

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence



Ikhsan Gunadi¹, Bambang Budi Wiyono², Imron Arifin³, Ery Tri Djatmika Rudijanto W.W.⁴

¹Education Management Doctoral Program, Universitas Negeri Malang

^{1,2}Faculty of Science Education, Universitas Negeri Malang

^{1,2}Faculty of Economic Education, Universitas Negeri Malang

ABSTRACT: Teamwork in an organization often experiences ups and downs in interpersonal relationships due to ineffective communication-interaction problems. Whereas in addition to leadership issues, organizational effectiveness is also largely determined by the interactions within the organization. Poor interaction-communication is the result of interpersonal ignorance of one another. This study tries to analyze the effectiveness of cooperation based on the machine intelligence owned by each personal organization, where methods like this are relatively not widely known. This study uses an approach that is a combination of qualitative and quantitative in a population of school organizations that consist of one principal and seven teachers. From this study, it was found that (1) relatively small relationship scores exist in four people including the principal as the leader of the organization, and (2) organizational personnel can play the appropriate roles of the five roles based on their machine intelligence. This study concludes that the analyzed school organization has a lot of interaction-communication conflicts, so a personal understanding of each other is needed based on their respective intelligence machines. By understanding machine intelligence, each member of the organization will be able to treat others appropriately both in interaction and communication so that the organization runs effectively.

KEYWORDS: Effectiveness, Teamwork Management, Intelligence Machine

INTRODUCTION

The biggest problem in organizations is communication. Poor interpersonal communication between organizations will cause conflict and weaken the existence of teamwork. According to Hardjana (2006), conflict is a difference in perception in measuring the interests and competition of each individual or work unit. The organization always seeks a way out of conflict so that it is able to suppress the consequences and the smallest risks so as not to endanger the organization. Conflicts that are too hard will not only create chaos but will also have an impact on stress and even frustration for the individuals involved in the organizational environment. Therefore, between organization and communication are two things that cannot be separated, which are interrelated with each other. Organization is the art of organizing things, while communication is a means to convey the meaning of the organization. Organizational communication is the most strategic tool in carrying out various organizational activities so that their main tasks and functions can be carried out in achieving goals effectively and efficiently (Napitupulu, 2019).

Effective communication is related to the ability of communicators and their communicants (Wisman, 2017). According to Soelaiman (2007) ability is an inborn or learned trait that allows a person to complete his work, both mentally and physically. Effective communication is influenced by knowledge and the environment, namely how the messenger sends messages that are tailored to the recipient of the message and the environment created by interpersonal relationships (Effendy, 2005). So, from this condition, informal communication will be built. Informal communication is formed from interactions between individuals with one another in the organization. Therefore, information in informal communication networks goes in unpredictable directions, and the network is strongly influenced by the nature and intimacy between individuals in the organization (Wahid, 2014).

It should be noted that research on the effectiveness of teamwork management in the last four years has continued to increase. This is because the trend current to be able to achieve success or optimal performance requires a collaborative strategy with other people/parties. Currently, it is no longer possible to achieve success by relying on oneself without involving

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

other people in a team. This phenomenon trend has become one of the principles of modern management that is more progressive and makes cooperation and collaboration an easy way to achieve success. This is in line with the statement that the strength of togetherness of individuals who are interdependent and have unity of thought and action is the main capital of an organization to achieve optimal results (Andayani, 2007; Arif et al., 2017) so that it will be able to provide optimal services to its users so that it will be able to provide optimal services to its users. (Muhti, Sunaryo, and ABS, 2017).

This study reveals the pattern of relationships between principals and teachers and the effectiveness of teamwork in schools. Researchers try to uncover this relationship through the intelligence engine in the Genetic STIFIn concept (Poniman & Amalia, 2020). The researcher realizes that this research is something that has not been done much before to determine the effectiveness of teamwork management by examining aspects of intelligence and personality type. A similar study was actually conducted by Arifin & Gunadi (2017) who concluded that the STIFIn concept used as the basis for openness in interpersonal communication (Widyadharma et al., 2020) greatly affects the performance of individuals whose personality types are already known by other team members superior). So that superiors easily use communication patterns that match the type of subordinates, compared to subordinates whose personality type is not known. This interpersonal openness makes it easier to realize effective communication which in turn will achieve an effective organization (Hall, 1974).

