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Emergent Leadership on Edge Organizations: Building Trust and Cooperation in the context of ELICIT experiments

Topic 5: Experimentation and Analysis

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Abstract

The work on information age suggests that leadership might be better viewed as a collaborative effort distributed among team members characterized by the sharing and rotating of leadership roles (Zigurs 2003; Avolio 1999). It is useful to regard leadership as dynamic social process and examine how certain individuals become emergent leaders in an interacting team. Knowing who is "on the net", how well can they collaborate and what is the quality of their information provide important insights on the study of the patterns of interaction (Alberts & Hayes, 2006) and on the process of influence. This research seeks to delineate possible variables that explain the emergence leadership in Network Centric Environments (NCE), using ELICIT as platform for experimentation. We are analysing relationship between personality, individual and collective characteristics (e.g. Cooperation/Collaboration and Trust in Information) with the emergent leadership in hierarchical and edge configuration, on 85 cadets of the Portuguese Military Academy. Based on differences in hierarchical and edge organizational work, the present research intends to contribute to the definition of a model of networking leadership explaining the leadership emergence. Emerging as a leader in Edge Mode implies to be proactive in terms of cooperation, collaboration and sharing of trustful information.

Keywords: edge organizations, ELICIT, emergent leadership, network organization.

The majority of research in bureaucracies included hierarchical relations, fixed boundaries and top-down control, concerned with formal leaders and centralized power in hierarchical structures (Zaccaro et al., 2001). Consequently, traditional leadership theory is mainly about leading for efficiency and control in a relatively stable context. Unfortunately, leadership theory has not fully embraced the change due by the new technology enabled organizations forms, based on virtual teams to accomplish organizational objectives. A definition of network organization leadership as well as an understanding of the nature of network organization leadership can be investigated using the ELICIT environment.

ELICIT is a set of research and experimentation platforms developed for the CCRP for the purpose of facilitating the exploration of issues related to C2 approach, information sharing, collaboration, and trust. ELICIT provides an instrumented network-centric collaborative environment for 17 individuals in edge and hierarchical mode.

The Edge Organizations unconstrained patterns of interaction and broad dissemination of distribution of information, in order to rapidly share information and achieve high levels of shared awareness, which, in conjunction with distributed allocation of decision rights, may lead to collaboration, shared understanding and self-synchronization. On the other hand, Hierarchical Organizations are industrial age stove-piped organizations, which tightly constrain the patterns of

interactions, tightly control the distribution of information and centralize the allocation of decision rights. Therefore these types of Organizations don't promote wide information sharing or collaboration and are unlikely to achieve high degrees of shared awareness and understanding (Albert & Hayes, 2003).

This research seeks to delineate possible variables that explain the emergence leadership in Network Centric environments (NCE) using ELICIT as platform for experimentation. We design the *Multifactorial Leadership Questionnaire: Cooperation/Collaboration, Trust* in *Information* (MLQ: CTI) to measure possible variables that explain the emergence leadership in NCE using ELICIT.

There are features of collaborative technology that may be substitute traditional leadership skills. Avolio and Kahai (2003) argue that anonymity may substitute for the transformational leader style on promoting flexibility and thinking. But, leadership continue to represent an important element for groups, for directing behaviors in pursuit of common goals (Hoyt & Blascovich, 2003). In this way Leadership is also considered crucial for enabling team effectiveness (Carson, Tesluk, & Marrone, 2007).

Several authors are arguing for a complexity theory approach to explaining leadership processes (Marion et al., 2001; McKelvey, 2006; Regine & Lewin, 2000; Wheatley, 1999) due the limited applicability of traditional leadership theory to translate directly the leadership context of virtual teams (Hooijberg, Hunt, and Dodge, 1997).

The work on electronic context suggests that leadership might be better viewed as a collaborative effort distributed among team members characterized by the sharing and rotating of leadership roles (Zigurs 2003; Avolio 1999).This perspective challenged the convention that leadership is solely an individual phenomenon conceiving it more as a group quality, as a set of functions which must be carried out by the group (Carson, Tesluk, & Marrone, 2007). It is useful to regard leadership as dynamic social process and examine how certain individuals become emergent leaders in an interacting team.

