and their willingness to respond to e-mails and phone calls resulted in a sample of eight outstanding and seven average ICs being interviewed.

Critical Incident Interviews. To maximize a real-world context for the analysis, critical incident interview techniques were used to elicit behavioral examples of IC leadership during wildland fires. The critical incident interview was first documented by Flanagan (1954). It has been used to determine competencies and behavior shown in actual work settings (Boyatzis, 1982). It provides a rich, qualitative look into events in which a person's behavior can be observed by others afterward. After a brief request to

describe their role, the participants were asked, "Tell me about a time, recently, in which you felt effective as an Incident Commander." The interviewer attempted to extract as behaviorally detailed a description of the event as possible. After one "effective" incident was obtained, the interviewer asked about an event in which they felt ineffective. This sequence was repeated, yielding a total of four critical incidents per interview. All interviews were recorded and transcribed.

Coding of Critical Incidents. Two approaches were used to code the critical incident interviews. To answer the Research Question 1 with its implicit hypotheses, an existing thematic code was applied to the 60 incidents in the 15 interviews. This technique is described in Boyatzis (1998) and is also referred to as "etic" coding (Pike, 1966). For the Research Questions 2, inductive coding was used to examine emerging themes and patterns that differentiated the two criterion groups (Boyatzis, 1998), also referred to as emic coding (Pike, 1966).

To code for the existing themes of ESI competencies, a codebook that has been in use for several decades was used.[3] This codebook contains a definition and detailed coding protocol for each of the 14 generic ESI competencies. The competencies are emotional self-awareness, emotional self-control, adaptability, achievement orientation, positive outlook (EI competencies); empathy, organizational awareness, coach and mentor, inspirational leadership, influence, conflict management, teamwork (social intelligence competencies); and systems thinking and pattern recognition (cognitive competencies). Two coders were trained on using the codebook by a computer based training program. After completing the training, they independently coded each interview.

Although the complete codebook is available on request and in selected previous publications, examples of the codes for two of the competencies are as follows:

Emotional self-control. Definition: Keeping disruptive emotions and impulses in check.

Intent: To inhibit personal needs, or desires for the benefit of organizational, family, or group needs.

Although it is often not visible (i.e., if a person has self-control you cannot easily see them controlling himself or herself), it is indicated when a person:

1. Remains calm in stressful settings (e.g., when being attacked)
2. Explicitly inhibits aggressive outbursts or impulsive behavior that may hurt others or hurt progress toward goals
3. Explicitly denies a personal impulse, need, or desire (i.e., makes a personal sacrifice) for the good of an organizational or group need

Coding Protocols (Inclusion/Exclusion Criteria):

- The person may describe a situation in which he or she exhibited Emotional Self-Control toward a specific desired end.

- The Courage competency is similar to Emotional Self-Control. While Emotional Self-Control demonstrates the ability to keep disruptive impulses in check (e.g., remain passive when the impulse is to act), Courage demonstrates the ability to act when the impulse or incentive is to remain passive.

Inspirational leadership. Definition: Inspiring and guiding individuals and groups.

Intent: To bring out the best in people.
It is indicated when a person:

1. Inspires people
2. Builds pride in the group
3. Brings out the best in people
4. Leads by creating a positive emotional tone
5. Articulates a compelling vision

Coding Protocols (Inclusion/Exclusion Criteria):

- The individual should display specific action within a leadership role (formal or informal) to be coded for Inspirational Leadership. If the individual is not in a leadership role, then the coding would more likely be for Teamwork.

Each critical incident was coded for each of the competencies as being present or absent in the critical incident based on the coder's analysis of the behavior of the IC (Boyatzis, 1998). A determination of "presence" of a competency was made based on its occurrence in any of the four incidents. The number of times the IC used or demonstrated the competency across the incidents was also coded and used to measure the frequency of use of that competency. While the interviews attempted to get each IC to provide four incidents, sometimes an IC told a story with multiple incidents embedded in a much larger event, or tied several parts of an event together, which resulted in an uneven number of incidents for each IC interviewed.

After the independent coding of the transcripts, a series of meetings were held with a third coder, who has been using the codebook for decades with high interrater reliability. Initial independent coding of two coders showed percentage agreement on the presence of the competencies with a mean of 56%, a median of 57%, and a range of 22% to 85% at the competency level. Each observation from either coder was examined and discussed until all three reached 100% agreement. These coding and reconciliation discussions were done blind to the criterion group (i.e., outstanding vs. average performer grouping; i.e., prior to any analysis).

