Knowledge and Skills of Change Agents in Rural Community Development in Sukabumi Regency Indonesia

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Abstract--The study was motivated by the importance of an agent of change presence in the success of community development. The study aimed to obtain an in-depth overview of the Change Agents competencies in the implementation of community development programs. The aspects of competencies studied are knowledge and skills possessed by Change Agents. The study was conducted in rural areas of Sukabumi Regency Indonesia which became the implementation area of Desa Sejahtera Mandiri (independent prosperous village) model from the Ministry of Social Affairs of the Republic of Indonesia. The study uses descriptive methods with a qualitative approach. The informants consisted of District Social Welfare Workers (TKSK), Community Leaders, and Community Cadres. The results shows that the aspects of knowledge possessed by agents of change are patterns of social interaction that must be developed by both the community, develop empathy for the problems and needs of the community, plays roles following social environment, resources that can be used to address community problems and needs, and develop attitudes that are appropriate to the culture of the community. The skills aspect shows that change agents have skills such as personal communication, facilitating groups, motivating, increasing enthusiasm and activating the community, providing resources for the community, overcoming conflicts and conducting negotiations and mediations.

Keywords--Competences, Knowledges, Skills, Change Agent, Rural Community Development

I. INTRODUCTION

Community development is an effort to help community groups to have a voice and influence on issues related to their lives so that what is in their interests can be more accommodated. Thus, community development describes the process that contains the movement from certain conditions to the next better condition. (Pitchford and Henderson, 2008; Christenson, 1998). Community development goals refer to the results to be achieved through a social change in the community (Sipahelut, 2010; Joseph Rarun, 2013). To achieve this goal, it requires people who have the competence to guide the running process and can spearhead, mobilize, and disseminate the processes of change that occur. The people who make these changes are known as Change Agents. Christensen and Robinson (1989) cited Robinson and Green (2011) see agents of change in the context of community development as people who work

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together in the social fabric of a joint decision to initiate a process of change in economic, social, cultural and environmental conditions.

The Role of Agent of Change in Community Development

Some experts interpret the agent of change as someone who is involved in change and influences the implementation of social change in society through social planning or innovation planning (Havelock, 1995; Rogers, 1983; Nasution, 1990; Soekanto, 1992). The implementation of the tasks and roles of the Change Agent is closely related to the special characteristics that must be owned by the Change Agent, as stated by Luneburg (2010), that there are ten characteristics of Change Agent that are effective in carrying out their duties and roles, namely hemophily, empathy, linkage, proximity, structuring, capacity, openness, reward, energy, and energy.

Every year, the nature and complexity of social problems and challenges experienced by society continue to grow and develop. This condition requires change agents to lead and facilitate social change that can have a permanent impact on society (Nandan, 2014). Thus, change agents occupy a strategic position in society and become a medium of community aspirations. This is supported by various results of research on change agents which show that the role of change agents encourages people to be able to solve problems independently. Knowledge, expertise, organizational experience, education, economic background are aspects that must be met by every agent of change(Wahidin, et al, 2011; SlametRosyadi, 2012).

Other results show that the existence of change agents has a significant influence as indicated by an increase in knowledge, awareness, change in attitudes and behavior of the beneficiaries of empowerment programs (Sukmawati, 2013; Suryana, et al, 2016). Likewise, the results of research by Rami, et al (2017) in the State of Trengganu, Malaysia, show that the important role of agents of change has a positive impact on the development of rural communities and brings change among people in social, economic and cultural aspects, as well as changes in ways of thinking.