LITERATURE REVIEW

School as a professional organization

Organization is a forum for activities of people who work together in their efforts to achieve common goals. The problem of unifying the same vision, mission and goals with the existence of a group of people in society are factors that affect the existence of an organization. Whatever the name or background of an organization, it always requires teamwork that is able to carry out the vision, mission and goals in an integrated work harmony. This is an effective organization, ie, when the target output is measured by comparing the output with should plan the output realization. So, it is called effective if the output should be greater than output the planned (Schermerhorn, 1996). Meanwhile, according to Hidayat (1986), effectiveness is a unit of effectiveness is a unit of measure that states how far the target (quantity, quality, and time) has been achieved. The greater the percentage achieved, the higher the effectiveness. Meanwhile Handoko (2000) states that effectiveness is the result achieved by workers compared to the number of other production results within a certain period of time. Rivai (2009) states that organizational effectiveness is largely determined by a number of perspectives, namely (1) goal optimization, (2) systems, and (3) human behavior. Casida (2011) states that the effectiveness of the organizations is affected by four factors: Involvement in organizational culture, Consistency, Adaptation, and Mission.

In the world of education, schools are formal organizations that have a vision, mission and goals that are in line with the ideals and hopes of a country. As an organization protected by state laws and regulations, schools should be managed as well as possible in accordance with science and correct management principles (Ariawati, 2015; Napitupulu, 2019). To improve the quality of management, schools are managed with school management that empowers and optimizes the potential proportionally from all elements of the school, from leaders to lower level education implementers (Hartani, 2011). By looking at this, all elements of the school should become a unified team, solid and responsible for all problems that arise from within the school and outside the school. This is very important considering the school's workload and responsibilities are not light, so that with a solid work team, they will be able to overcome any problems that arise. School success cannot rely on each individual without depending on the work team.

The impact that can be caused due to the disorganization of the work team in schools will have an impact not only on the poor performance of individual school members but also on the performance of the school as a whole. Moreover, if the school is located in a suburban area or outside a metropolitan city area, of course cohesiveness is an issue. more important than others. As a result of the incompatibility of the school work team, it will have an impact on the low level of school services, especially in the learning process, which will also decline sharply. Between teachers will burden each other, the principal's leadership process will also be ineffective in carrying out daily operations, learning targets will not be achieved, and so on which makes the overall school performance worse.

Although to restore school performance, it can be done through various trainings (Baidi et al., 2020) so that each member/teacher has the ability to improve school performance, it will not necessarily show tangible results and have a long-term impact. This is partly because the team members do not understand each other's conditions. For this reason, it can be done through fostering working relationships, both between members of the organization and between organizational leaders and their subordinates or other members. The target of fostering working relationships in organizations or companies is the achievement of compact and harmonious cooperation between fellow members of the organization (Setiyani, 2012).

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

Communication and Cooperation

In the context of organizational effectiveness, the presence of teamwork is a necessity to realize mutual success. Teamwork is a force that encourages the synergy of each individual within the company work team. Without good cooperation between team members it is impossible to produce brilliant ideas. In line with the opinion of Bachtiar (2004) that cooperation is the power of synergy between individuals so that they are able to achieve the same goals according to plans and expectations. It is through this collaboration that the power of ideas becomes solid which in turn leads to mutual success. Tracy (2006) states that teamwork is an activity managed by a group of people who are members of one organization.

Teamwork is a group whose individual efforts produce higher performance than the results obtained if the work is completed alone (Robbins and Judge, 2008). Andayani (2007); De Toro & Tenner (1992) added that teamwork is a form of work in groups that must be managed properly to achieve a goal or complete a task. The same thing was conveyed by Arizona (2017) that teamwork is a process where a group of people gather their resources and expertise to work together and achieve a common goal. Teamwork is important because it can produce productivity. The results of Sriyono's research (2013) state that teamwork, job satisfaction, and loyalty have a positive and significant effect on productivity. Meanwhile, Arif, et al (2017) in their research found that *teamwork* has a positive effect on employee loyalty. Teamwork is more effective than individual work, as West (2002) argues, many studies have shown that teamwork leads to better efficiency and effectiveness. This is very different from work carried out by individuals.

Cooperation is intended as a joint effort of a group of people to achieve a common goal (Soekanto, 1990; Baron, Branscombe, and Byrne, 2008). Cooperation is a personal involvement between the two parties in order to achieve optimal resolution of the problems faced (Sunarto, 2000). Cooperation can improve communication in teamwork within and between parts of the company/institution. Collaboration gathers talent, shares tasks and responsibilities to achieve common goals (Tracy, 2006). So, cooperation is a joint effort between individuals or groups between the two parties for a common goal and get faster and better results. If the goals to be achieved are different, cooperation will not be achieved (Yusuf, 2017).

Thus, a solid team must work under one command and organizational culture which is internalized into the soul of every member of the organization so that teamwork is in a harmonious step. With the existence of a cohesive and solid team, the organization will run effectively and efficiently. Solid teamwork if they have the same or equivalent abilities (Burn, 2004), but are more varied in both abilities and backgrounds. As the opinion of Sutrisna (2007) that the work team consists of individuals who have various competencies who work in one line of coordination of a leader in order to realize interdependence in order to achieve a goal or complete a task.

