

# INTERACTION CHARACTERISTICS OF SUCCESSFUL CONTRACTOR'S REPRESENTATIVES

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The ability of construction professionals to use communication to influence and gain control over their environment ensuring project success must be a subject of real interest, yet little research exists in this area. The aim of this study was to identify the nature of contractor's representatives' interaction during project team meetings. Following the observations of group interaction, the company's directors differentiated the contractor's representatives into four categories of effectiveness. The professionals' degree of effectiveness was based on their previous ability to repeatedly deliver contracts on time and within budget. Significant differences were found between the interaction of those considered more and less effective. Those considered more effective used a broader range of communication acts. The research data for this project were collected and classified using the Bales' Interaction Process Analysis method, supported by qualitative observations. Finally, the characteristic interaction patterns of contractor's representatives found to be more successful are proposed.

Keywords: communication, construction-professional, project-success, meeting.

## INTRODUCTION

During project team meetings contractors' representatives assume lead positions, being responsible for the management of the construction process. Their ability to influence the integration and co-ordination necessary realise design and management information is a function of interaction with other professionals. The accomplishment of major projects is achieved though interlocked co-ordinated activities (Kreps 1989). However, the effectiveness of teams and the degree of co-operation between members can depend on the communication strategies employed (Ackoff 1966; Hollingshead 1996).

Contractors' representatives are tasked with directing and fostering a communicative environment that facilitates the delivery of the construction project. The interpersonal interaction used within teams should break down barriers, manage conflict, reduce defensive behaviour and encourage communication that enables the group to perform to the best of its ability. If inappropriate communication and decision-making strategies are employed groups under perform (Brown 2000). Although multidisciplinary teams propose and consider a wider range of solutions to a problem than individuals do (Ysseldyke, Algizine and Mitchell 1982; Brown 2000), if interaction is not directed the alternatives proposed could be a result of goal ambiguity (Bales 1953).

## **INTERPERSONAL AND GROUP COMMUNICATION ACTS, BEHAVIOURS AND BARRIERS**

Groups need to be directed; however, those assuming leading roles within the group may stifle potential solutions through ineffective use of interaction. Group members often overrule individual expertise and experience (Yoshida, Fenton, Maxwell and Kaufman 1978); professionals tend to rely on their own, often incomplete, knowledge rather than consulting with other specialists (Gameson 1992; Lee 1997). Although those leading the group should offer direction they should also ensure that members are allowed to contribute their specialist knowledge. Shepherd (1964) suggested that successful groups have open and full communication; with ideas, feelings and information being exchanged freely. To improve the success of communication, flexible and spontaneous interaction should be used to reduce defensiveness (Gibb 1961; McCann 1993). However, open communication may not be forthcoming as some interaction behaviours may be avoided, especially where individuals are unfamiliar with each other (Bales 1953). Also, when professionals have difficulty in understanding issues being discussed they may be reluctant to ask for further explanation. Professionals may not seek help, even when help is required, as help-seeking behaviour implies incompetence and dependence (Capers and Lipton 1993; Lee 1997). Most people are not very good at asking questions; however, asking questions is the single most effective way to extract ideas and information (Ellis and Fisher 1994).

Those leading the group must also deal with any conflicts that emerge. It is inevitable that conflict will occur within project teams (Ellis and Fisher 1994; Loosemore 1996); however, there is enormous disagreement over the effects of conflict on the group's communication (Pondy 1967; Folger and Poole 1984; Ellis and Fisher 1994). Conflict can be natural (functional, constructive) or unnatural (dysfunctional, destructive) (Ellis and Fisher 1997). Natural conflict is described as the intended or actual consequence of encounter resulting in stronger participants benefiting from the clash. Unnatural conflict is where a participant enters into the encounter intending the destruction or disablement of the other. The contractor's representatives who have greatest influence over the group must develop strategies for managing the conflict that occurs.

Ellis and Fisher (1994) in their review of conflict research noted the benefits and disadvantages of conflict. Benefits included:

- exposure to more issues, the act of challenge forces others to listen to different perspectives; increased cohesiveness, research has found that groups that work through tension often feel closer;
- improved decision quality, the conflict forces participants to justify ideas;
- increased motivation, conflict is a sign of personal interest.
- Disadvantages that may be experienced included:
  - decreased group cohesion, prolonged unresolved conflict decreases cohesiveness;
  - ill feelings, none relevant distasteful conflict damages relationships;
  - groups that are unable to overcome the conflict fall apart.