The new virtual team context implies regarding leadership "as a social influence process mediated by technology to produce a change in group attitudes, feelings, thinking, behaviors, and/or performance" (Avolio et al. 2001). These authors called e-leadership. E-leadership "may come from any hierarchical level, be associated with an individual or shared by a group, and its locus may change over time – consistent with characterizations of emergent leadership behaviours among members of self managed teams" (Carte, Chidambaram & Becker, 2006, p.325).

For example, when a virtual team is formed within the context of a project, team-members must communicate to evaluate the project requirements, make decisions regarding process and content, and provide feedback on one another's work.

We address the following questions: 1) Are emergent leadership related to ELICIT team performance (e.g., quantity of work produced and performance quality)?; 2) Which trait's or behaviours explain more the emergent leadership?; 3) Personality trait's can be utilized as a predictor of Conscience of the Problem, perceived work group qualities?; and 4) which variables explain differences in hierarchical and edge organizational configuration?; and 5) Edge organizations exhibit higher levels of effectiveness than Hierarchical organizations?

Individual Differences in Leadership

Many early studies of leadership mergence and effectiveness linked leader personality traits to various leader effectiveness or performance measures (Bass, 1990; Yuki, 1994). Despite the fact there is no consensus as to which individual attributes are associated with leadership, one of the characteristics found to be correlated with leadership emergence were conscientiousness.

The work values are related to individual's basic motivational patterns and as a result may determine to some degree what he does or how well he performs. The six work values proposed by Gordon (1993) helped in the understanding of the relationship between personality attributes and job performance (effectiveness).

Practical Mindedness means to always get one´s money´s worth, to take good care of one´s property, to get full use out of one´s possessions, to do things that will pay off, to be very careful with one´s money. Achievement can be defined to work on difficult problems, to have a challenging job to tackle, to strive to accomplish something significant, to set the highest standards of accomplishment for oneself, to do an outstanding job in anything one tries. Variety is to do things that are new and different, to have a variety of experience, to be able to travel a great deal, to go to strange or unusual places, to experience an element of danger. Decisiveness is to have strong and firm convictions, to make decisions quickly, to always come directly to the point, to make one´s position on matters very clear, to come on a decision and stick to it. Orderliness is considered to have well-organized work habits, to keep things in their proper place, to be a very orderly person, to follow a systematic approach in doing things, to do things according to a schedule. And finally Goal Orientations means to have a definite goal toward which to work, to stick to a problem until it is solved, to direct one´s efforts toward clear-cut objectives, to know precisely where one is headed, to keep one´s goals clearly in mind.

Cooperation/Collaboration and Trust

As the working relationship unfolds, team members develop expectations about individual workload, work processes, and individual contributions (Rousseau et. al., 1998). Knowing who is "on the net", how well can they collaborate and what is the quality of their information provide important insights on the study of the patterns of interaction (Alberts & Hayes, 2006) and on the process of influence. First, knowing who is "on the net" is the basis of the trust, second, working together toward a common is the basis of collaboration and provides insights about the clarity of the data and the quality of the information.

Complexity Leadership Theory (Uhl-Bien et al., 2004) views learning and adaptation as emergent outcomes that result from the collective action of agents who are interdependently interacting at the nexus of diverse knowledge.

Alberts and Hayes (2003, 2006) argue that effective Command and Control and agile organizations in emergent environments require developing trust-based organizations and three critical elements related to the patterns of interaction: 1) reach, 2) richness, and 3) quality of interactions enabled. Reach relates to the number and variety of participants. Richness relates to the attributes of information provided by the various information sources and the quality of the contents. Quality of interactions enabled deals with the transfer of information and the ability to turn information into knowledge (Alberts & Hayes, 2006, pp 95-96).

Moreover, leadership represent an important element for groups, based on the formal leadership process, Cohen, Ledford and Spreitzer (1996) found no relationship between supervisory behaviors and self-managed team effectiveness

Team Member Involvement

It seams that team member involvement to be the strongest predictor of team performance suggesting that a more internal focus on member behaviors rather than on external leadership may provide insight into effectively facilitating self-managed team processes.

