

## EFFECTS OF GROUP COMMUNICATION COHESION OF STAFF AND CLUSTER ANALYSIS IN A MULTI CAMPUS UNIVERSITY

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**ABSTRACT:** *To improve on group cohesion in organisations, effective communication should help contribute to the overall job performance and the goals set. This study therefore examined the effects of group communication cohesion of staff and cluster analysis applications in attempt to impact on staff pattern of behaviour at work. A survey design was adopted in a population of 1,739 with a sample size of 304 respondents comprised of management members, senior members, senior staff and junior staff from all the four campuses of the University. The analysis of the survey instrument reliability resulted in a Cronbach Alpha value of 0.83. The two-step cluster analysis was used to also analyse group communication cohesion among respondents and to identify the natural group; which revealed four groups of employee cohesion patterns. Clusters I and II showed high cohesion while clusters III and IV showed low cohesion. This shows that employee rank influences the grouping patterns and membership of a cluster (group) and was also influenced by the campus of the employee, as revealed from the chi-square analysis. Further analysis identified tactical group, operational group, strategic group and contingency group which represent four employee cohesion patterns, to match the status of staff in the university. To enhance group communication cohesion, it is recommended that the University authority should promote the use of information flow, feedback, good working relationships between superiors and subordinates; and the use of circulars, letters, notices, newsletters, should be greatly enhanced. The results again pointed out the influence of ethno-linguistic use at work place, salary discrimination, lack of capacity and little cooperation of management. The use of durbars and other social events periodically to bring staff together, create awareness and foster stronger cooperation should be promoted were recommended. The study result could guide policy formulation and contribute to knowledge in development communication in the University*

**KEYWORDS:** Cluster Analysis, Group Communication Cohesion, Multi Campus University, University Staff

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### INTRODUCTION

The degree to which a number of people constantly work together in a given environment for the achievement of a common goal could be described as group cohesion. Yoo and Alavi (2001) found that in established groups, group cohesion had a larger influence than communication media for measuring task, participation and social presence. Furthermore, they found that group cohesion influenced how group members perceived communication media in established organisations. Ideally effective communication should contribute to job

performance and group cohesion. Some explanations have been made on organisational communication and job performance; however Longest et al., (2000) provides us with several forms of intra organisational communication suitable for effective cohesion. Yoo and Alavi (2001) again argued that group cohesion can sometimes help to improve the richness of lean media. Cohesiveness is an important component of groups, and it contributes to the overall effectiveness of the goals of the group. Campion (2018) also intimated that an effective way for a leader to increase the cohesiveness of their group is to become competent in nonverbal communication. Nonverbal competence is therefore important to interaction within the group in order to correct inadvertent messages, and if possible, to eliminate them (Daniels, 2002). Further, those groups that are cohesive tend to be happier and more productive (Engleberg and Wynn, 2003). According to Kolb, Jin and Song (2008), most teamwork training effectively covers relationship management, yet not much attention is directed toward communication and conflict.

McBride (2006) on the other hand indicated that the more cohesive the group, the happier and more productive the group is. When leading a small group, it is important to understand the appropriate times to use nonverbal competence to avoid misunderstandings that rewards by enhancing our self-esteem and gaining the esteem of others (Caputo, Hazel, McMahon, and Dannels, 2002). Engleberg and Wynn (2003) also stated that, when analyzing the effectiveness of a group, it is important to consider that increased productivity and increased cohesiveness have a reciprocal relationship in the group functionality. From casual peer chatting to formal meetings, regular group discussions, and presentations, small group interactions are governed by complex conscious and subconscious rules (Gatica-Perez, 2009). In addition to the above, Kolb, Jin and Song (2008), indicated that organisations benefit greatly from effective teamwork, unfortunately, not all groups today have successful outcomes. However, effective ways to improve worker performance are sought more and more today, and group performance is one of the most important focal points (Robertson and Huang, 2005). Numerous scholars have studied the value and properties of group effectiveness and such studies have shown that the abilities of the leaders are important in terms of group effectiveness (Kolb, Jin and Song, 2008). Nevertheless, close and collaborative relationships with customers may be an important factor in influencing cohesion and performance (Riggio, 2006), market performance (Swink and Song, 2007) and innovation (Koufteros et al., 2007). Stokes (1993) indicated that because of its strategic nature, supplier integration can be characterized by the collaborative and long-term relationship between buyer and supplier involving high levels of trust, commitment and information sharing; which could be no different from group cohesion.

Since the University generally promotes the use of committee system which contributes to building team spirit among staff across the organisational structure, committees are also created based on policy used by all staff. Team dynamics such as personality differences, qualification and personal interest drive the action(s) of each staff, hence the tendency to either stick to work norms or get involved in other personal matters or organisational politics in an attempt to lobby for specific policy measures to be considered in the University. These team differences, competition and indirect struggle for limited budgeted resources could again result in the formation of natural cliques, given the different backgrounds of staff. These cliques again metamorphose into ideological blocs, thereby creating larger groups (clusters) in communicating directives on task execution to promote the overall objectives of the University. Group communication and cohesion is therefore part of the processes in enhancing performance in any institution like UEW, but since its inception in 1993, there had

neither been empirical study on group nor any analysis of clusters made on staff cohesion within the university. This study therefore sought to identify the gap that existed as a result of such groups and the effect of such clusters, with the potential to impact on the staff pattern of behaviour at work. The outcome of the study has created an institutional framework for information flow and further engenders a two-way communication between categories of various groupings in the University. Recommendations from the study could guide policy formulation and contribute to knowledge in development communication in the University as a whole.