Bales (1950; 1953) found that conflict, even when constructive, leads to tension that can damage group cohesion; however, too much attention to cohesion stifles

constructive conflict and threatens the group's ability to solve problems. Cline (1994) identified the importance of functional conflict in avoiding 'groupthink' and improving the decision-making process. Although, moderate levels of conflict may be productive (Hare 1976), conflict especially when supported with negative feedback can be stressful (Shapiro and Leiderman 1967). Episodes of interaction that become emotional tend to be more salient, when professionals report their interaction they recount emotional events much easier than other events (Loosemore 1998)

Any tension that develops can be removed by positive emotional acts (such as, joking, showing solidarity and praise) and negative emotional acts (such as disagreements, expression of frustration and aggression) (Bales 1950; 1953). When emotional issues are not addressed, the increased tension may inhibit the group's performance (Bales 1953; Keyton 1999; Poole 1999).

Bales (1953) argued that if groups are to perform effectively positive reinforcement: including agreeing, showing solidarity, being friendly and helping releases tension are needed to offset negative reactions (showing tension, antagonism, anger etc.). To accomplish tasks successfully positive acts need to be in excess of negative act (Shepherd 1964; McGrath 1984; Keyton 1999; Pavitt 1999). A larger positive to negative ratio facilitates and regulates the flow of interaction among members by increasing moral, motivation and satisfaction (Bales 1953; Keyton 1999).

## **METHODOLOGY**

The literature reviewed suggested that interaction by group members should embrace a full range of communication acts, rigorously dealing with task issues and ensuring relationships are maintained and that those who lead the team should facilitate such interaction. The methodology that was adopted to record the type and nature of communication used by professionals was the Bales Interaction Process Analysis (IPA) system. Keyton (1999) noted that the Bales method is able to capture data on relational and task-based communication. The Bales' (1950) IPA method was used to classifying interaction statements into one of twelve categories. Each category was classified as either a socio-emotional or task-based act (Table 1). The smallest part of the interaction coded and analysed was a sentence or a statement of meaning. Analysis of individual words would be impractical when observing and recording interaction in real time, and would be of little use when analysing the results. The person speaking and the person being addressed were also recorded.

The major advantage of observer rating, as used in Bales' IPA, is that, once the researcher is allowed into the environment where communication is taking place, "the data [ratings] can be easy to obtain" (Clark 1991:109). Coding systems are used by communication researchers to group together related communication acts under a common heading. By categorising communication acts, large quantities of data can be processed and analysed using statistical packages. Different categories can be used to identify specific aspects of communication that can be observed, tabulated and compared. A coding system "...is, very simply, the lens with which he or she [the researcher] has chosen to view the world" (Bakeman and Gottman, 1997:15).

Table 1 Grouping of Bales' individual IPA categories (Bales 1950:9)

CATEGORY DESCRIPTION	
1: SHOWS SOLIDARITY – raises others status, gives help, reward	<b>Social-emotional area:</b> Positive Reactions
2: SHOWS TENSION RELEASE – jokes, laughs, shows satisfaction	
3: AGREES – shows passive acceptance, understands, concurs, complies	<b>Task Area : Neutral</b> Attempted answers
4: GIVES SUGGESTION – direction, implying, autonomy for others	
5: GIVES OPINION – evaluation, analysis, express feeling wish	
6: <i>GIVES ORIENTATION – information, repeats, clarifies, confirms</i>	<b>Task Area: Neutral</b> Questions
7: ASKS FOR ORIENTATION – information, repetition, confirmation	
8: ASKS FOR OPINION –evaluation, analysis, expression of feeling	
9: ASKS FOR SUGGESTION – direction, possible ways of action	<b>Social-emotional area:</b> Negative reactions
10: DISAGREES – shows passive rejection, formality, withholds help	
11: SHOWS TENSION – asks for help, withdraws out of field	
12: SHOWS ANTAGONISM – deflates others status, defends or asserts self	