The leadership role in teams largely involves facilitating team process—initiating or formulating goals, encouraging interaction between all team members, finding necessary resources to get the job done, encouraging diverse points of view, acting as coach, clarifying team member responses, and organizing the group's thinking (Bass, 1949, 1961; Usoff & Nixon, 1998; Zenger et al., 1994).

Carson, Tesluk, & Marrone (2007) found that teams relying on multiple members for leadership performed better than those in which internal leadership was relatively scarce. This argument suggests that shared leadership benefits for work teams beyond just improved team processes.

Leadership Emergence in the Team Context

However, work on emergent leadership (Foti & Gershenoff, 1999) argues that perceptions of leadership may be far more important than leadership measured by group effectiveness. Emergent leadership tends to be related to the amount of verbal activity- the person that speaks most is likely to be perceived as the leader (Bass, 1949; Morris & Hackman, 1969; Slater, 1955) Emergent leaders are active participants who may be perceived by the group as possessing something (e.g., a trait or group of traits) that works to influence the group. It has been suggested (Lord at al., 1986) that the search to discovery the keys to emergent leadership should focus on distinguishing the specific personality traits that would distinguish leaders from followers and also those traits that would generally predict the overall effectiveness of a leader's work team.

The personality produces important differences in the manner which individuals behave in work situations. It is widely known that certain personality trait combinations are associated with emergent leadership in group interactions. These trait combinations are highly dependent on the task domain. Emergent leadership traits vary across different task domains, but are constant within that task domain. For a given domain, a leader can be predicted based on personality traits of the individuals within the group (Schultz, 1990; Knowlton & McGee, 1994).

Emergent leaders may be just as important to the facilitation of team task completion as are designated leaders (Stogdill, 1974). The manner in which a leader comes to power—whether formally designated or emerging—may be "unimportant in comparison to the behaviors of the leader" (Firestone, Lichtman, & Colamonosca, 1975, p. 347). Zaccaro et al., (1991) found that emergent team leaders (individuals rated highest on perceived leadership by their peers) were more adept than other team members at perceiving team requirements and selecting appropriate behavior to these demands.

Concepts integration: A network leadership model

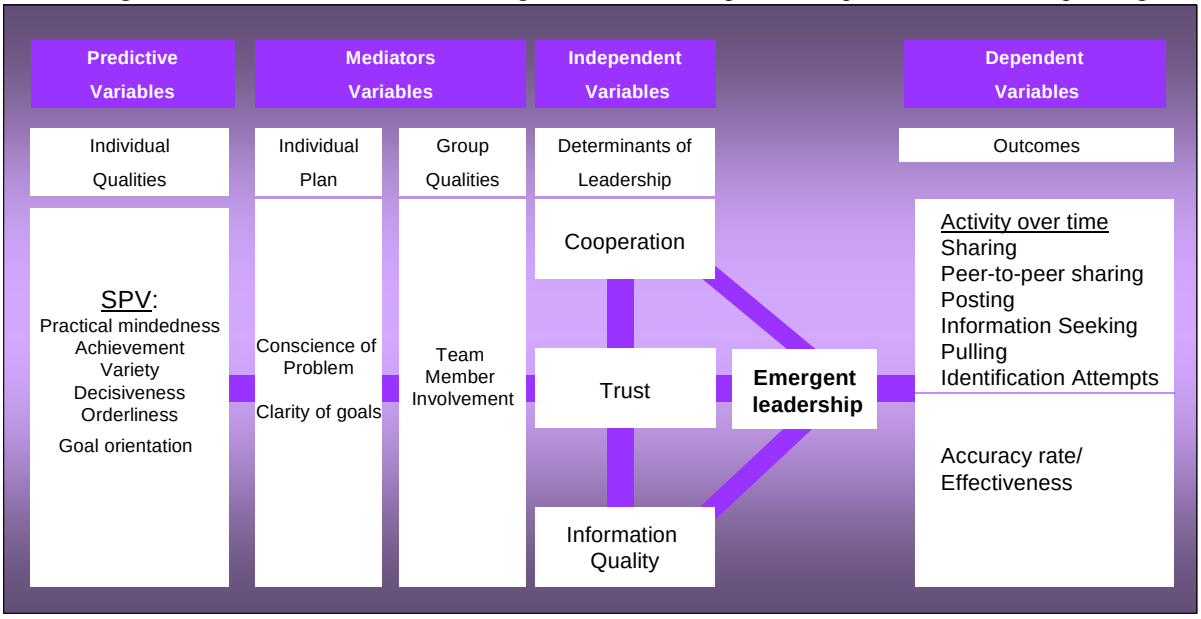
Thus, a comprehensive model that explains the work and performance differences in hierarchical and edge organizational configuration may include tree levels of explanations:

- first, the individuals qualities,
- second, the group qualities, and
- third, the behaviors that characterize complex endeavors environments (e.g., Trust, Cooperation/Collaboration and Information Quality) (see Figure 1).

Figure 1 - Levels of explanations of the performance differences

Consequently, there are several important aspects that may be considered to analyse the leadership paradigm in the ELICIT context (Figure 2). The present research intends to contribute to the definition of the model of networking leadership.

Figure 2 – Tested Model: The mediating effects of several perceived qualities on leadership emergence



First, some of the personality traits may be significant predictors of the emergent leader in certain work group setting, therefore we explore possible relations between personal traits and the conscience of the problem, leader effectiveness and emergence. Second, the conscience of what is demand by the problem, the clarity of the goals to obtain and the conscience of the problem evolution may explain the team member's involvement and the emergence of leadership, therefore:

Hypothesis 1: The Conscience of Problem is positively related to the Leader emergence in Edge mode.

Third, Team member involvement is the result of what people does in an organization; they are the result of collective action and group qualities. Collective action is necessary to achieving

organizational purpose (Zaccaro et al., 2001) and may explain *per-se* the emergent leadership, suggesting:

Hypothesis 2: The Team member Involvement is positively related to the Leader emergence in Edge mode.

Fourth, the skills cooperation, trust and information quality are important in this environment to explain the emergent leadership process. If the leader's role is to ensure social cohesion and reduce destructive conflict, then the ability to model and foster cooperation between team members is important (Barrick, Stewart, Neubert, & Mount, 1998), according to this statement:

Hypothesis 3: The Cooperation/Collaboration and Trust in Information are positively related to the Leader emergence in Edge mode.

Fifth, the outcomes are related to quantity of work produced and performance quality. By last, the following six describes points may explain differences in hierarchical and edge organizational configuration, then:

Hypothesis 4: The Edge Mode will supply a higher level of Cooperation/Collaboration and Trust in Information than the hierarchical mode.
Hypothesis 5: The Edge Mode will supply a higher level of Effectiveness than the hierarchical mode.

Method

Participants and Procedure

Participants are 85 cadets of the 3th year of the Military Academy. Individual participate in group of seventeen for a total of five teams. Participants are telling that the study examines the relationship between personality, individual and collective characteristic with the emergent leadership in to modes of work: hierarchical and edge configuration.

The experiment runs will be used throughout the Hierarchy and Edge configuration with groups of high and low tacit knowledge leadership ratings.

Data will be compiled in tree phases. In phase one, before the run elicit, *Gordon's Survey of Personal Values* (Gordon, L. V., 1993) will be post to the cadets in order to obtain a series of personal and personality data. Phase two are the run of the ELICIT experimentation. Phase tree consist in the application of the *Multifactorial Leadership Questionnaire: Collaboration, Information Quality and Trust*, after the run. All participants will be given the same instructions, with respect to the conditions and norms of application of the various tests applied.

Materials

Personality

Gordon's Survey of Personal Values (SPV) (Gordon, L. V., 1993; Rocha, A, Galvão, S. & Ferreira, C., 2001) was chosen to assess the six dimensions which are individually considered most important in interaction with others. This questionnaire evaluates the following traits: (P) practical mindedness, (A) achievement, (V) variety, (D) decisiveness, (O) orderliness and (GO) goal orientation. The inclusion of these variables is justified because values determine what individuals do, and how. This questionnaire was chosen because it examined a variety of content having social relevance, related to emergence of leadership and it was easy to administer before elicits run's in a short period of time.