## LITERATURE

### Multi-Campus University

Roth, et al (2006) indicated that although the presence of free communication reduces the complexity of multi-organisations in recent years, such organizations as Partially Observable Markov Decision Processes (POMDP) have emerged as popular decision-theoretic framework for modeling and generating policies for the control of multi-organisation teams. The question of what to communicate in the above case were described using two paradigms for representing limitations on communication and present an algorithm that enabled multi-organisations teams to make execution-time decisions on how to effectively utilize available communication resources.

With multi-disciplinary multi-national projects studied, Fox (2009) found that shared understanding could be better enabled through the application of information and communication design. Formidable inherent barriers to the understanding in multi-disciplinary multi-national projects were identified. Generic methods for communication of information; such as the use of gestures, speaking business English, and the application of standard process charting could be ineffective. Again, inherent challenges in establishing shared understanding; limitations of generic methods for the communication of information; issues underlying information and communication design, as challenged in Campion (2017). Further, practical recommendations in reducing time and cost related to the challenges were done.

Munene (2004) indicated that the face of increasing social demand and cutbacks in state budgetary support for universities in African countries are now turning towards a multi-campus system strategy. In analysing the paradox surrounding the performance of multi-campus university systems, Munene (2004) argued on avenues of broadening university access and concluded that structural success may be qualitatively contested. Dispersed Institutions in Africa, according to Brown (2000), provides some useful reflective insights into the changing dynamics between campuses at the University of Natal (now KwaZulu-Natal) in South Africa. Nickerson and Schaefer (2001) provide an extensive survey of educational branch campus administrators. Dengerink (2001) focuses on issues of institutional identity and organisational structure in relation to multi-campus arrangements, using the University of Washington and Washington State University as cases in points. Scott et al., (2007) provide a study of Australian multi-campus universities with a focus on comparison of the operational efficiency of multi-campus organisations as compared with single campus institutions. Smith (2009) examines the external factors that influence academics working in a campus of an Australian University in the United Arab Emirates.

McBurnie and Ziguras (2007) and Heffernan and Poole (2004, 2005) provide further studies of transnational campus arrangements. Developing a definition of what ‘satellite campus’ could be, Scott et al., (2007) based it on key characteristics which included the existence of an identifiable main site for the institution, a minimum travelling time between main and satellite, and a critical mass of students at the satellite, both in absolute terms and percentage of institutional full-time equivalent student numbers.

The University of Education runs a multi-campus system with four campuses in Ghana, namely: Winneba, Kumasi, Mampong and Ajumanko. The Winneba Campus which is the main campus of the University is spread over three sites (North, Central and South) within the Winneba Municipality. The Central Administration of the University is located at the South Campus. The Ajumako Campus currently hosts the first-year students of the Development of Akan-Nzema Education of the Faculty of Languages Education. Gradually the Faculty of Languages Education will move from Winneba Campus to the Ajumako Campus and currently developed to become the College of Languages Education. The Asante – Mampong Campus hosts the College of Agriculture Education and is situated 51 kilometers north-east of Kumasi. The Asante – Mampong Campus is the home of the faculty of Agriculture Education. The Kumasi Campus which hosts the College of Technology Education of the University of Education, Winneba became part of the University of Education Winneba in 1996 following the Educational reforms carried out by the Ministry of Education in 1992 by the PNDC Law 322, 1992

The campuses of UEW are satellite in nature and their spatial nature has the potential of posing challenge to effective communication. These campuses rely on means of communication with networks of technology available, staff support, laid down procedures and patterns, and even means of transport (vehicles). Considering the volume of teaching and learning activities and the growing numbers of students vis a vis the limited resources available, UEW current communication systems have a challenge.

### **Homogeneous Platforms Communication Models**

This model explains point-to-point parameters of traditional communication performance models’ estimation for homogeneous platforms. There are two ways to obtain a statistically reliable estimation of the Hockney model parameters (Hockney 1994):

- To perform two series of roundtrips: with empty messages (to get the latency parameter from the average execution time), and with non-empty ones (to get the bandwidth).
- To perform a series of roundtrips with messages of different sizes and use results in a linear regression which fits the execution time into a linear combination of the Hockney parameters and a message size.