For the inductive part of the study, the three independent coders used open coding to note any emergent themes. When comparing notes, two themes were found to significantly differentiate the two criterion groups. To further check the validity of these two emergent themes, words relevant to the themes were counted among all interviews, confirming quantitatively a much higher presence in the outstanding

Table 1. Presence and Frequency of ESI Competencies Among Outstanding and Average Incident Commanders.

	Presence		Frequency	
	Percentage of sample with one or more		Mean for incidents	
Competency[a]	Outstanding (8)	Average (7)	Outstanding	Average
Emotional Self-Awareness	25	14	0.25	0.14
Emotional Self-Control	**63**	0	**0.63**	**0.0**
Adaptability	75	43	**0.88**	**.43**[b]
Achievement Orientation	*50*	*50*	*0.63*	*0.86*
Positive Outlook	13	0	0.13	0.0
Empathy	38	14	**0.63**	**0.14**[b]
Organizational Awareness	*50*	*29*	*0.63*	*0.43*
Coach and Mentor	25	0	**0.25**	**0.0**[b]
Inspirational Leadership	**63**	**0**	**0.63**	**0.0**
Influence	*50*	*57*	*0.88*	*1.00*
Conflict Management	*75*	*43*	*0.75*	*0.43*
Teamwork	*75*	*57*	*1.00*	*1.00*

Note. ESI = emotional and social intelligence.
[a]Competencies highlighted in bold show significant differences between the performance groups on a chi-square analysis using Fischer's Exact Test and one-tailed significance levels. These have been characterized as distinguishing competencies. Those appearing in italics represent copmetencies shown frequently enough to be characterized as threshold competencies. [b]This was near significant on a one-tailed test.

performers compared with little or zero presence in the average performers. This last step was completed after noting the criterion group of each interviewee.

Results

Distinguishing Competencies and Threshold Competencies

The results of the coding of presence or absence and frequency are shown in Table 1. Distinguishing competences included emotional self-control, adaptability, empathy, coach and mentor, and inspirational leadership (quotes for each competency are reported in Table 2). These competencies showed significant or near significant differentiation of the outstanding from average performing ICs. In addition, five other competencies appeared often enough in both outstanding and average performing groups, thus can be considered threshold competencies (i.e., competencies that are necessary for average performance but not sufficient alone for outstanding performance). Threshold competencies included achievement orientation, organizational awareness, influence, conflict management, and teamwork (quotes for each competency are reported in Table 3). Two competencies outlook—emotional

Table 2. Distinguishing Competencies.

Competency	Representative quote
Emotional Self-Control	"It was a big fiasco, but we didn't get to talk about it. What we had to do is just sit there and listen, and how they knew more about what was going on than we did . . . I let my emotions get a little beside myself, and I decided not to say anything at that meeting because I probably would've said something stupid . . . I couldn't say anything without probably letting too many emotions fly, because it wasn't the right thing. We didn't have any input into it . . . it was purely a political move."
Coach and Mentor (Higher qualified IC took lower role to help another IC)	"What we did is, we didn't go in and take over . . . I just worked for the IC that was there, and did a bunch of mentoring . . . I guess the basic thing is we didn't let our egos get in the way . . . I don't know how many teams would . . . actually be okay with being a Deputy IC [on a smaller incident] and not even be in charge of anything. I think we were really effective in that . . . We did a lot of mentoring, a lot of coaching, a lot of teaching. The thing about it is, if we hadn't have been there, they probably wouldn't have been very successful because what the [previous] team left them . . . "
Adaptability	"Even though to some degree we have standard personnel and processes in the Incident Command System, every team does it a little different. We initially said, 'Here's our process. We're going to do this,' and realized that was causing an awful lot of stress to the people on the team we had merged with, so we went back and adapted their processes after three or four days of having a different process that they were not really that familiar and comfortable with. It was that continued interaction, dialogue, need for correction, need for adjustment and just making sure we were all working well together."
Empathy	"All of that work we had done was for naught now. It ran into a section of black that we had burned prior . . . and that we allowed a lot of people back into once. . . . Well the next thing we knew, . . . (w)e had to evacuate the town again, and in that four-hour time frame we went from ordering a Type 3 Team to ordering another Type 1 Team to come in for us, and they actually did a full other two weeks on that fire. . . . That was pretty disappointing, it broke our hearts. (A)s Incident Commander I really had some morale building issues. (T)hey were so disheartened, so sad because we had won, we had beat it, we had saved all this property, and in the course of one morning it was all gone. Everything we had done, the risk we had put those crews through, all of that was all for naught . . . "
Inspirational Leadership	"I do remember the little town couldn't have more than 800-1000 people in it at the most I think. . . . They had signs up in town . . . , 'Thank you Firefighters' . . . I had our support guy draw a big . . . huge sign, probably 6-8 foot . . . , and it said, 'Thank you to the local community, and thank you for letting us impact you for two weeks, and we're sorry for the effects.' (N)ormally you leave and everyone's waving, 'Thank you, thank you,' but when we left we had the sign up so they knew we appreciated them. I also wrote a letter to local county newspaper and praised all the local folks across the county . . . "