Genetic Intelligence Machine

One thing that is interesting when discussing humans is to understand the type and character of a person including intelligence. It is said to be interesting because the discussion always leads to the form of behavior and various other uniqueness about various intelligences. Many theories examine the types of human intelligence, along with the implications that exist in everyday life. However, not all intelligence theories are specifically applied in the field of education and in other fields, including human resource management.

This genetic intelligence machine is part of the STIFIn Genetic concept which is a synthesis of theories that are well known in science, such as the theory of basic human (basic function) from CG Jung, and the Triune Brain theory from Paul D. MacLean (Poniman, 2015). Furthermore, Poniman & Amalia (2020) states that the genetic intelligence engine is a tendency to dominate the functions of the human brain hemispheres over other hemispheres that form patterns of thought and behavior on stimulants that come from the environment where this tendency is genetic non-heredity (not inherited).

Differences in interpersonal intelligence machines will distinguish forms of behavior based on these tendencies, including in interaction and communication. If each person does not know each other about the types and types of intelligence machines, it is certain that it will lead to misunderstandings or mistreatment of one person to another (Widyadharma et al., 2020). This is what triggers disharmony in interpersonal relationships due to mistakes or inaccuracies in acting and/or acting.

The concept of STIFIn Genetics divides intelligence machines based on the hemispheres of the human brain, namely (1) Thinking and Intuition which are located in the Neocortex hemisphere; (2) Feeling and Sensing located in the Lymbic hemisphere; and Instinct which is located in the Reptile hemisphere. These hemispheres have distinctive functions and ways of working that will also determine the shape of a person's behavior. In addition, the STIFIn concept further reveals that the intelligence engine in the Cortex and Lymbic hemispheres will work with two stimulant models based on the lining of the brain, namely an introverted inner layer, and an extroverted outer layer. So if the Sensing intelligence machine is coupled with an introvert it becomes a Sensing Introvert (Si), and if Sensing is coupled with an extrovert it becomes a Sensing extrovert, and so

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

on except the Instinct intelligence machine which does not have a membrane lining the brain because it is located in the Reptile brain hemisphere which is at the base of the brain stem. decomposes to the tail of the spine (Poniman & Andi M, 2013).

METHODS

This research was conducted in one public elementary school with a quantitative approach with descriptive evaluative analysis method. The use of full sampling at the research site because there are only seven teachers and one principal. Data retrieval using a questionnaire, and biometric tests on subjects by scanning fingerprints. The STIFIn biometric test is carried out by scanning each person's ten fingers. The fingerprint scan, which carries information about the composition of the nervous system, is then analyzed and linked to a particular brain hemisphere that is dominantly acting as an operating system and becomes an intelligence machine (MK).

The data was collected by scanning the fingerprints of the test subjects, namely the principal and seven teachers. The way the STIFIn Genetic test works is by scanning the ten fingerprints of a person's hand using a scanner or fingerprint tool. Then the scan results are sent to a computer server central and processed through an application system to determine where the dominant brain hemisphere and dominant brain layer are in the tested individual. In other words, a person's MK type can be known from the test results in less than 24 hours.

Data analysis on the results of the fingerprint test was carried out by making a matrix of relationships between school members, then calculating friendship scores, leadership scores and managerial scores. Meanwhile, the data from the questionnaires were recapitulated and analyzed descriptively, which was then followed by data interpretation. The results of the score analysis using the STIFIn method are used to provide a comparison of the descriptive analysis of the questionnaire in order to draw conclusions on the effectiveness of the organization.

The Genetic STIFIn concept can be implemented in various fields according to their needs, for example to determine the effectiveness of the organization in which there are people involved. By knowing each type of intelligence machine or personality type, it will be known the relationship with one another in the relationship between intelligence machines equivalence. The pattern of these relationships also has a score which then becomes information or estimates of the level of effectiveness that exists within an organization. In terms of knowing the level of effectiveness of cooperation in the organization, the scores that need to be calculated are (a) the Score of Friendship/SoF, (b) the Score of Leadership/SoL; and (c) the Score of Managerialship/SoM.

RESULTS

From the data collection carried out, the following data were obtained.

Data on the results of the Genetic STIFIn test

From the fingerprint biometric data retrieval of each informant/respondent in the organization, the following data were obtained.