On the other hand, portraits of the failure of change agents in carrying out their duties and functions are also still commonly found. Issues that accompany the implementation of the agents of change are found in a number of studies including Muslim research (2017) in three (3) provinces in Indonesia, namely Yogyakarta, Central Java, and East Java Provinces indicate that the failure of the National Community Empowerment Program (PNPM) in building the independence of the poor one of which is caused by the poor performance of the change agents as a facilitator. Other research conducted by Basri (2015) in the Malang Regency of Indonesia shows that one of the factors causing the failure of community empowerment programs occurs because agents of change have not played an active role in helping and serving program participants. Widiowati, et al (2018) also stated that there were still problems that are quite complicated regarding the existence of change agents in community assistance, this is related to the competence and capacity of change agents that are very diverse and need to be improved.

The Agents of Change Competencies

The importance of the role and function of agent of change in community development, has consequences on the importance of adequate competence that needs to be owned by an agent of change. Individual competence cannot stand alone only limited to a person's habits or abilities, but is closely related to the tasks and professions carried out by that person at work (Robert A. Roe, 2002). Competence as the ability to carry out a job is based on the work knowledge and skills demanded by the job. Competence refers to two main aspects, namely knowledge, and skills which are characterized by professionalism in a particular field that leads to performance and is reflected in the habits of thinking and acting under his profession (Wibowo, 2007).

Knowledge and Skills of Agent of Change

Agent of Changein carrying out community development need to improve their complementary sets of professional knowledge and skills. as revealed by Mayo (1994: 74), Agent of Change need to have knowledge of: "The socio-economic and political backgrounds of the areas in which they are to work, including knowledge and understanding of political structures, and of relevant organisations and resources in the statutory, voluntary and community sectors. And they need to have knowledge and understanding of equal opportunities policies and practice, so that they can apply these effectively in every aspect of their work".

Yuniarsih, Tjutju, and Suwatno (2008: 23) state that knowledge as one of the competency components is interpreted as a piece of information possessed by someone, especially in a specific field. This opinion is reinforced by Notoatmodjo (2007) who argues that knowledge is a very important domain for the formation of one's actions or behavior (Over Behavior). Behavior that is based on knowledge will be more imperishable than the behavior that is not based on knowledge. Havelock (1995) states that agents of change in carrying out their tasks and functions must have the following knowledge: 1) That individuals, groups, and communities are open interrelating systems; 2) How his other role fits into the broader social context of change; 3) Alternative conceptions of its present role and its potential role in the future; 4) How other people view their role; 5) The scope of human needs, relationships and ranking of possible priorities at various stages in the life cycle; 6) Overall resources (resources) and ways to access them; 7) Why people and systems can change and reject change, and 8) Knowledge, mental attitude, and skills needed by a change agent and an effective user of resources.

While skills as another component of competence, according to Spencer in Wibowo (2007) is the ability to do certain physical or mental tasks. While Triton PB (2009), explains that skills are things that we master because we train or do them continuously. Skills can be used to control behavior according to Sudarmanto (2009), the behavior is a manifestation of personality and attitude shown when a person interacts with his environment. Havelock (1995), suggests that there are skills that must be possessed by Agent of Change to be effective in carrying out tasks. These skills are: 1) How to develop and maintain change project relationships with others; 2) How to bring people to a conception of their needs and priorities about the needs and priorities of others; 3) How to overcome misunderstandings and conflicts; 4) How to build bridges of value; 5) How to convey to others the feeling of being

empowered to carry out development; 6) How to foster collaborative teams for change; 7) How to organize and implement successful change projects; 8) How to convey to others about their knowledge, values, and skills; 9) How to make people aware of the potential available from their resources; 10) How to develop public openness to use resources, both internal and external.

Referring to some experts opinions about knowledge and skills, they become the basis in shaping or changing one's behavior. Associated with the tasks and roles of agents of change in community development, aspects of knowledge and skills become important points that need to be owned by agents of change in carrying out community development tasks. The question that arises is what knowledge and skills do agents of change need to have in carrying out community development? How do agents of change apply their knowledge and skills in community development? These questions then need to be answered through research.