Poole *et al.* (1999:106) made an important point about all coding systems: “The design of coding schemes involves a complex set of choices, and these choices determine what claims the resulting data can support”. The findings of a coding system are tied to the method used to capture the data. This limitation restricts the amount of detail that can be extracted from observations. Other methods, such as conversation analysis, extract a much greater level of detailed information from discussion; however, such methods are not without their own limitations. Due to the amount of detailed information collected more qualitative methods often restrict the amount of data that can be systematically analysed. For example, rather than quantifying and classifying interaction, Huggill (2001) adopted an ethnographic approach making use of conversation analysis to study group interaction during construction progress meetings. Conversation analysis is concerned with the contextual sensitivity of language with a focus on talk as a vehicle for social action. Investigations using conversation analysis can only be pursued through intensive qualitative analysis of interaction events, because conversation data proves quite resistant to treatment in terms of normal sociolinguistic variables and quantification (Drew and Heritage 1992). Transcripts or audio-recordings of interaction are required to provide the detailed data necessary for conversation analysis. The detail of analysis can often restrict the amount of data analysed, for example, although Huggill recorded thirty hours of construction team discussion he was only able to analyse less than one hour of data.

Although the use of conversation analysis does not lend itself to studies involving multiple observations of different projects, qualitative observations are considered to be important when examining group interaction.

Different perspectives are gained through the use of different methodologies (Seymour and Hill 1993). The use of quantitative and qualitative research increases the detail of the information collected thereby improving the overall methodology and hence reducing some of the research limitations (Fielding and Fielding 1986; Mior *et al.* 1998). Thus, qualitative identification of interaction behaviour, which would aid interpretation of quantitative data, is important. Following each meeting observed brief notes were made on the nature and intensity of the interaction. This qualitative information helped interpret and contextualise the interaction recorded under each of the Bales' IPA categories.

Before observing interaction tests were carried out to ensure that there was a significant level of agreement between observer classification and the established

protocol. A list of 100 different statements were reproduced from the Bales' (1950) protocol. Intra-coder reliability tests were undertaken. The coder assigned a Bales' IPA category to each of the statements. Using Cohen's kappa test to examine the results against the protocol, scores in excess of 0.95 were achieved. It is also important to ensure that coding systems are stable and reproducible by multiple observers. Where two observers simultaneously record interaction, the Chi-square test at 0.50 probability level (not  $P=0.05$ ), or above, can be used to check for agreement (Bales 1950). This measure demonstrates that the system being used is common to observers although not exact, a small amount of variation is expected with all observations of live interaction (Bales 1950). The intercoder score using the Chi-square test was  $\chi^2=4.916$ ,  $df=8$ ,  $p=0.766$ , demonstrating a satisfactory level of agreement.

Data were gathered from ten construction projects, in total 36 site meetings were observed, involving 96 different professionals, 26 of the professionals represented the contractor.

The data collected at each meeting included the identification of the professional who initiated communication; the professional at whom the communication is predominantly aimed; and the communication act using the IPA categories.

Each of the contractor's representatives were awarded a performance value, based on their ability to repeatedly contribute to successful project outcomes. The managing directors provided the perceived value of effectiveness using historic data from previous projects. A value of one indicates contractor's representatives who have a greater association with projects that resulted in a profitable outcome (most successful). A value of five shows a greater association with projects that were not as profitable (least successful). All of the contractor's personnel were rated above satisfactory (4 to 1).

## **RESULTS AND DISCUSSION**

The results presented below (Tables 2,3) were interesting. In some of the IPA categories, there was a clear relationship with the perceived ability of the individual and the levels of interaction in a particular category, the interaction of effective contractor's representatives being considerably different to those rated less effective. The following section identifies interaction characteristics that are consistent with contractor's representatives who were rated as most effective (1) and least effective (4).

Using the Pearson chi-square test, the interaction results of the four ratings of contractor's representatives were significantly different. The most effective contractor's representatives used greater amounts of positive and negative emotional communication, higher levels of requesting task-based interaction and lower levels of giving task-based interaction, than the representatives perceived to be less effective.

Those considered more successful used higher levels of emotional communication. The highest level of positive emotional interaction was found in the column one (Table 2), representing the contractors perceived to be the most effective, and those contractor's representative that are perceived to be the least effective used the lowest level of positive emotional interaction.