Thakur, Rabenseifner, and Gropp (2005) used the Hockney model to estimate the communication performance of different algorithms of collective operations. For a particular collective operation they suggested switching between algorithms to choose the fastest one for each given message size and number of processors. One application of communication performance models is the optimisation of collective operations. The goal is to find the optimal algorithm for each particular network configuration with respect to the prediction provided by the communication performance model. The design of their algorithms of

collective operations is based on intra- and inter-cluster graphs of processors; they switch between different shapes of graphs for different message sizes to get the best prediction of execution time. All these approaches were applied to homogeneous platforms. They considered a fixed set of commonly used algorithms for each collective with a predetermined form of communication trees. The heterogeneous communication performance models can provide another approach to the model-based optimization: the building of optimal communication trees by using the prediction of the execution time for each link.

Bhat, Prasanna and Raghavendra (2003) and Hatta and Shibusawa (2000) used a heterogeneous Hockney model to build the optimal communication trees for broadcast and gather. They applied different heuristics based on the Hockney prediction on either the whole or some of its parameters. The authors of these works used the heterogeneous Hockney extension just for relative estimation of the point-to-point communications but did not build models of collective operations. To the best of the authors' knowledge, there are no publications on the modelling of collective operations on heterogeneous clusters.

### **Communication Models for Heterogeneous Clusters**

The model-based optimization can significantly improve the performance of collective operations on both homogeneous and heterogeneous platforms (Kielmann et al. 1999; Hatta and Shibusawa 2000; Bhat et al. 2003; Thakur et al. 2005; Pjesivac-Grbovicetal. 2007). Heterogeneous computational clusters with the principle programming system have become a popular platform for parallel computing. Unfortunately, many applications that were originally designed for homogeneous platforms do not demonstrate the same performance on heterogeneous ones and require optimization. The optimization of parallel applications is typically based on the performance models of heterogeneous clusters, which are used for prediction of the execution time of different configurations of the application, including its computation and communication costs. The optimisation of communications, in collective operations, is an important aspect of the optimisation of parallel applications.

There are two main approaches to modelling the performance of communication operations on heterogeneous clusters. The first is to apply traditional *homogeneous* communication performance models to heterogeneous clusters. In this case, the parameters of the models are estimated for each pair of processors and the average values for all pairs are then used in modelling. The second approach is to use dedicated *heterogeneous* models, where different pairs of heterogeneous processors are characterized by different parameters. These two approaches are in use; heterogeneous communication models are more accurate and outperform, their homogeneous counterparts in the model-based optimization of communication operations on heterogeneous clusters. At the same time, the cost of the estimation can be significantly reduced if the heterogeneous cluster can simultaneously execute several independent communications involving non-overlapping sets of processors without degradation of their performance. In this case, the parallel execution of the non-overlapping communication experiments does not affect the experimental results and can be used for acceleration of the estimation procedure with primary target of heterogeneous clusters.

## METHODOLOGY

A survey design was adopted to ascertain from employees the effects of cluster analysis of staff on group communication cohesion in a multi campus university, because it is flexible, efficient and the results are in most cases generalisable (McMillan, 2004). The population of study was 1,739 comprised of management members, senior members, senior staff and junior staff from all the four campuses of the University. A sample size of 400 was selected using Krejcie and Morgan Table of 1970. The various campuses were stratified into four based on campus; which a simple random sampling was used to select the required respondents. The research instruments employed for the study were combination of questionnaires and interviews. The instruments for data collection were developed with the support of four experts in the area of study. Out of the number of questionnaires administered, 309 questionnaires were received from respondents in all campuses after several follow ups. In all however, 304 respondents answered all the 133 questions resulting in the Cronbach Alpha of 0.83.

Data was analysed using the Statistical Package for Social Sciences (SPSS) version 20.0. The two-step cluster analysis was again used to analyse group cohesion among respondents and to identify the natural group. Though the variables were measured on a three point Likert scale (low, moderate, high), the two step cluster analysis was deemed appropriate to meet the four groups of employee cohesion patterns. A chi-square test of independence between the groups and employee ranks was also considered here, since employee rank could influence the interest of group patterns. Again the chi-square test for employee membership of a cluster (group) was also used to check the influence level by campus of the employee. All these were carried out to check the consistency of communication practice in the University.

In all, four clusters were identified and these were based on staff classification. Cluster one was dominated by Senior members and Senior staff (lecturers, Assistant Registrars, Senior Research Assistants and Senior Administrative Assistants) who are likely to assist or be directly involved in the implementation of the strategic objectives of the University. The cluster is therefore labeled tactical group, which serves as the medium for work plan implementation too. Cluster two was also dominated by Junior and senior staff (Senior Research Assistants, Senior Administrative Assistants and clerks) and is named as operational group (cluster). This group contributes to communication through proposals, suggestions, appeals and requests. Clusters three (3) comprise only Senior members of the University community: Professors, Registrar, Associate Professors, Deputy Registrars, Senior Lecturers and Senior Assistant Registrars, hence the cluster is the Strategic communication group in the University. The calibre of staff here are likely to make final decisions for the university and approve all plans including the corporate strategic plan initiated by the tactical group. Contingent cluster, cluster four (4) on the other hand, is not dominated by any management level group but consists of a mixed spectrum of staff who associate themselves with the work environment based on the situation at hand. Membership of this cluster is drawn from various segments of the university based on expertise, skill, interest among others. A case in point is a committee put in place to investigate issues or staff on a representation to a funeral on behalf of the university.