The SPV questionnaire contains 30 trials each of which is comprised of three statements. Each statement manifests one of the six SPV values. For each of the 30 triads, subjects were requested to choose first the statement that was MOST important to them and then to choose the remaining two statements that statement which was LEAST important to them. A subject's score for each of the values was obtained by adding two points each time a statement was chosen MOST and one point each time a statement was chosen neither MOST nor LEAST. A subject's total score summed to 90. Thus, the SPV values were not independent of each other.

The reliability data reported in the Portuguese SPV manual scale reliability coefficients ranged from .52 (achievement) to .78 (variety).

Multifactorial Leadership Questionnaire: Cooperation/Collaboration, Trust in Information (MLQ:CTI)

The *MLQ:CIT* was developed from the dimensions mentioned in the introduction. These dimensions include both individual's plan, group qualities, behaviours that characterize complex endeavors environments (e.g., Cooperation/Collaboration, Trust and Information Quality) and the process of leadership emergence.

Individual Plan

In order to assess the quality of each behaviour that characterizes only the individual performance in the team, a discrete scale was created. This **individual performance scale** consists of 3 items that assess the Conscience of the problem (Table 1).

Table 1 - Conscience Problem

Item number	Description
1.	Conscience of what is demand by the problem
2.	Clarity of the goals to obtain
3.	Conscience of the problem evolution

Group Qualities: Team Members Involvement

In order to assess the interaction established with the whole group, a scale was created. This **team member's involvement scale** consists of 5 items that assesses the involvement to work together towards a common purpose (Table 2).

Table 2 – Team Members Involvement

Item number	Description
1.	Dedication and energy
2.	Commitment
3.	Team Work
4.	Problem Solution Involvement
5.	Individualism

Cooperation/ Collaboration

In order to assess the extent to which an individual cooperation/collaboration in the team, a scale was create. This **cooperation scale** consists of 5 items that assesses the Collaboration to work together towards a common purpose (Table 3)

Table 3 – Cooperation/Collaboration

Item number	Description
1.	Collaboration
4.	Sharing Information
7.	Sharing awareness
11.	Information trade
16.	Sensibility to your information needs

Trust

In order to assess the extent to which an individual in trustworthiness in the team, a scale was create. This **trust scale** consists of 4 items that assesses the degree of trustworthiness (Table 4):

Table 4 – Trust

Item number	Description
3.	Degree of trust
6	Information trust
9.	Interaction reciprocity
13.	Implication in the problem resolution

Information Quality

In order to assess the extent to which an individual shared information quality in the team, a scale was create. This **information quality scale** consists of 8 items that assesses the information quality shared (Table 5):

Table 5 – Information Quality

Item number	Description
2.	Information relevance
5.	Quantity of Information that contributed to the problem resolution
8.	Information accuracy
10.	Information pertinence
12.	Information suitability to the problem
14.	Information consistency
15.	Utility\Convenience of the shared information
17.	Information sharing at useful time

Leadership Emergence

To measure leadership emergence, participants nominated other group members they perceived to be leaders during the running. The participants were asked *specifically to "Think about the elements from your work team. Did anyone act as a leader? If so, and you had to choose someone who has been singled out as leader, please indicate which individual would you want to have on your team again.* Scores ranged from a minimum of 0 (no leader nomination) to a maximum of 1 (leader nomination): This score reflects the mean of the leader nominations. Peer nomination was been a widely accepted method for measuring perceptions of leadership (Taggar et al., 1999, Zaccaro et al., 1991). Taking in consideration the hierarchical mode or Edge configuration, which individual may assess the formal leader (hierarchical) or the emergent leader (edge) about the quality of all the statements related to Cooperation/Collaboration Scale, Trust Scale and Quality Information Scale.

Team Performance - Effectiveness

Our dependent variable is the effectiveness of the team performance, which is assessed by some metrics of Elicit experiments.

Quantity of work produced

- Activity over time (sharing, website posts, website pulls, ID attempts)
  - Share
  - Post (Peer-to-peer sharing)
  - Pull (Information Seeking)
  - Identification Attempts

Quality of work produced

  - Accuracy rate – Effectiveness (Correct IDs/Total IDs)

In general, we expect different explanation to formal and emergent leadership respectively in the hierarchical or Edge configuration.