Research on the knowledge and skills of change agents in implementing rural community development aims to examine in-depth about the knowledge and skills possessed by change agents. The study was conducted in rural areas that were designated as the location of the *Independent Prosperous Village Program*(*In Indonesia it is referred to asDesa Sejahtera Mandiri Program*/DSM) in the Sukabumi Regency. DSM Program is one of the programs of the Ministry of Social Affairs of the Republic of Indonesia to accelerate the integrated handling of poverty that was initiated jointly with Universities (Director General of Individual, Family and Community Institutional Social Empowerment, 2017; Sumarna, 2018).

II. METHOD

The method used in this research is descriptive method with a qualitative approach. To obtain an in-depth picture of the knowledge and skills of agents of change in rural community development. The description of the knowledge and skills of agents of change is examined by looking at relationships, activities, attitudes, views, and ongoing processes and the effects of a phenomenon (Whitney in Nazir, 2005). The process of determining informants in this study uses purposive techniques (Sugiyono, 2014).Informants were determined from change agents consisting of the Village Head, *District Social Welfare Workers(In Indonesia it is referred to as Tenaga Kesejahteraan Sosial Kecamatan/TKSK*), and Community Cadres. Data collection techniques using interviews, observation, and study documentation. The data analysis technique used is the model of Miles and Huberman in Sugiyono (2014), namely by data reduction, data presentation, and concluding.

III. RESULTS AND DISCUSSION

The capacity of Change Agents in the Development of Village Communities

The capacity of a change agent is seen from two aspects, namely individual characteristics that describe individual capacity and the economic conditions of the change agent. Table 1 presented below is an overview of the individual characteristics of the informants.

No	Informant's Code	Age	Gender	Education	Marital Status
1	SR	58	Male	High School	Married
2	MS	50	Male	High School	Married
3	OR	39	Female	Bachelor Degree	Unmarried
4	NA	30	Female	High School	Married

Table	1.	The	Characteristics	of	Individual	Change Agent	S
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Table 1 illustrates that the age range of informants is in the age range of 30-58 years. Most of the informants have a formal high school education and only 1 (one) person has a Bachelor Degree education background. Of the 4 (four) informants, 1 (one) informant has unmarried status. Furthermore, aspects of the economic condition characteristics of the Change Agent are presented in table 2.

Informan	Occupation		Income		Asset	
Code	Main	Additional	Utama	Additional	House	Vehicle
SR	Village	Military	Not	Not		
	Chief	retiree	mentioned	mentioned		
MS	DistrictSoci	Entrepreneur	Rp.	Rp.		
	al Welfare		500.000,-	1.500.000,-		
	Workers					
	(TKSK)					
OR	Early	Community	Rp.165.000	Incidental		None
	ChildhoodE	cadre	,-			
	ducationPro					
	gram(PAUD					
) teacher					
NA	Community	None	Incidental	None	None	None
	cadre					

 Table 2. The Characteristics of Economic Conditions of Changing Agents

Table 2 shows that from the financial aspect, not much material was obtained by informants. All informants stated that their involvement was due to the soul's call to be able to help the community solve their problems. There is inner satisfaction that is obtained and cannot be assessed with the material when it can help the community, so the informants go through everything with sincerity and full dedication. Even though the informants must work without knowing the time limit, according to him 24 hours they must be ready to provide services to the community.

The motivation of the informants to become agents of change is to sincerely want to help advance the community of aGede Pangrango Village, as stated by OM:

"I am active as a cadre, is truly because of God, because if I expect financial rewards, there is nothing. There is inner satisfaction when I can help people who are struggling. My activities as a cadre are very supported by my family."

The informant's statement shows that there is a sincere intention that motivates them to carry out community development activities not because they expect material aspects but there is inner satisfaction they get so they can

take long and active roles in various social activities, as well as support from the social environment, the family, the village government and the district.

Relatively different from SR, who is functioning as the village head, his motivation as an agent of change is derived from a formal leader. This relates to his previous experience when SR was still active as a member of the military who often carried out community service activities or carried out other social activities. According to SR, this motivated him to remain active in various community activities so he ran for the position of the village head.