Table 3. Threshold Competencies.

Competency	Representative quote
Organizational Awareness	"Well, that's where the sheriff comes in, that's where the county commissioner comes in, that's where the rancher down the road comes in. . . . We refine (our fire behavior forecast) and we talk to the rancher who . . . has very local information and he might say, 'Oh, don't believe the Weather Service. They'll tell you the winds are from the southwest and we know, every day at 3:00, the winds come rushing down this draw.' . . . County commissioners will tell us where we have good roads, bad roads, bridges that will not support heavy tankers full of water. The person that works at the ranger station might say that his wife works at the grocery store and that's where we can make some local orders for lunches until we get a caterer or something like that . . . (W)e plug these five trailers in and we have 28 laptops and a team that knows what to do all within sight of, oh, I don't know, 8, 10 hours."
Influence	"We gave (the local land management official) three different options next day . . . I said, 'This is what our organization looks like right now. We have an actual pyramid. You put another team in here, you're not going to get any more resources, and this is what your organization is going to look like.' I could see the light click on in her head, and she said, 'Okay, we're not going to put another team on here. We'll see. We'll keep it in reserve.'"
Conflict Management	"In a conversation with the (different agency officials), I was informed at the time that my team wasn't wanted, nor needed. I tried to establish common ground on what we could bring to the table. They did not see it the same way, . . . and as a result, we could not find a cooperative way in which to organize and manage together. I finally decided that it was time to extricate my team and myself out of that delegation, and I took to them a proposal, and I gave them a plan of exit strategy that would save face for them as well as for my team and for me and get the job done safely."
Achievement Orientation	"The first couple of days those little pulse checks . . . , we'd go over an hour. I told them, 'We're not talking enough through the day if we have an hour's worth of stuff to talk about two days in a row, at that meeting. Don't wait until then to share stuff with the other sections. They need to be talking more throughout the day.' Then that got better at that point, too. Just making sure that people are following through and not holding a piece of information until a convenient time, but making that effort to share that so that it doesn't create a crisis in another section . . . "
Teamwork	"The forest (agency) had . . . done a lot of treatment thinning, prescribed burning, those types of practices that would make a change in fire behavior, and we were able to utilize those treatments at anchor points in our strategy to contain the fire . . . (T)he first public meeting that we had, I was able to use that as a key talking point with them, and emphasize . . . that the success that we saw was, in part, due to the foresight that they had 10 years ago . . . I felt that we were very, very effective as a team interacting with the local units and having them work with us to find out where those points were on the landscape that we could be most effective, and then work with the communities to help them understand that."

self-awareness and positive outlook—were not found to be either distinguishing or threshold competencies.

Emergent Themes

The inductive portion of the study seeking to address the Research Question 2 (i.e., which was *Are there other perspectives or capabilities that differentiate the more effective ICs from less effective ones?*) revealed two emergent themes: *appreciation of interpersonal dynamics* and *humanizing versus dehumanizing ways of thinking about others*. The outstanding ICs showed an appreciation of the interpersonal dynamics of incident teams by using time in advance of wildfire season to build trust among possible team members. They also used this time to build relationships and educate agency staff and administrators. This theme was coded in five of the eight outstanding ICs compared with only one of the seven average ICs. The presence of this theme was indicated talking explicitly about using of time before wildfire season to build understanding, expertise, and trust within the teams. In one case, the IC created simplified handouts for all team members involved in an incident to highlight the key people involved, their role, experience, and contact details. This was used for their own teams but also widely distributed to those from other agencies, local administrators, and community members.