Results[1]

Exploratory Factor Analysis (EFA)

The (EFA) analysis of the full sample of subjects yielded five factors based both on the Kaiser's eigenvalue greater than one criterion and on the scree-plot. Altogether, the five factors explained 39.6%, 8.6%, 5.8.0%, 4.9% and 4.5% of the total variance of the 25 items of the scale, respectively. The five factors, taken together, explained 63.5% of the variance.

The results of exploratory factor analysis are displayed in Table 6. The first factor that we identified had high loadings (> .51), combining seven items of QI and three of TR. In this way this scale changes its denomination to Trust in the Quality of Information (TQI). The item of the scale cooperation/collaboration 4.16 should be eliminated because it´s not representative of that factor.

Table 6. Exploratory factor analysis (EFA). Factor loadings

Items	Factor Loading				
	1	2	3	4	5
H_I_Q4.8	,776	,196	,097	,046	-,101
H_I_Q4.10	,762	,113	,190	,041	-,069
H_I_Q4.2	,756	,188	,235	,075	-,109
H_I_Q4.15	,756	,215	,165	,114	-,026
H_I_Q4.5	,665	,236	,237	,047	,148
H_I_Q4.12	,662	,312	-,073	,177	,013
H_I_Q4.13	,656	,356	,192	,134	,053
H_I_Q4.14	,623	,290	,188	,116	-,208
H_I_Q4.16	,565	,240	,210	,008	,006
H_I_Q4.6	,522	,376	,134	,104	,023
H_I_Q4.3	,505	,468	,207	,096	,005
H_I_Q4.7	,137	,740	,171	-,008	-,075
H_I_Q4.11	,291	,708	,215	,083	-,057
H_I_Q4.4	,350	,677	,047	,195	-,003
H_I_Q4.17	,367	,652	,217	,013	,103
H_I_Q4.1	,243	,636	,314	,146	-,274
H_I_Q4.9	,340	,544	,061	,055	,118
Q2.3	,143	,149	,809	,043	-,107
Q2.2	,272	,215	,780	,201	,103
Q2.1	,193	,240	,763	,241	,026
Q2.4	,338	,172	,661	,257	,024
Q1.2	-,025	,134	,152	,830	-,072
Q1.1	,077	,167	,306	,793	-,024
Q1.3	,364	-,048	,090	,712	,109
Q2.5	-,096	-,032	,018	,003	,949

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

The second factor that we identified as Cooperation/Collaboration (CC) obtained four item loadings on the original CC subscale with the addition of IQ 4.17 (Information sharing at useful time) and

[1] The results obtained in the ELICIT runs will be statistically dealings using the SPSS statistical package and AMOS.

TR 4.9 (Interaction reciprocity). The scale CC now consists in seven items. These items should be reclassified and included in this factor, because they content are significant.

The third factor shows high loadings (> .66) on items of Team Members Involvement (TMI). The fourth factor replicates the three items of PC. The fifth factor includes only one item of the TMI 2.5 (individualism) is eliminated because it's inappropriate.

Internal Consistency

Investigation of the internal consistency reliability was based on the Cronbach coefficient alpha for each of the four individual factors. The results are shown in Table 7. The alpha values depicted in Table 7a,b,c,d indicate high internal consistency for three of the factors including TQI, CC and TMI, whereas for CP the reliabilities were moderate.

Table 7a– Internal Consistency – Trust in Quality Information (TQI)

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TQI 4.8	,69	,88
TQI 4.10	,65	,88
TQI 4.2	,69	,88
TQI 4.15	,65	,88
TQI 4.5	,63	,88
TQI 4.12	,57	,88
TQI 4.13	,61	,69
TQI 4.14	,62	,88
TQI 4.6	,60	,88
TQI 4.3	,58	,88
Total Scale		.89

Table 7b– Internal Consistency – Cooperation/Collaboration (CC)

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CC 4.7	,63	,80
CC 4.11	,65	,79
CC 4.4	,57	,81
CC 4.17	,60	,80
CC 4.1	,65	,79
CC 4.9	,51	,82
Total Scale		.83

Table 7c– Internal Consistency – Conscience of the Problem (CP)