## RESULTS AND DISCUSSIONS

The clusters, names, membership and their roles are summarised in Table 1. The four clusters identified represent employee cohesion patterns. Cluster 1 had 105 respondents, representing 34%. Cluster 2 had 107, respondents representing 34.6%. Clusters 3 and 4 had 81 and 16 members, representing 26.2% and 5.2% respectively. A chi-square test of independence between the groups and employee ranks showed  $\chi^2 : 51.797$  (df = 15)  $P < 0.01$ . This means that employee rank has the tendency of influencing group patterns as staff usually will feel more comfortable with colleagues of the same rank.

**Table 1: Summary of Group of Staff/Roles**

Cluster	Name	Membership	Roles
1	Tactical group	Senior members and senior staff	Supervisory role (leading, directing and instructing) Implementor of tasks
2	Operational group	Senior staff and Junior staff	Executing day to day tasks, workforce (executing task, taking instructions & reporting)
3	Strategic communication group	Senior members	Managerial role of providing vision (terms of reference, resources, discipline, etc)
4	Contingent group	Mixed group	Depending on situation/tasks, staff are selected for particular an specific tasks. (eg. Crises Communication management, Ad-hoc committee, etc)

Again the chi-square test for employee membership of a cluster (group) was also influenced by the campus of the employee with  $\chi^2 : 19.061$  (df = 12)  $P < 0.05$ . The results are consistent with communication practice in the University, since ranks and campuses determine the job specification (various campuses have different areas of specialisation). Winneba campus specialises in Arts and Social Science; Kumasi, in Business and Technology; Mampong is into Agriculture while Ajumako specialises in Languages.

**Table 2: Cluster Distribution of Staff**

	CLUSTERS				Total
	1 (Tactical)	2 (Operational )	3 (Strategic )	4 (Contingent)	
Ass Prof/DR	0	1(0.3)	5(1.6)	1(0.3)	7(2.3)
Snr Lecturer/SAR	6(1.9)	2(0.6)	10(3.2)	0	18(5.8)
Lecturer/AR	31(10)	26(8.4)	34(11)	5(1.6)	96(31)
SRA/SAA	14(4.5)	39(12.6)	12(3.9)	6(1.9)	71(23)
Others	31(10)	24(7.8)	11(3.6)	1(0.3)	67(21.)

Figures in parentheses are percentages

Source: Field Survey, 2012

**Table 4.3 Cluster distribution across campus**

	CLUSTERS				Total
	1 (Tactic)	2 (Operational )	3 (Strategic)	4 (Contingent )	
Winneba	39(12.6)	43(13.9)	38(12.3)	12(3.9)	132(42.)
Kumasi	36(11.7)	43(13.9)	25(8.1)	3(1)	107(34.)
Mampog	23(7.4)	13(4.2)	14(4.5)	0	50(16.2)
Ajumako	6(1.9)	7(2.3)	2(0.6)	0	15(4.9)

Figures in parentheses are percentages

Source: Field Survey, 2012

**Table 4.4 Cluster Membership Distribution**

Cluster	1	n	% of Cummulative	
			% of Sample	Sample
	1	105	34.0	34.0
	2	107	34.6	68.6
	3	81	26.2	94.8
	4	16	5.2	100
Total		309	100.0	

Source: Field Survey, 2012



**Group Cohesion and Communication Cohesion**

Variable	N	Mean	SD
Level of staff cooperation	304	2.04	0.59
Level of staff motivation	301	1.88	0.59
Periodic training available	300	1.70	0.71
Existence of a two-way communication	300	1.84	0.62
Effect of feedback in communication	300	1.84	0.70
Use of ICT in communication	301	1.79	0.68
Opinion on expression communication	297	2.14	0.72
Promotion/transfer of staff	301	1.94	0.72
Communication facilities available	296	1.95	0.75
Information availability for staff	296	1.84	0.65
Well-defined job description	299	1.84	0.79
Effect of job improvement on Ctn	291	1.73	0.75
Effect of multi-campus nature in Ctn	296	1.86	0.79
Level of growth & dev't in Ctn	294	1.94	0.68
Existence of divide & rule method	292	1.80	0.82
Staff morale on communication	296	1.91	0.72
Level in use of grapevine information	293	1.90	0.79
Effect of tribalism communication	296	2.08	0.81
Self ego/selfishness in communication	290	1.98	0.84
Dissatisfaction among staff in Ctn	294	2.09	0.84
Time of communication by staff	294	1.89	0.81
Lack of circulars/bulletins	292	2.08	0.85
Intra/inter campus communication	294	1.90	0.79
Effect of C'tn on staff	296	1.91	0.74
Nature of communication	285	1.93	0.79
Information from Colleagues	283	1.80	0.82
Gender stereotyping in Ctn	288	1.65	0.78
Personal interest on Ctn	282	1.81	0.82
Nature of capacity building	287	2.04	0.82
Unclear policy statements	289	1.94	0.84
Non-uniformity in salaries	292	2.05	0.87
In fighting among colleagues	291	1.83	0.88