Table 1. Genetic STIFIn Test Results

Informant Code	Position	Intelligence Machine	Personality
KS	Principal	I (Intuiting)	li (Intuiting introvert)
Gr1	Teacher 1	T (Thinking)	Ti (Thinking introvert)
Gr2	Teacher 2	I (Intuiting)	li (Intuiting introvert)
Gr3	Teacher 3	T (Thinking)	Te (Thinking extrovert)
Gr4	Teacher 4	S (Sensing)	Si (Sensing introvert)
Gr5	Teacher 5	In (Instinct)	In (Instinct)
Gr6	Teacher 6	F (Feeling)	Fe (Feeling extrovert)
Gr7	Teacher 7	I (Intuiting)	Ie (Intuiting extrovert)

Source: Test output results on the STIFIn promoter application

Data from questionnaires and surveys/observations

Meanwhile, from the results of the questionnaires/questionnaires distributed to informants, the following data were obtained.

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

Table 2. Recapitulation of Teamwork Questionnaire Results

Aspects	KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Rerata
Responsible Attitude	13%	13%	13%	12%	14%	12%	12%	13%	13%
Teamwork	14%	13%	12%	12%	13%	10%	13%	12%	13%
Openness	15%	13%	12%	14%	12%	12%	12%	10%	13%
Summary	42%	39%	37%	38%	39%	34%	37%	35%	38%

Source: The results of the research questionnaire in the research subject schools (processed)

The data above shows that of the eight personal school organizations that have relatively responsibility, teamwork and openness, only two people, namely the principal and one teacher. While the other six each had two positive aspects of one person, only one positive aspect of four people, and none at all.

Score Relationship Between Intelligence Machines

Furthermore, to find out how the relationship between school principals and teachers in a work team, it can be known through the relationship between these intelligence machines according to the Genetic STIFIn concept based on the relationship between intelligence machines equivalence (Poniman, 2018), as shown in Table 3 below.

Table 3. Interpersonal Relationship Matrix

		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7
		li	Ti	li	Te	Si	In	Fe	le
KS	li		Conquer-ed	Equi-valent	Conquer-ed	Conquer-ing	Support-ed	Support-ing	Equi-valent
Gr1	Ti	Conquer-ing		Conquer-ing	Equi-valent	Support-ed	Support-ing	Conquer-ed	Conquer-ing
Gr2	li	Equi-valent	Conquer-ed		Conquer-ed	Conquer-ing	Support-ed	Support-ing	Equi-valent
Gr3	Te	Conquer-ing	Equi-valent	Conquer-ing		Support-ed	Support-ing	Conquer-ed	Conquer-ing
Gr4	Si	Conquer-ed	Support-ing	Conquer-ed	Support-ing		Conquer-ing	Support-ed	Conquer-ed
Gr5	In	Support-ing	Support-ed	Support-ing	Support-ed	Conquer-ed		Conquer-ing	Support-ing
Gr6	Fe	Support-ed	Conquer-ing	Support-ed	Conquer-ing	Support-ing	Conquer-ed		Support-ed
Gr7	le	Equi-valent	Conquer-ed	Equi-valent	Conquer-ed	Conquer-ing	Support-ed	Support-ing	

Source: Fingerprint Scan Test Results with STIFIn Method

Based on Table 3 above, then the calculation of each relationship score is as follows.

1. Friendship Score (SoF/Score of Friendship)

The first score that is calculated friendship score what we called the score of friendship (SoF). Friendship Score is the conversion of how comfortable the friendship between Constitutional Courts is in the form of numbers (Poniman, 2018). The conversion results show a measure of how much someone with one Constitutional Court has the convenience of being friends with another Constitutional Court. The best friendship score is 4 and the lowest is 0. The results are as follows.

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

Table 4.1. SoF School Team

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	4	0	1	3	2	4	14
Gr1	Ti	1		1	4	3	2	0	1	12
Gr2	li	4	0		0	1	3	2	4	14
Gr3	Te	1	4	1		3	2	0	1	12
Gr4	Si	0	2	0	2		1	3	0	8
Gr5	In	2	3	2	3	0		1	2	13
Gr6	Fe	3	1	2	1	2	0		3	12
Gr7	le	4	0	4	0	1	3	2		14
Total Passive Scores (TSP)		15	10	14	10	11	14	10	15	
Index of Friend (IoF)		0.93	1.40	1.00	1.40	1.27	1.00	1.40	0.93	

Source: Result of Relationship Scoring Analysis (processed)

Note:

IoF = the number of friendship coherence energy based on the activeness of the energy given compared to what is received. If condition as $IoF > 1$ then there is no need for friendship.

Table 4.1. above provides information about the relationship map of each individual in the team unit. From the TSA value (the number of active scores) it shows that of the eight team members, only Gr4 has the lowest friendship score, which means Gr4 does not contribute enough to the team. The same thing is also shown in the number of passive scores (TSP) which is relatively low (score = 11). Overall, the team in terms of friendship is quite good because the friendship index (IoF) which scores $IoF < 1$ is only for two people, including the principal, while the other six have $IoF \geq 1$.