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CP 1.1	,67	,59
CP 1.2	,62	,65
CP 1.3	.50	,77
Total Scale		.76

Table 7d– Internal Consistency –Team Member Involvement (TMI)

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TMI 2.1	,73	,81
TMI 2.2	,78	,79
TMI 2.3	,65	,84
TMI 2.4	,67	,83
Total Scale		.86

Data Analyses

Table 8 presents the results of the stepwise regression analyses using Practical Mindedness, Achievement, Variety, Decisiveness, Orderliness and Goal orientation as predictors for Conscience Problem, Leader Emergence and Leader Effectiveness. Goal orientation is a significant predictor, accounting for unique variance (i.e., significant standardized betas) in Conscience Problem and Leader Effectiveness. The significant predictor of Leader Emergence is Practical Mindedness.

Table 8- Regression analyses of Values as predictive variables

Items	Conscience Problem		Leader Emergence		Leader Effectiveness	
	r	β	r	β	r	B
Practical Mindedness	.00	-.05	.08	.24*	-.07	.01
Achievement	.02	.04	.05	-.01	-.20	.19
Variety	-.23	-.13	-.27*	-.20	.09	.20
Decisiveness	-.08	-.16	.04	.18	.02	.12
Orderliness	. 01	-.15	.00	.02	.04	.06
Goal orientation	.40**	.34**	.20	.15	.09	.25*

* $p < .05$; ** $p < .01$

In order to test Hypothesis 4 and 5 concerning the differences between the Hierarchical and Edge Mode a comparison is made of Cooperation/Collaboration, Trust in Information and Effectiveness variables (Table 9). There are significant differences ($p < .01$) between groups for all three variables. Given the above pattern of results, we conclude that Hypothesis 4 and 5 was clearly supported.

The Cooperation/Collaboration is associated with interaction facilitation/participative behaviors in teams, resulting in higher levels of social influence among team members through increased engagement becoming proactively involved in achieving the objectives.

The Edge mode is an important predictor of team performance and provides a resource for teams that goes beyond the leadership of any single individual, resulting in greater effectiveness in comparison to the hierarchical mode.

Table 9- Mean differences between Hierarchical and Edge Mode

	Mode	Mean	Std. Deviation	t-value
Cooperation/Collaboration	Hierarchical	3,36	,29	-4,0**
	Edge	3,57	,38	
Trust in Information	Hierarchical	3,24	,25	-3,78**
	Edge	3,43	,38	
Effectiveness	Hierarchical	,27	,41	-3,56**
	Edge	,46	,28	

* $p < .05$; ** $p < .01$

Table 10 reveals no meaningful differences between the function in both modes. A high leadership score on the part of the team leader or the staff alone is insufficient for bringing about higher team effectiveness. This suggests that a team leader is a facilitator of team effectiveness rather than being the dominant contributor to team performance (Simon et al., 1999). At last it is the mode of work that determinate the effectiveness of a team.

Table 10 – Mean differences in Function in Edge and Hierarchical Mode

Mode Effectiveness	Function	Mean	Std. Deviation	t-value
Hierarchical Effectiveness	Collaborator	.27	.42	-.12
	Formal leader	.28	.38	
Edge Effectiveness	Non Emergent leader	,43	,27	-.15
	Emergent leader	,50	,28	