Source: Field Survey, 2012

Grand mean 1.90

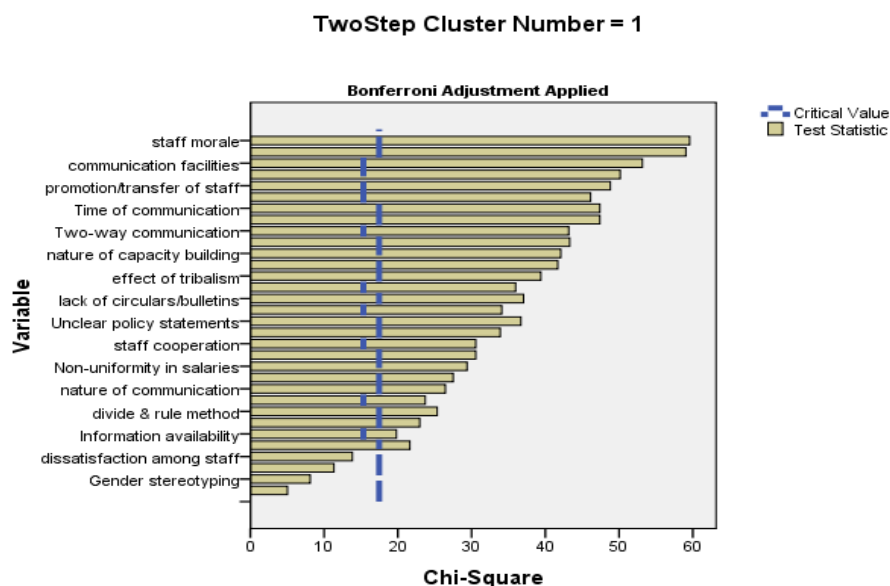
Scale: Low = 1 Moderate = 2 High = 3

**Categorical variable importance in cluster determination**

To better understand communication parameters influencing respondents membership of a group, cluster determination was conducted with the Bonferroni Adjustment, with the Chi-square as the test statistics for the four groups. In Cluster 1, the test revealed that staff morale, communication facilities, promotion/transfer of staff, time of communication and the two-way communication channels were the communication variables that influenced respondents cluster membership. In Cluster 2, staff morale, divide and rule method, the multi-campus

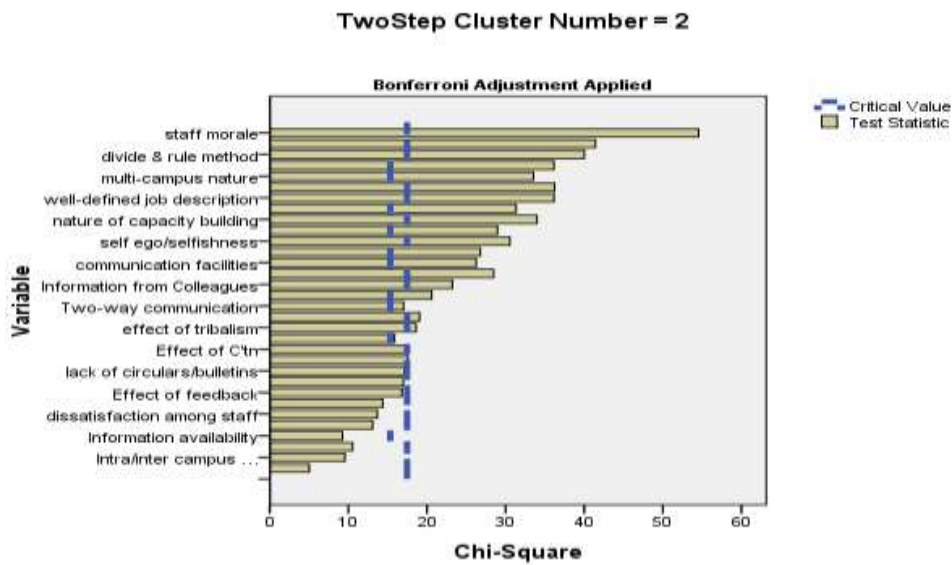
nature, well defined job description and nature of capacity building, significantly determined employees' membership of the cluster.

The figures below indicate the manifest statements that are likely to pull or push respondents towards a particular cluster (group). Agreement among humans is based on their tendency to gravitate toward a particular group (cluster) of people they share similar opinions with at the work place. Using the thirty manifest likert items for determining group cohesion in table 4.9 in the cluster analysis, the results in all the four figures showed whether a particular statement is the pull or push factor for determining a respondent's membership of a cluster (group). If the chi square measure (blue line) exceeds the test statistic (gold line), then it means that the variable is not a determining factor in a cluster membership but if the test statistic (gold line) crosses the blue line, the researcher concludes that the variable is a push/pull factor, based on which members belong to a cluster.