2. Leadership Score (SoL/Score of Leadership)

The next score calculates the Score of Leadership (SoL), where this is the conversion of how much influence one's leadership has on his followers, into the form of numbers (Poniman, 2018). The score for the most influential leadership relationship is 4 and the lowest is 0.

Table 4.2. SoL School Team

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	2	0	4	3	1	2	14
Gr1	Ti	4		4	2	2	1	0	4	17
Gr2	li	2	0		0	4	3	4	2	15
Gr3	Te	4	2	4		2	1	0	4	17
Gr4	Si	0	1	0	1		4	3	0	9
Gr5	In	1	3	1	3	0		4	1	13
Gr6	Fe	3	4	3	4	1	0		3	18
Gr7	le	2	0	2	0	4	3	1		14
Total Passive Scores (TSP)		16	10	16	10	17	15	13	16	
Index of Friend (IoF)		0.75	1.70	0.94	1.70	0.53	0.87	1.38	0.75	

Source: Result of Relationship Scoring Analysis (processed)

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

Note:

IoL = number of leadership energy coherence based on the activeness of the energy given versus the one received.

In terms of leadership, principals have a leadership index (IoL=0.75) which is quite low although not the lowest compared to Gr4 (IoL=0.53). This means that the influence of the principal as a team leader is still balanced by Gr4 or other teachers whose IoL scores are less than 1 (IoL<1) such as Gr2 (IoL=0.94), Gr4 (IoL=0.53), Gr5 (IoL=0.87), and Gr7 (IoL=0.75). The principal will find it difficult to carry out his leadership in the team. Gr4 with a low index score also has an active score of 9 (nine).

3. Managerial Score (SoF/Score of Managerialship)

The last score that is calculated is the Score of Managerialship (SoM), which is the conversion of how much someone accepts obedience or movement reactions from subordinates, into numbers (Poniman, 2018). The following is the result of the calculation.

Table 4.3. SoM School Team

Score of Friendship		KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Total Active Scores (TSA)
		li	Ti	li	Te	Si	In	Fe	le	
KS	li		0	2	0	3	4	1	2	12
Gr1	Ti	3		3	2	4	1	0	3	16
Gr2	li	2	0		0	3	4	1	2	12
Gr3	Te	3	2	3		4	1	0	3	16
Gr4	Si	0	1	0	2		3	4	0	10
Gr5	In	4	1	4	1	3		3	4	20
Gr6	Fe	4	3	4	3	1	0		4	19
Gr7	le	2	0	2	0	3	4	1		12
Total Passive Scores (TSP)		18	7	18	8	21	17	10	18	
Index of Friend (IoF)		0.67	2.29	0.67	2.00	0.48	1.18	1.90	0.67	

Source: Result of Relationship Scoring Analysis (processed)

Note:

IoM = the number of managerial energy coherence based on the activity of the energy given versus the one received.

Meanwhile, the managerial score illustrates that Gr4 has the lowest active score and the largest passive score so that the lowest index number (IoM) is 0.48. The principal has an index number below 1 such as Gr2, and Gr7, namely IoM=0.67. This means that in terms of team management, the principal was also tested and challenged by three other teachers whose IoM score <1.

DISCUSSION

Interaction-Communication Relations

In building group cooperation, a transparent attitude is needed (McLaurin & Al Amri, 2008), and to create such openness it also requires the will and ability of every member of the organization to convey it in a good communication pattern. Therefore, according to Setiyani (2012) communicating is not just talking, making a sound but how a person's ability to argue with others about what he thinks or feels, so that others are willing to accept his opinion. In addition, in the communication process, it is necessary to pay attention to the elements of the character of each other party so as not to cause misunderstandings.

Teamwork and harmonious interactions within the organization are needed in order to create an effective organization. Therefore, (West, 2002) stated that in order to establish open communication and effective organizational management, three things are needed, namely (1) a responsible attitude, (2) readiness to cooperate with other team members, and (3) an open attitude.

In the data presentation of the research findings in Table 2 where in the attitude of responsibility there are three members whose scores are below the average. In teamwork and an open attitude, there are only three members who are ready to cooperate and willing to be open. This negative trend shows that currently, the management of the organization has not been able to run well. This data proves the source of the problems experienced by the organization/school. In this case, organizational

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

leaders need to examine carefully to prove the truth of this, and changes in the behavior of the members concerned can be made if it leads to destructive ones (Hellriegel et al., 2011; Hersey & Blanchard, 1988).

However, when viewed globally, the average score on the attitude of responsibility, teamwork, and openness is still relatively good, because it is still above the normative average (12.5%). As well as with the total number of only four members who are in the normative number (37.5%). In addition, the value possessed by the principal as a leader is also the highest, so that the effectiveness of cooperation can be achieved.