* p< .05; ** p<.01

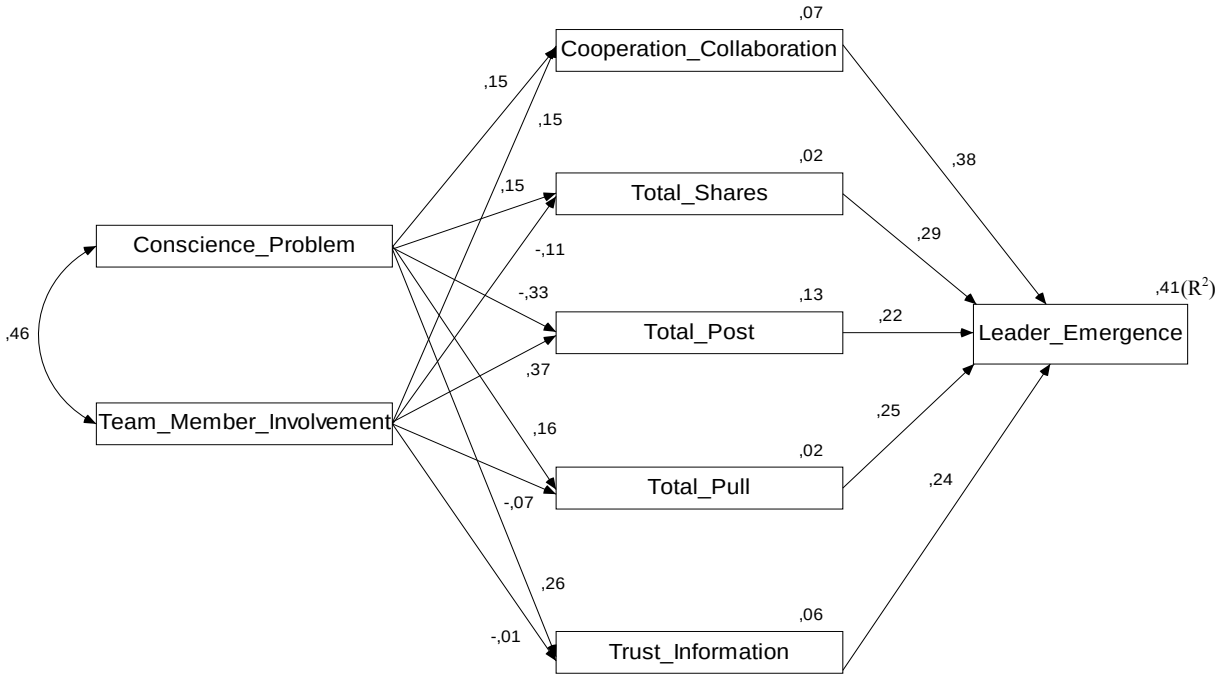
Carson, Tesluk, & Marrone (2007) support this statement affirming that a shared leadership may also lead to greater team empowerment by heightening member's sense of meaningfulness, autonomy, impact or potency. "Performance is not consequence of action: it is action itself" (Campbell, 1990 p.704).

To test Hypotheses 1 through 3, we used a path analyses model (Figure 3). The results show a significant relation between Conscience Problem and Team member Involvement. Consistent with Hypotheses 1 the conscience of the problem was positively and indirectly related to the Leader emergence (β=.13, p<.01).

Hypotheses 2 was not supported, the team member involvement has no significant relation to the Leader emergence (β=.09, ns).

We can verify a significant impact between the conscience Problem/Total Post (β=-.33, p<.01) and Team member Involvement/Total post (β=.37, p<.01). The proximity of the team members influence the form how the information is treated. Therefore the information's are more personal. Surprisingly the relation of the conscience problem is negative.

Figure 3- Path Analyses Model of Leader Emergence



A High Conscience of the Problem stimulates a trade of trustfully information (β=.26, p<.05).
We can see that there is a direct and significant relation between Cooperation/Collaboration, Total Shares, Total Post, Total Pull, trust Information and Leader Emergence being the Cooperation the most meaningful (β=.38, p<.001), confirming Hypotheses 3.

Conclusion

The work presented here aims to contribute to a campaign of experimentation improving our understanding of leadership emergence in complex endeavours simulated by the ELICIT platform.
We confirmed hypotheses related to individual differences that are associated with Leadership emergence. The value that stands out is Practical Mindedness.
Our results suggest that the Edge mode supplies a higher level of Cooperation/Collaboration, Trust in Information and Effectiveness than the hierarchical mode stressing "the role of collaboration in improving performance considered as network-centric or network-enabled" (Alberts, Hayes, 2006, p.180). In this context a team leader is a facilitator of team effectiveness rather than being the dominant contributor to team performance.
An important finding was the significant relation between Conscience Problem and Team member Involvement. The awareness of the situation shows to be crucial to a shared understanding of the current situation at a given point in time, being an essential condition for leader emergence and the team member involvement reflecting an increasing number of posts.
Emerging as a leader in Edge Mode implies to be proactive in terms of cooperation, collaboration and sharing of trustful information.

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