**Figure 4.4.1:** Determinants of Cluster One

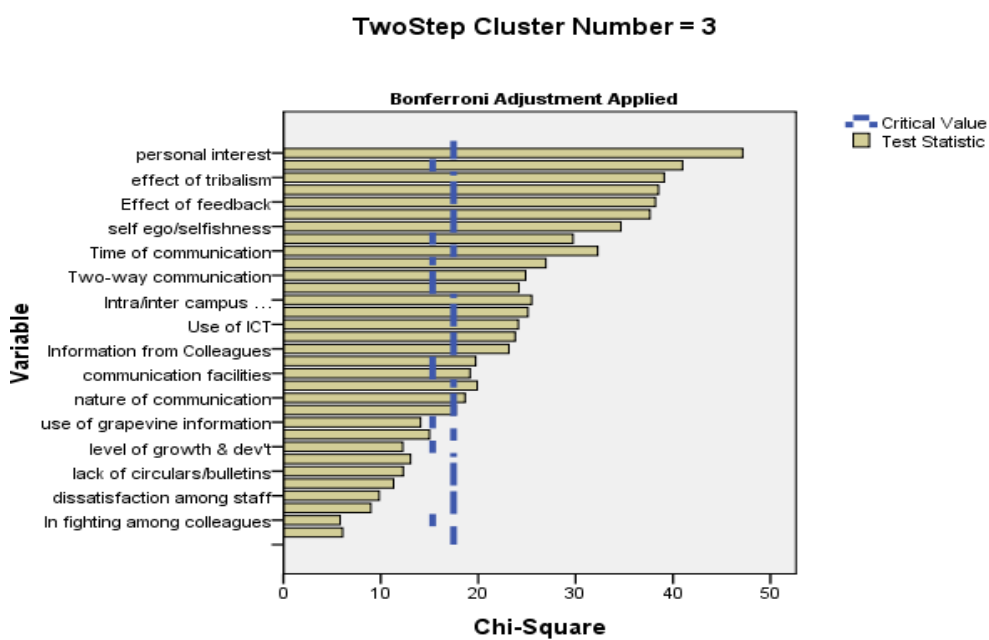
**Source:** Field Survey, 2012



**Figure 4.4.2 :** Determinants of Cluster Two

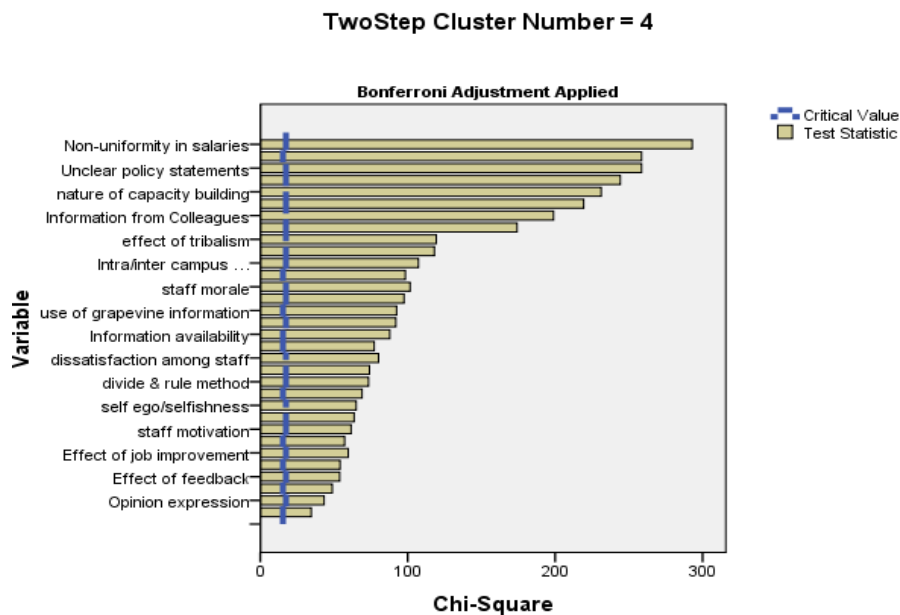
Source: Field Survey, 2013

In Cluster 3 respondents generally agreed that personal interest, effect of tribalism, feedback and self ego determined their membership of the cluster. In cluster 4, non-uniformity in salary structure, unclear policy statements, nature of capacity building and information from colleagues influenced respondents membership.



**Figure 4.4.3:** Determinants of Cluster Three

Source: Field Survey, 2013



**Figure 4.4:** Determinants of Cluster Four

### Group Cohesion and Communication pattern

To identify the underlining parameters of communication in a group, an exploratory factor analysis with Varimax Rotation was used to extract the variable under pinning organisational communication. The factor analysis revealed four independent communication parameters that explained 48% of the variance in communication pattern in UEW vis-à-vis group cohesion. The principal components underlying the cohesion pattern among all the four clusters extracted were labeled as corporate planning, stratification, organizational politics and organizational culture based on the characteristics of factor loadings in each principal component.