Relationship Between Scores

By looking at the numbers for each index in each individual, the three scores can be combined as shown in the following table.

Table 5. Recapitulation of Relationship Scoring

	KS	Gr1	Gr2	Gr3	Gr4	Gr5	Gr6	Gr7	Averag
	li	Ti	li	Te	Si	In	Fe	le	e
IoF	0.93	1.40	1.00	1.40	1.27	1.00	1.40	0.93	1.17
IoL	0.75	1.70	0.94	1.70	0.53	0.87	1.38	0.75	1.08
IoM	0.67	2.29	0.67	2.00	0.48	1.18	1.90	0.67	1.23
Average	0.78	1.80	0.87	1.70	0.76	1.02	1.56	0.78	1.16

Source: Result of analysis (processed)

Table 5 above shows some team members who have an average combined index of below or less than 1, while others are above 1. This illustrates the potential problems within the team to be able to be solid in teamwork.

In this study, it appears that the average IoF, IoL, and IoM indices are still above 1, and the average index score is 1.16 (above 1). This means that in terms of team leadership, they are considered the most vulnerable (IoL=1.08), although in team management they are relatively the best (IoM=1.23). The opposite distance between leadership and management scores that far apart describe the team working according to procedures but not directed. However, this condition is not very visible because of the friendship score that makes the relationship fluid at work. With the overall average index of 1.16, it can be assumed that the individual team is in the comfort zone of working in a team in a friendly atmosphere.

The lowest average SoL (=1.08) indicates that there is weak leadership in the school which is also shown in the principal's low SoL score. Meanwhile, the highest average SoM (=1.23) informs that the management of the organization/school lies with the individuals within the organization.

An interesting phenomenon from the data from this research is the Feeling extrovert (Fe), Thinking introvert (Ti), Thinking extrovert (Te), and Instinct (In) type which is the most dominant being the driving force, while the Intuiting type is both introverted and extroverted, and a Sensing introvert (Si) average overall score is below the global average (1.16). It can be interpreted that with one type of MK conquering several MKs, it tends to have a positive value where this occurs when Fe conquers Ti and Te. The Fe type who tends to lead and likes to regenerate the two Thinking's members is considered very good, plus the In (instinct) type who conquers Fe, and has the nature of always wanting to help. Meanwhile, if several MKs conquer one MK, it tends to have a negative value, as type Si is conquered by two li and one le.

Effectiveness of School Organizations

Based on the results of the Genetic STIFIn test that has been carried out, these relationships can be mapped according to Table 6 below.

Table 6. Roles in communication and interaction

Role	Terms of Condition	Role Description
Mentor	If MK beats another MK	The defeated individual MK becomes the mentor of the defeated individual MK as a mentee. Mentors provide direction and input to their mentees.
Facilitator	If MK is defeated by another MK	The defeated individual MK acts as a facilitator for the individual MK who defeated him. The function of the facilitator is to provide facility services for the needs of those he/she serves.

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

Coach	If the MK supported by another MK	Individual MK who are supported by individual MK take on the role of Coach for the MK who support them as Coachee. Coach sets an example and coaches on what Coachee must achieve.
Motivator	If the MK supporting other MK	Individual MK that support serve as a motivator for the individual MK they support. Motivators provide support and encourage those they support in order to achieve optimal results.
Partner	If MK is equivalent	The same individual MK take on each other's roles as partners. Partners work to support each other on equality.

Source: (Poniman, 2018)

Remarks:

The above roles are carried out by adjusting each intelligence machine each individual faced so that the interaction and interpersonal communication relationships will be effective, and overall within the team will make it easier to interact with each other.

Research Implications

By knowing the pattern of individual relationships based on the intelligence machine owned by each member of the organization, the results of this study have the following implications.

1. Problems about the relationship between individuals resulting from past interactions-communication processes can be identified and solved by knowing the machine intelligence of each member.
2. For newly formed organizations or individuals who have just led an organization, they can use problem-solving as in this study to find out the intelligence machine map of each member in order to anticipate the emergence of problems resulting from interaction communication.

The two things above are the implications of the research as conveyed by Rahma & Mas'ud (2016) that organizational problems begin with problematic patterns of interaction and communication, and can be parsed and resolved also with effective patterns of interaction and communication. These two things are also a step to form or make a solid work team in the organization. Strong and effective organizations are built from leadership that is able to make the people they lead empowered and have harmonious communication (Baidi et al., 2020; Rahmi et al., 2019).

CONCLUSION

From the description above, from this research it can be concluded as follows.