The second emergent theme—humanizing versus dehumanizing ways of thinking about others—was evidenced by the use (or lack of use) of humanizing language. Examples of humanizing language included references to "family, kids, community." For example, one IC said, "I've got kids out there on the ground . . . " Another said, "there are families in the line that we have to protect . . . " Examples of dehumanizing language included language that it turned people into categories, with words like, "stakeholders, employees." One IC said, "Our personnel are key resources . . . " After coding the number of humanizing versus dehumanizing words used across the four incidents, we subtracted the dehumanizing word count from the humanizing word count. Seven of the eight outstanding ICs had a positive score, compared with only one of the seven average ICs (six of the seven average ICs had a negative score, while none of the outstanding ICs had a negative score).

Discussion

The results of this study showed that many ESI competencies, both in total number shown, as well as frequency of use, were significantly or near significantly greater for outstanding versus average ICs. Emotional self-control, adaptability, empathy, coach and mentor, and inspirational leadership distinguish outstanding ICs from average ICs. Meanwhile, achievement orientation, organizational awareness, influence, conflict management, and teamwork showed to be necessary competencies for achieving average performance but not sufficient alone to enable outstanding performance.

Given the number of people for whom an IC must interact, coordinate and lead, it is not surprising that ESI competencies appeared to distinguish outstanding from

average ICs. Outstanding ICs mobilize, inspire, and guide at a team and individual level (using inspirational leadership and influence; Mockenhaupt, 2014). They manage diverse and sometimes competing interests of these people (using empathy). At the same time, ICs show the ability to develop a specific plan and stay on it (using achievement orientation). The outstanding ICs are able to adapt and change their plan when necessary (using adaptability). This is not as simple as seeking common goals or even overarching goals. Additionally, ICs successfully juggle the safety of people in the community and in the team with the protection of wildland, vegetation, animals, as well as commercial interests (using conflict management and teamwork). Finally, outstanding ICs continually motivate, mobilize, and inspire others (with inspirational leadership).

Inspirational leadership and emotional self-control emerged as the strongest differentiators of outstanding leaders. Using inspirational leadership enables the IC to activate and motivate others to work together and on the plan. They give the team enough wiggle room to make operational adjustments on the ground. The emotional self-control is evident in their ability to suppress personal feelings and emotional reactions during intense moments. These leaders must persevere in their purpose and specifics even in the face of danger from fire, politics, and even adamant citizens often in a state of fear and agitation—as was the case in one incident.

At the same time, adaptability becomes critical as actual winds, as well as political winds, change. The fires move fast and with many moments of uncertainty. The fire will jump fire lines and evade logic from previous fires. This calls for ICs to adapt to situations, ways of working, and methods that they have not necessarily encountered before (Frye & Wearing, 2011; Weick, 1993). An interesting example adaptability is the increasing use of social media during major fires to keep many different groups informed and mobilized for safety. If someone in their 20s had done this, we might believe it is common. But when ICs who are much older and have not used social media in their work or lives are willing to experiment with and adopt these new technologies, it shows a willingness to adapt. As Frye and Wearing (2011) found in their interview studies of ICs, adaptability and emotional self-control may be essential in helping an IC develop a sense of cognitive control and combat the potential damage from cognitive overload.

The coach and mentor competency also differentiated the outstanding ICs. As well as the "on-the ground" work, the IC role requires also thinking ahead, beyond the current fire, to the next. The IC is charged with preparing potential team members, building trust in their team, and establishing relationships, as well as providing technical and tactical training for future ICs, team members, and members of other law enforcement and fire fighters and community groups. The outstanding ICs took an active role in educating local firefighters and community groups about managing wildfires, as well as in ways to minimize fire (and flood) threat in the future.