Pearson correlation was used to determine the relationships among the identified principal components in the University. The coefficients ( $r$ ) measure the magnitude or strength and the direction of the relationship between two variables out of a scale value of 1 or 100%. The results in Table 4 revealed that corporate identity and corporate planning had the highest significant positive correlation ( $r = 0.626$ ,  $p < 0.01$ ). The positive and significant relationship means that corporate planning and corporate identity influence each other with a correlation of 62.6% therefore implying good corporate planning is likely to result in a rise in corporate identity by 62.6%. in the university. A positive change in corporate identity is also likely to improve corporate planning by 62.6%. Organisational politics and corporate planning were also found to be positively and significantly correlated ( $r = 0.509$ ,  $p < 0.01$ ). Healthy organisational politics is likely to lead to an enhanced strategic thinking among members of the University community and thereby improving corporate planning by 50.9%. In other words, effective, corporate planning would likely strengthen corporate identity in the University.

**Table 4.10: PPMC Correlation on Organisational Communication**

	Control Variables	Corporat e Planing	Stratificati on	Organisation al Politics	Corpora te Identity
CLUSTE RS	Corporate Planing	Correlation Significance (2- tailed) df	1.00		
	Stratificati on	Correlation Significance (2- tailed) df	0.416*** 0.00 306	1.00	
	Organisati onal Politics	Correlation Significance (2- tailed) df	0.509*** 0.00 306	0.496*** 0.00 306	1.00
	Corporate Identity	Correlation Significance (2- tailed) df	0.626*** 0.00 306	0.340*** 0.00 306	0.396*** 0.00 306

\*\*\* indicates significance at 0.01 alpha level

Source: Field Survey, 2012

The relationships between the other variables (corporate planning and stratification, organizational politics and stratification, corporate identity and corporate planning and corporate identity and organizational politics) all had  $r < 0.5$ ; though statistical evidence points to a significant relationship among these parameters. What it means is management need to consider these factors in enhancing and improving staff cohesion in future (Campion, 2017). Besides it draws the attention of management to the importance of various informal and formal groups, constituents and committees in attempt to realise its vision.

## CONCLUSION

The degree to which a number of people constantly work together in a given environment for the achievement of a common goal vis a vis different caliber persons in different locations were achieved in this study. Communication cohesion of staff was found to have moderate influence on staff cohesion with a grand mean of 1.90. Further analysis using the two step cluster analysis yielded four clusters, namely, tactical group, operational group, strategic group and contingency group which represented four employee cohesion patterns, Senior members and Senior staff, Senior staff and Junior staff, Senior members only and a Mixed group respectively. The two step cluster analysis again revealed four groups of employee cohesion patterns. Clusters I and II showed high cohesion while clusters III and IV showed low cohesion. This shows that employee rank influences the grouping patterns and membership of a cluster (group) and was also influenced by the campus of the employee, as revealed from the chi-square analysis. The factors affecting group cohesion are staff cooperation, expression of opinions relating to management issues, level of staff dissatisfaction, inadequacy of information communicated, availability of training (long and short term), orientations and attachments for staff in the University, Non uniformity in the

single spine salary structure and the multi campus nature of the University also affect group cohesion. To enhance effective communication, it is recommended that the University authority should promote the use of information flow, feedback, good working relationships between superiors and subordinates; and use of circulars, letters, notices, newsletters, should be greatly enhanced in the University. In addition to enhancing group cohesion and team work is important, to listen to the views of all stakeholders of the University. The result revealed again that staff were unhappy with the influence of ethno-linguistic use at work place, salary discrimination, lack of capacity and little cooperation of some staff. It was recommended for management of the University to use the durbars and other social events periodically to bring staff together, create awareness and foster stronger cooperation to enhance group communication and cohesion. For a University to have good organisational communication, the bottlenecks hindering communication performance must be done away with. Group communication and cohesion is therefore part of the processes in enhancing the performance of any institution like UEW; and so the study on staff cohesion and analysis of clusters within the University sought to identify the gaps that existed. It is hoped that an institutional framework for information flow and further engendering a two-way communication between categories staff would be promoted. Recommendations from the study could guide policy formulation and contribute to knowledge in development communication as a whole.