Table 2. Results of task-based and socio-emotional communication acts against perceived effectiveness of contractor's representative

Contractor rating	Most effective						Least effective						Total	
	1			2			3			4				
Interaction category	No.	%	Adj	No.	%	Adj	No.	%	Adj	No.	%	Adj	No.	%
Positive socio-emotional	130	11	5.8	200	6	-3.5	13	6	-5	27	5	-2.1	370	7
Giving task-based	730	62	-10.9	2447	76	4.2	180	88	4.7	456	84	5.3	3813	74
Requesting task-based	277	24	8.5	455	14	-3.7	11	5	-4.1	59	11	-3.3	802	16
Negative socio-emotional	42	4	1	144	4	2.3	0	0	-2.6	4	1	-3.4	160	3
Total interaction observed	1179			3216			204			545			5145	

(Adj = Adjusted residuals - standardised difference between observed and expected values.)

Pearson Chi-square results =  $\chi^2 = 161, 895$ . df=9, p=<0.001

The results relating to negative emotional interaction are significant. Higher levels of negative emotional communication occurred in the contractor's representatives rated more effective (representatives that are rated one and two) than those rated less effective. An important finding was that those representatives perceived to be less effective hardly used negative emotional categories, and also made considerably less use of the positive socio-emotional categories. The observations are consistent with the research reviewed. Those who are considered most effective are not avoiding confrontation but engaging in conflict and managing it, making use of positive emotional exchanges to defuse tension.

**Differences were also noted in the contractor's representatives' use of giving and requesting task-based interaction. The contractors perceived to be the most effective were those with the highest levels of requesting task-based interaction. It would seem that contractor's representatives perceived to be least effective were reluctant to make requests to others. The lower rated of contractor's representatives predominantly used 'giving' task-based interaction, resulting in lower usage of all other categories than was found in the representatives that were considered to be most effective. In accordance with the literature reviewed 'question-asking' and seeking information has positive attributes; in this study those who were considered most effective predominantly used such communication acts.**

A number of the individual interaction categories (Table 3) presented showed a stronger association with contractor's representatives rated more effective (rated one and two) than those rated less effective.

With regard to interaction category one (showing solidarity), little inference can be made on the individual professionals' results due to the very low levels observed. Although IPA two (showing tension release) was lower in the case of contractor's representatives rated one and two (those considered to be more effective), the percentages recorded across the contractor's representatives abilities were quite similar. Professionals perceived to be the most effective exhibited higher levels of agreeing, the levels of use of category three steadily declined as the rating of the contractor's representatives reduced.

Higher levels of IPA four (giving suggestions) were associated with contractor's representatives rated one and two, this was the only 'giving' task based category that was higher in those considered most effective. An examination of category five (giving opinion) found that the contractor's representatives rated one and two, when added together, were lower than the values for representatives rated three and four; however, the individual figures vary. The levels of IPA six (giving information) were lower in the cases of those professionals considered excellent (24%) and gradually increased in each of the ratings, being highest in the professionals rated satisfactory (47%), the lowest ranked contractor's representatives.

Table 3: Results: Interaction process analysis categories against effectiveness of contractor's representatives

Contractor rating Interaction category	Most effective						Least effective						Total	
	1			2			3			4			No	%
	No.	%	Adj	No.	%	Adj	No.	%	Adj	No.	%	Adj	No	%
1: Shows solidarity	2	0	1.3	1	0	-1.6	1	1	2.2	0	0	-0.7	4	0
2: Shows tension release	11	1	-2	30	1	-5	3	2	.7	7	1	.7	51	1
3: Agrees	117	10	6.2	169	5	-3.4	9	4	-1.0	20	4	-2.5	315	6
4: Gives suggestion	178	15	-6	535	17	2.5	26	13	-1.2	66	12	-2.4	805	16
5: Gives opinion	265	23	-3.1	858	27	1.6	76	37	3.8	135	25	-7	1334	26
6: Gives orientation	287	24	-6.8	1054	33	.5	78	38	1.8	255	47	7.5	1674	33
7: Asks for orientation	124	11	4.4	239	7	-5	6	3	-2.5	20	4	-3.6	389	8
8: Asks for opinion	76	6	6.2	94	3	-3.0	1	1	-2.4	10	2	-2.3	181	4
9: Asks for suggestion	77	7	3.8	122	4	-3.2	4	2	-1.8	29	5	1.0	232	5
10: Disagrees	27	2	.6	77	2	2.2	0	0	-2.1	2	0	-2.9	106	2
11: Shows tension	11	1	-2	37	1	1.7	0	0	-1.4	2	0	-1.5	50	1
12: Shows antagonism	4	0	3.7	0	0	-2.6	0	0	-4	0	0	-7	4	0
Total interaction observed	1179			3216			204			546			5145	

(Adj = Adjusted residuals - standardised difference between observed and expected values.)