1. In the context of the case studied, that in the schools studied there are weaknesses in leadership, and subordinates tend to like the approach of friendship and take orders. The best solution for some school members who always feel in their comfort zone is to provide additional responsibilities that are shared collectively and require cooperation.
2. That the intelligence machine owned by each individual in the school is able to identify potential conflicts within the organization, including in the formation of effective work teams.
3. The use of the Genetic STIFIn concept of machine intelligence and personality types is a unique and different thing that provides a new horizon for management science and the world of research. Sure, hope this research can lead and inspire the birth of new research in various fields using Genetic STIFIn as approaches and methods

Advice

From the research results can be used by the principal in all levels of education units to improve the management of school work teams each. For the Head of the Education Office, it can also be used in placing prospective school principals in the right and suitable schools so that they can be more effective in managing schools.

REFERENCES

- 1) Andayani, D. (2007). *Analisis Faktor-Faktor yang Mempengaruhi Produktivitas Tenaga Kerja di Sumatera Utara*. Universitas Sumatera Utara.
- 2) Ariawati, N. P. D. (2015). Analisis Iklim Komunikasi Organisasi (Studi Kasus Pada Sri Hotel Badung). *Jurnal Jurusan Pendidikan Ekonomi (JJPE)*, 5(1), 1–11. <https://media.neliti.com/media/publications/5406-ID-analisis-iklim-komunikasi-organisasi-studi-kasus-pada-uma-sri-hotel-badung.pdf>

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

- 3) Arif, S., Amboingtyas, D., Hasiholan, L. B., & Fathoni, A. (2017). Pengaruh Kompensasi Dan Team Work Terhadap Produktivitas Kerja Karyawan Melalui Loyalitas Karyawan Pada Cv. Mawar Semarang. *Journal of Management Universitas Padjadjaran Bandung*, 3(3).
- 4) Arifin, I., & Gunadi, I. (2017). Leadership of Ece Principal in Growth Character Through STIFIn Method in Kindergarten. *Atlantis Press*, 66(Advances in Social Science, Education and Humanities Research), 295–300. <http://creativecommons.org/licenses/by-nc/4.0/>
- 5) Arizona, R. (2017). Peran Team Work dalam Upaya Meningkatkan Kinerja Karyawan pada PT. Asuransi Sinarmas Cabang Malang. *Jurnal Aplikasi Administrasi*, 20(1), 52–60.
- 6) Bachtiar. (2004). *Manajemen Sumber Daya Manusia*. Iteraksa.
- 7) Baidi, Putra, H. R., & Junaidah. (2020). The Effect of Leadership Style and Work Motivation on Work Productivity for Teachers in All State Junior High Schools of Surakarta. *International Journal of Educational Research*, 8(3D), 67–72. <https://doi.org/10.13189/ujer.2020.081710>
- 8) Baron, R. A., Branscombe, N. R., & Byrne, D. (2008). *Social Psychology* (12th ed.). Pearson Education, Inc.
- 9) Burn, S. M. (2004). *Group: Theory and Practice*. Thomson and Wadsworth.
- 10) De Toro, I., & Tenner, A. (1992). *Total Quality Management: Three Steps to Continuous Improvement*. Addison Wesley.
- 11) Effendy, O. U. (2005). *Ilmu Komunikasi Teori dan Praktek*. Remaja Rosdakarya. <https://pakarkomunikasi.com/faktor-yang-mempengaruhi-komunikasi>
- 12) Hall, J. (1974). Interpersonal Style and the Communication Dilemma: I. Managerial Implications of the Johari Awareness Model. *Human Relations*, 27(4), 381–399. <https://doi.org/10.1177/001872677402700404>
- 13) Handoko, T. H. (2000). *Manajemen* (Edisi 2). BPFE.
- 14) Hardjana, A. (2006). Iklim Organisasi: Lingkungan Kerja Manusiawi. *Jurnal Ilmu Komunikasi*, 3(1), 1–36. <https://pdfs.semanticscholar.org/287f/564bb2ab2de337b1d2df7f7f8a559c02dd78.pdf>
- 15) Hartani, A. (2011). *Manajemen Pendidikan*. LaksBang Pressindo.
- 16) Hellriegel, D., Slocum Jr., J. W., & Woodman, R. (2011). *Organizational Behaviour* (13th Ed). South Western College Publishing.
- 17) Hersey, P., & Blanchard, K. H. (1988). *Management of organizational behavior* (5 ed.). Prentice Hall, Inc.
- 18) Hidayat. (1986). *Teori Efektifitas Dalam Kinerja Karyawan*. Gadjah Mada University Press.
- 19) McLaurin, J. R., & Al Amri, M. B. (2008). Developing An Understanding of Charismatic and Transformational Leadership. *Proceedings of the Academy of Organizational Culture, Communications and Conflict*, 13(2).
- 20) Muhti, A. F. E., Sunaryo, H., & ABS, M. K. (2017). Pengaruh Kerjasama Tim dan Kreativitas terhadap Kinerja Karyawan UD. Agro Inti Sejahtera Jember. *e-Jurnal Riset Manajemen PRODI MANAJEMEN*, 1(1), 114–125.
- 21) Napitupulu, D. S. (2019). Komunikasi Organisasi Pendidikan Islam. *At Ta'dib Jurnal Ilmiah Prodi Pendidikan Agama Islam*, 11(2), 127–136. <http://ejournal.staindirundeng.ac.id/index.php/tadib/article/view/260>
- 22) Poniman, F. (2015). *Penjelasan Hasil Tes STIFIn: The Nine of Genetic Personality*. Yayasan STIFIn.
- 23) Poniman, F. (2018). *Pancarona*. Yayasan STIFIn.
- 24) Poniman, F., & Amalia, N. (2020). A Grand Theory of STIFIn Personality: Basic Function Theory Revis. *International Journal of Psychosocial Rehabilitation*, 710–715. <https://doi.org/10.37200/IJPR/V2415/PR201737>
- 25) Poniman, F., & Andi M, R. (2013). *Konsep Palugada*. STIFIn Institute.
- 26) Rahma, A., & Mas'ud, F. (2016). Pengaruh Penerapan Konsep Team Work dan Budaya Organisasi terhadap Kinerja Perawat (Studi pada Rumah Sakit Umum Daerah Sunan Kalijaga Kabupaten Demak). *Diponegoro Journal of Management*, 5(4), 1–11.
- 27) Rahmi, A., Bafadal, I., Imron, A., & Utaya, S. (2019). The Transformational Leadership of School Principals, Organisational Climate and the Professional Attitudes of Teachers. *International Journal of Innovation, Creativity and Change*. www.ijicc.net, 5(4), 30–46.
- 28) Rivai, V. (2009). *Manajemen Sumber Daya Manusia Untuk Perusahaan*. Raja Grafindo Persada.
- 29) Robbins, S. P., & Judge, T. A. (2008). *Perilaku Organisasi* (D. Angelica, R. Cahyani, & A. Rosyid, Penerj.; Ed. ke-12). Salemba Empat.
- 30) Schermerhorn, J. R. (1996). *Manajemen (Bahasa Indonesia)*. Penerbit Andi.
- 31) Setiyani, S. W. (2012). Membangun Kerjasama Tim (Kelompok). *Jurnal STIE Semarang*, 4(3), 59–65.
- 32) Soekanto, S. (1990). *Sosiologi Suatu Pengantar*. Raja Grafindo Persada.
- 33) Soelaiman. (2007). *Manajemen Kinerja ; Langkah Efektif untuk Membangun, Mengendalikan dan Evaluasi Kerja*. PT. Intermedia Personalia Utama.