The quality of training, development, and socialization that occurs for fire personnel coming up through the ranks of the Incident Command System to IC was evident in the stories we heard. The critical incidents revealed many stories of fires fought well and with minimal loss of life, property, and nature. The presence of five important competencies as thresholds, meaning many outstanding and average ICs demonstrated them

frequently, is evident of this preparation. Those competencies included organizational awareness, influence, conflict management, achievement orientation, and teamwork. Organizational awareness refers to understanding the benefits and perceiving ways to build relationships with these diverse groups. Influence is about getting people to buy into the plan and the methods to be used. Achievement orientation is necessary to maximize resources and time, continually trying to do better against multiple standards of excellence. This includes articulating and achieving measurable goals. Conflict management is getting individuals or groups to resolve disagreements by bringing them into the open and agreeing to higher order objectives. Teamwork is getting a group of people to work together effectively and feel a part of the team or group.

The two emergent themes discussed earlier are further elaboration of the ESI competencies shown by the outstanding ICs. These are important because they are potentially context specific. Although they might offer some learning that can be applied in other settings, finding themes that differentiate outstanding ICs in their culture, with its values and specific use of language becomes important to gain a comprehensive understanding of the IC's context. On reflection, the first theme (i.e., appreciation of interpersonal dynamics, demonstrated by the use of preseason time to focus on building trust and relationships) could be viewed as the application of coaching and mentoring in the context of achievement orientation and teamwork. The intent was to use the "in-between" times to build better relationships so that, when needed, team formation would be faster. It would give the IC time to better understand of each individual's strengths and weaknesses. It also was a time for preparing other guides and aids to help team members and others get oriented quickly to a wildfire situation.

The second emergent theme of describing others in more humanizing terms goes along with the increased presence of ESI in outstanding ICs. This finding is particularly interesting given recent work in cognitive neuroscience that has identified two dominant, yet antagonistic, neural networks: the Task Positive Network (TPN) and the Default Mode Network (DMN). The TPN helps us focus, make decisions and solve problems. The DMN helps us be open to new ideas, people, and moral concerns (Boyatzis, Rochford, & Jack, 2014; Jack et al., 2012; Rochford, Jack, Boyatzis, & French, 2016).

These two networks have little overlap and suppress each other. Rochford et al. (2016) theorize that persistent use of dehumanizing language in organizations can, over time, lead to overuse of the TPN, and the suppression of the DMN (see also Jack, Dawson, & Norr, 2013). Among other things, the suppression of the DMN reduces a person's ability to see the "human" side of the job and be open to new ideas. These abilities are related to a number of the ESI competencies (i.e., empathy, adaptability, teamwork, inspirational leadership) that were found to be important in IC leadership.

Given this, future research could examine the extent to which the use of dehumanizing or humanizing language predicts ESI (or vice versa), and in turn, performance. From a practical perspective, generally speaking, most training programs focus on technical skills, which target the TPN. Like any muscle, what gets used grows. To counterbalance traditional training focused on tasks associated with the TPN, organizations might consider adding tasks that require the use the DMN, or at a more advanced level, tasks that require selecting and toggling between the two. Some

specific suggests for tasks that exercise the DMN are given in the practical implications section below.

These results have implications for other forms of team leadership and even management. Many organization are driven by financial measurement and dashboards specifying goals, all of which are useful in some ways but limit adaptation and flexibility to consider new ideas. Just like the tendency to interpret crisis management jobs as needing more and more technical background and training and ignoring ESI, organizations in financial or engineering fields can fall victim to the same dynamic. The ESI competencies important to effective ICs are similar to those distinguishing outstanding banking executives (Hopkins & Bilimoria, 2008; Van Oosten, 2014). They are similar to the key competencies for research and thoughts leaders of teams (Dreyfus, 2008; Mahon et al., 2014). Koman and Wolff (2008) showed that the same individual competencies of Commanding Officers of flight crews (i.e., teams) and conjectured that even the ESI of the supervisors of their maintenance crews (i.e., teams) were significantly linked to the creation of team norms which enabled them to assess and address conflict, maximize use of everyone's expertise and insight during high-stress maneuvers.

As with all research, this study had several limitations. The main limitation of this study is the small sample size. It is, therefore, imperative to cross validate these findings with another qualitative study or a quantitative study testing the model of ESI against effectiveness as an IC. Another limitation is in the sampling. The percentage of ICs recruited who were accessible and agreed to participate could mask a number of possible volunteer effects which might bias the results.