Pearson chi-square  $\chi^2=253.292$ . df=33. p =<0.001

IPA seven (requesting information) and eight (requesting opinions) were higher in the categories associated with professionals who were perceived to be most effective. The levels of interaction associated with IPA nine (requesting suggestions), based on the perceived effectiveness of the contractor's representatives, showed no meaningful trend (Table, 3) although the combined value of contractor's effectiveness rated one and two are greater than three and four. This would suggest that in all of the categories associated with requesting task-based interaction, higher levels were associated with the contractor's representatives who were perceived to be most effective.

Disagreeing with others (IPA ten), and showing tension (IPA eleven) were found to be a trait associated with effective managers. Those rated less effective were reluctant to disagree with the other professionals, show negative emotions or engage in conflict. IPA twelve (showing antagonism) was observed only eight times during this research, due to the limited data, no conclusion can be made regarding its use.

## CONCLUSION

Many of the observations made support the findings of previous research conducted in different environments and contexts. Those contractors who are considered most effective use a broader range of communication acts to achieve their objectives. Less effective professionals tend to limit their use of communication avoiding emotional exchanges; predominantly using task-based communication. While it is important to have open exchanges of information, it is essential that the interaction is used to explore the full potential of the group to achieve the project objectives. Those considered most effective seek information and critically explore suggestions, this is achieved by asking for information then prompting for explanations and finally making others commit to their proposal. If information is not understood further explanation is requested. Effective professionals do search for further information and explanation of issues, but they also direct the group ensuring the group is productive,

attempting to solve as many problems as possible within the time available, avoiding over emphasis on issues that seem irrelevant. When issues hold a high priority emotion is used to convey the importance of the message. Emotion can be used to show how strongly someone disagrees or agrees with a situation, it can be used to show commitment to a proposal and to support and dissuade another. Socio-emotional interaction plays a key role maintaining the relationships within the project team.

The contractor's representatives considered most effective use emotional exchanges to manage functional conflict. Negative emotions that create conflict are used to show when contractors are unsatisfied with other professionals or may be used to challenge another professional's proposal. Such actions ensure that others are aware of the contractor's priorities and that any suggestions proposed are fully explored before being accepted. The conflict caused by negative emotion is highly salient; other professionals have a tendency to remember such encounters above other incidents. Following conflict positive emotions are used to help disperse tension to ensure relationships are repaired and the impact of the conflict reduced. Positive expression used by the most effective contractors exceeds negative interaction. Effective contractors help reduce tension by showing support, agreeing, being friendly, joking, joining in with laughter.

This study has provided a small insight into an under researched area. Further research is required to explore communication dynamics from different perspectives in different construction environments. The use of different research methods to study interaction is considered important. Quantitative methods such as the Bales IPA used allows the analysis of large data sets; however, qualitative methods, such as conversation analysis, may provide detailed data that support understanding of the nature of trends found.

## REFERENCES

- Ackoff, R. (1966) *Structural conflict within organizations in operational research and the social sciences*, (Ed.) J.R. Lawrence, London. Tavistock Publications.
- Bakeman, R. and Gottman, J.M. (1997) *Observing interaction: An introduction to sequential analysis*, 2<sup>nd</sup> Ed. Cambridge, Cambridge University Press.
- Bales, R.F. (1950) *Interaction process analysis: A Method for the study of small groups*, Cambridge USA, Addison-Wesley Press
- Bales, R.F. (1953) The equilibrium problem in small groups. In: T. Parsons, R.F. Bales and E.A. Snils (Eds.) *Working papers in the theory of action*. New York. Free press. pp 111-163
- Brown, R. (2000) *Group Process: Dynamics within and between groups*, 2nd Ed. Oxford, Blackwell.
- Capers, B. and Lipton, C. (1993) Hubble space telescope disaster. *Academy of Management review*, 7 (3), pp 23 - 27.
- Clark, R.A. (1991) *Studying interpersonal communication, The research experience*. London, Sage.
- Cline, R.J.W. (1994) Groupthink and the Watergate cover-up: The illusion of unanimity. In: L.R. Frey (Ed.) *Group communication in context: Studies of natural groups*. New Jersey, Lawrence Erlbaum associates. pp 199 – 223.
- Drew, P. and Heritage, J. (1992) *Talk at work: Interaction in institutional settings*, Cambridge, Cambridge University Press
- Ellis, D.G. and Fisher, B.A. (1994) *Small group decision making: Communication and the group process*, 4<sup>th</sup> Ed. New York, McGraw-Hill.
- Fielding, N.G. and Fielding, J.L. (1986) *Linking data*. London. Sage publications.