Effectiveness Analysis of Teamwork Management Based on Machine Intelligence

- 34) Sriyono, & Lestari, F. (2013). Pengaruh Teamwork, Kepuasan Kerja, dan Loyalitas Terhadap Produktivitas Pada Perusahaan Jasa. Prosiding Call for Paper 2013: *Bidang Manajemen*, 1–28.
- 35) Sunarto, K. (2000). *Pengantar Sosiologi (Edisi Kedua)*. Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.
- 36) Sutrisna, D. (2007). *Komunikasi Bisnis*. Penerbit Andi.
- 37) Tracy, B. (2006). *Pemimpin Sukses* (Suharsono & A. B. Kuswandani, Penerj.; Cetakan Keenam). Penerbit Pustaka Delapatrasa.
- 38) Wahid, S. (2014). Komunikasi pada Lembaga Pendidikan Non-Formal. *Jurnal Ilmu Pendidikan*, 20(1), 107–116.
- 39) West, M. (2002). *Kerjasama yang Efektif* (S. Waluyo, Penerj.; Cetakan ke-5). Penerbit Kanisius.
- 40) Widyadharma, A. P., Ulfatin, N., Utaya, S., & Supriyanto, A. (2020). Situational Leadership with the STIFIn Genetic Intelligence Approach. *Systematic Reviews in Pharmacy*, 11(6), 1409–1419.
- 41) Wisman, Y. (2017). Komunikasi Efektif dalam Dunia Pendidikan. *Jurnal Nomosleca*, 3(2), 646–655. <https://doi.org/10.26905/nomosleca.v3i2.2039>
- 42) Yusuf, M. (2017). *Membangun Hubungan Kerjasama*. Lentera Insan.com. <http://lenterainsan.com/pentingnya-kerjasama-tim-detail-56555>



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.