## REFERENCES

- Bhat, P., Prasanna, V., & Raghavendra, C. (2003). Efficient collective communication in distributed heterogeneous systems. *J. Parallel and Distributed Computing*, 63(3), 251–263.
- Brown, D. H. (2000). Principles of language learning & teaching. (4th ed.). New York: Longman. (pp. 49-58).
- Campion, B.C., (2017). Constraints militating against Organisational Communication in a Multi-Campus University. *Journal of Education and Social Sciences*, Vol. 8, Issue 1, (October) ISSN 2289-1552201783
- Campion, B.C., (2018). Effects of Organisational Communication on Group Cohesion in a Multi-Campus University. *International Journal of Engineering Technology, Management and Applied Sciences*. Volume 5, Issue 12, ISSN 2349-447631
- Caputo, J. S., Hazel, H. C., McMahon, C., & Dannels, D. (2002). *Communicating effectively: Linking thought and expression*. Dubuque, IA: Kendall-Hunt. Pp89-102.
- Daniels J.S. (2002) "Foreword" in Information and Communication Technology in Education—A Curriculum for Schools and Programme for Teacher Development. Paris:UNESCO.
- Dengerink, W. (2001). "Teacher Educators - A Hidden Profession"—A Practical Reflection for Administrative and Law Studies. Open access. *Procedia - Social and Behavioral Sciences*, Volume 187, 2015, pp. 668-673
- Engleberg, I. N., & Wynn, D. R. (2003). *Working in groups' communication principles and strategies*. Boston, MA: Houghton Mifflin.
- Fox, R. (2001). Poslovnakomunikacija, Hrvatskasveučilišnanaklada. ISBN953-169-1290 pp, Zagreb. Please Use Google Translate To Get Title In English.
- Gaticia-Perez, D. (2009). Automatic non-verbal analysis of social interaction in small groups: A review *Image and vision computing*, 27 (12), 1775-1787.
- Hatta, J and Shibusawa, S. (2000). Efficient Collective Operations of communication on heteroge- neous networks," Proc. 10th Znt '1. Parallel Processing Symp.,pp 399-405.

- Heffernan, T. and Poole, D., (2004, 2005). "Catch Me I'm Falling": Key factors in the deterioration of offshore education partnerships. Article (PDF Available) in *Journal of Higher Education Policy and Management* 26(1):75-90.
- Hockney, R. (1994). The communication challenge for MPP: Intel Paragon and Meiko CS-2, *Parallel Comput.*, 20(3): 389–398.
- intervention on individual performance, group effectiveness and collaboration: the role of environmental.* Institute for Safety, Center for Safety, Hopkinton, MA.
- Kielmann, T., Hofman, R.F.H., Bal, H.E., Plaat, A., & Bhoed-jang, R.A.F., 1999. "MagPIe: MPI's collective communication operations for clustered wide area systems," *ACM SIG-PLAN Notices*, vol. 34, no. 8, pp. 131–140.
- Kolb, J.A., Jin, S. & Song, J.H. (2008). A model of small group facilitator competencies.
- Koufteros, X.A., Nahm, A.Y., Cheng, T. C. E., & Lai, K. (2007). An empirical assessment of a nomological network of organizational design constructs: From culture to structure to pull production to performance. *International Journal of Production Economics*, 106(2), 468-492.
- Longest, B. B., Rakich, J. S., & Darr, K. (2000). *Managing health services organizations* (4th ed.). Baltimore: Health Professions Press, Inc.
- McBride, M. C. (2006). "-Ing" project: Encouraging cohesion in small groups. Historical Papers Research Archive, University of the Witwatersrand, Johannesburg
- McBurnie, G and Ziguas, C., (2007) *Transnational education: issues and trends in offshore higher education* Routledge, London and New York.
- McMillan, J.,(2004). Quantifying creative destruction: Entrepreneurship and productivity in New Zealand," *New Zealand Economic Papers*, Taylor & Francis Journals, vol. 38(2), pages 153-173.
- Munene, M.W ., (2004). Language planning in South Africa; Towards a Language Management Approach, A PhD Thesis, University of the Free State.
- Nickerson, Mark and Schaefer, Sue (2001) *Autonomy and Anonymity: Characteristics of Branch Campus Faculty*, Metropolitan Universities, Spring 2001, 12, 2, ProQuest Education Journals, p49-59.
- Pjesivac-Grbovic, J., Angskun, T., Bosilca, G., Fagg, G., Gabriel, E., & Dongarra, J. (2007). Performance analysis of MPI collective operations, *Cluster Computing*, 10(2), 127–143.
- Riggio, R. (2006). Nonverbal skills and abilities. In V. Manusov & M. Patterson (Eds.),
- Robertson, M. M., & Yueng-Hsiang H. (2006). *Effect of a workplace design and training*
- Roth, B., Koelemeij J. C. J., Daerr, H., and Schiller, S., (2006). Rovibrational spectroscopy of trapped molecular hydrogen ions at millikelvin temperatures. *Institut für Experimentalphysik, Heinrich-Heine-Universität Düsseldorf, 40225 Düsseldorf, Germany.*
- Scott, S. G., & Lane, V. R. (2007). A stakeholder approach to organizational identity. *Academy of Management Review*, 25(1), 43–62.
- Smith, J. A. (2004). Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology*, 1, pp. 39-54.
- Stokes, J. P. (1983). *Components of group cohesion suggestions for future research: Strategic communication audits.* New York: The Guilford Press. pp212-214.
- Swink, M., & Song, M. (2007). Effects of marketing-manufacturing integration on new product development time and competitive advantage. *Journal of Operations Management*, 25(1), 203-217 pp.

- Thakur, R., Rabenseifner, R., & Gropp, W. (2005). Optimization of collective communication operations in MPICH. *Int. J. High Performance Computing Applications*, 19(1), 49–66.
- Yoo, Y., & Alavi, M. (2001). *Media and group cohesion: relative influences on social presence task*. York: Free Press.