- Folger, J.P. and Poole, M. S, (1984) *Working through conflict: A communication perspective*. Glenview, Illinois. Scott, Foresman
- Gameson, R.N. (1992) *An investigation into the interaction between potential building clients and construction professionals*, unpublished PhD thesis, Department of construction management and engineering, University of Reading.
- Gibb, J.R.. (1961) Defensive communication, *Journal of communication*. pp 141 - 148
- Hare, A. P. (1976) *Handbook of small group research*. 2<sup>nd</sup> Ed. New York. The Free Press.
- Hollingshead, A. B. (1996) The rank order effect in group decision making, *Organizational behaviour and human decision processes*, Vol. 68, No. 3, December, pp 181 – 193.
- Hugill, D. (2001) *An examination of project management team meetings in railway construction*. PhD Thesis. Faculty of Economics, Social Studies and Law, University of Manchester.
- Keyton, J. (1999) Relational communication in groups. In: L. R. Frey (Ed.) *The handbook of group communication theory and research*. London. Sage. pp 192-221
- Kreps, G. L. (1989) *Organizational communication theory and practice*. 2nd Ed. New York. Longman.
- Lee, F. (1997) When the going gets tough, do the tough ask for help? Help seeking and power motivation in organizations. *Organizational behaviour and human decision processes*, Vol. 72, No. 3, December, pp 336- 363.
- Loosemore, M. (1996) *Crisis management in building projects A longitudinal investigation of communication behaviour and patterns within a grounded framework*, Ph.D thesis, University of Reading.
- Loosemore, M. (1998) The methodological challenges posed by the confrontational nature of the construction industry, *Engineering, construction and architectural management*, 5, (3) pp 285-293
- MaCann, D. (1993) *How to influence others at work. Psychoverbal communication for managers*. 2nd ed. London. Butterworth-Heinemann.
- Mior, Azam, M.A, Ross, A. D, Fortune, C.J. and Jagger, D. (1998) An information strategy to support effective construction design decision making, *Association of Researcher in Construction Management*, 14<sup>th</sup> Annual conference, September 9<sup>th</sup> to 11<sup>th</sup>, University of Reading, 248–257.
- Pavitt, C. (1999) Theorizing about the group communication-leadership relationship. Input-process-output and functional models. In: L.R. Frey. *The handbook of group communication theory and research*. London. Spon. pp 313-334.
- Pondy, L. (1967) Organisational conflict, concepts and models, *Administrative quarterly*, 12, Sept. pp 299 – 306.
- Poole, M.S. Keyton, J. and Frey, L.R. (1999) Group communication methodology: Issues and considerations. In: L.R. Frey. *The handbook of group communication theory and research*. London. Sage. 92-112.
- Seymour, D. and Hill, C. (1993) Implications of research perspective for management policy. *Association of Researchers in Construction Management*, 9<sup>th</sup> Annual conference, Oxford University. September 14<sup>th</sup> – 16<sup>th</sup>. 151-123.
- Shapiro, D. and Leiderman, P. H (1967) Arousal correlates of task role and group setting, *Journal of personality and social psychology*, 5, 1, pp 103-107
- Shepherd, C.R. (1964) *Small groups: Some sociological perspectives*. New York. Chandler Publishing.
- Yoshida, R.K, Fentond, K. and Maxwell, J. (1978) Group decision making in the planning team process: Myth or reality? *Journal of school psychology*. 16. pp 237-244
- Ysseldyke, J.E. Algizzine, B. and Mitchell, J. (1982) Special education team decision making: An analysis of current practice. *Personnel*