Implications for Developing ESI Competencies

Our results suggest that further developing ESI competencies could lift average ICs to outstanding levels of performance. There is evidence to suggest that ESI can be developed in adults and that the dramatic improvement lasts from 5 to 7 years (Boyatzis, 2008; Boyatzis, Stubbs, & Taylor, 2002). Specifically, studies have tracked changes in the ESI of MBA and Executive Education students after going through ESI training. The findings showed an increase of 61% of ESI over 1 to 2 years after entry into the MBA for full-time students. For part-time MBAs, the improvements were slightly less at 54% over 3 to 5 years after taking the course. Two of the part time MBA cohorts showed sustained improvement of 54% 2 years after graduation, which was 5 to 7 years after entry into the program and taking the course (Boyatzis, 2008).

In order to begin development of ESI competencies in the wildland fire community, it is first necessary to help people understand the importance of ESI to their leadership effectiveness. One approach to this could be to have people create a compelling personal leadership vision. This provides a sense of purpose and has been shown to activate neural networks associated with being open to new ideas (Jack, Boyatzis, Khawaja, Passarelli, & Leckie, 2013). Openness to new ideas is foundational for many of the ESI capacities: self-awareness, self-control, adaptability, empathy, influence, conflict management, teamwork, and so forth. As shown in numerous research studies,

a personal vision becomes a powerful motivating force for helping a person sustain effort toward a desired change, learning, or adaptation (Mosteo, Batista-Foguet, McKeever, & Serlavos, 2016).

Once a personal leadership vision is in place, a second step could involve the development of a coaching-based support network focused on leveraging positive emotions and strengths to help people move toward their vision. It is important to note that this approach to coaching should not focus on improving gaps or weaknesses. Such a problem-focused approach to coaching has been shown to arouse a person's stress response and defensiveness, resulting in closing down openness to new ideas and reducing the sustainability of any education or training (Boyatzis, Smith, & Beveridge, 2013). Rather, the type of coaching proposed here focuses on the Positive Emotional Attractor (Boyatzis et al., 2013), which has been shown to result in lasting behavior change (Boyatzis, 2008; Mosteo et al., 2016).

In addition to the coaching described above, development and participation in peer-coaching groups would sustain the training and deepen impact, becoming a positive factor for cultural change within the IC community. Such peer-coaching groups can meet virtually and occasionally face to face. The peer-coaching groups support, remind, and create Positive Emotional Attractor incentives for each other. The coaching and peer coaching help a person develop and experiment with techniques for creating shared vision in teams and institutionalize the change effort into a person's life and work. It has high face validity because ICs would be learning from each other.

Opportunities for development are a major motivating factor for new managers (Boyatzis, 2008). If ESI competencies are as relevant to effectiveness of other team leaders and managers, not in high-reliability, emergency or safety organizations, then, the ideas offered in the previous paragraphs would apply to their development as well. Too many organizations design their development efforts around fixing what is wrong that the evidence shows poor sustainability of positive results from such training. The above described methods could enhance both the development of ESI for team leaders and managers, but extend the sustainability of those improvements in the ESI behavior. Unlike learning computer programming or financial analysis, development of ESI appears to require human interaction and relationship building.

This can be also approached as a selection or promotion challenge, that is, only promote to IC those who are showing a great deal of ESI competencies. However, because there are so many technical, threshold knowledge, and threshold competencies that an IC needs, this might make it even more difficult to field sufficient numbers for each wildfire season.

Conclusion

Although the courage and dedication of every IC inspires awe and deep respect in any observer, some ICs are particularly and consistently effective. These "outstanding performers" use certain ESI competencies more than "average performers." Additionally, a number of ESI competencies were found to be used in by both average and outstanding performers. Together these results suggest that ESI is an important predictor of

success in the IC role. Fortunately, studies have shown that ESI competencies can be developed in adults with sustaining impact on their leadership behavior, further suggesting that it is possible to further improve performance and outcomes in wildland fire.

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Notes

1. For a moving and detailed description of the sad loss of 19 firefighters of the Granite Mountain Hot Shot Team in Yarnell, Arizona in 2013, the non–fire-fighting reader is referred to Brian Mockenhaupt's (2014) article in *The Atlantic*.
2. Due to privacy constraints, this list was scrubbed to exclude all nonfederal personnel.
3. Available on request from the authors but not included for brevity. An earlier version is shown in Boyatzis (1998).

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