Knowledge of Change Agents in Doing Rural Community Development

The informant's knowledge is one of the competencies that was extracted from the informant. This knowledge is related to knowledge about clients, both clients as individuals, groups, and communities. According to informant MS, the designated knowledge that must be possessed by a TKSK is knowledge about the community as a target of social services, which the informant agreed to as follows:

"The knowledge we must have is the character of the community, we especially must memorize the individual character because each person is different besides that we also have to know about the community's needs because if we already know their needs we can only invite them, if the needs have already been met, they would be willing to do anything if asked."



Figure 1. Knowledge and Skills Transfer Scheme for Agent of Change

In addition to knowledge of individual and community character, according to MS, a TKSK must also know ways to approach the community. This is also in accordance with the statement of the OM informant stating that in order for the programs to be easily accepted by the community, a cadre must know ways to approach the community,

such as being friendly and caring. The knowledge possessed by the TKSK and the cadres, especially the knowledge of how to approach the community is obtained by learning directly in the community, usually done through discussion with fellow colleagues such as cadres, village midwives, PKK Chairpersons.

Knowledge of community development programs was obtained by agents of Change from various agencies such as the Social Service, Tourism Office, Health Office, National Amil Zakat Agency (Baznas) and other related agencies that had built partnerships with Pangrango Village. The transfer of knowledge from various agencies is usually done in the process of mentoring or socialization activities as presented in Figure 1.

Change Agent Skills in Rural Community Development

Skills are highly related to the performance of change agents in order to be able to work professionally, effectively and efficiently. An overview of the skills possessed by agents of change is presented in Figure 2.



Figure 2. Change Agent Skills in Rural Community Development

Some of the change agents skills as presented in Figure 2 are closely related to the explanation of one of the informants stating that the community must be empowered in following programs that enter the village besides that to meet the needs of the community, the informant needs to make sure that the sources are accessible so partnerships with various related institutions can be built.

The skills in overcoming various conflicts and conducting negotiations and mediation are also very important to informant MS. This is related to the spread of issues in the community which sometimes does not filter information in advance to cause suspicion that leads to conflict in the community. Informant SR stated that one way to reduce the occurrence of conflict in the community was to carry out activities in a transparent manner and always coordinate with various elements of the community such as the leaders of social institutions in the village and community leaders.

Community development is inseparable from the existence of agents of change called agents of change. The implementation of the tasks and functions of agents of change in carrying out community development is influenced by the knowledge and skills they possess. Havelock, (1995) mentions that there are 8 (eight) knowledge agents that must be possessed by change agents, such as open interrelating systems of social interaction systems, appropriate roles in the present and future social environment, needs society, sources, attitudes of change agents. The results showed that the knowledge was already possessed by a change agent in GedePangrango Village. A strong understanding of how patterns of social interaction that must be built with the community, become the first step built by the agents of change. Building empathy for the problems and needs felt by the community becomes a way that makes it easy for agents of change to involve the community in various community development programs.

Related to the competency dimension, referring to the opinion of Moeheriono (2009: 15) which states that there are five dimensions that must be possessed by all individuals. The competency dimensions of the agents of change in GedePangrango Village can be analyzed as follows:

- 1. Skills to carry out tasks (Task-skills), namely skills to carry out routine tasks under standards at work.
- 2. Task management skills, namely skills to manage a different set of tasks that appear on the job
- 3. The skills of taking action (Contingency management skills), namely the skills to take action quickly and precisely when a problem arises in the work.
- 4. The skills of working together (Job role environment skills), namely skills to work together and maintain the comfort of the work environment.
- 5. Adaptability skills (Transfer skills), namely skills to adapt to the new work environment.

Associated with the five dimensions of competency, the competencies of the Change Agents in Gede Pangrango Village have fulfilled the five dimensions. Where in the dimension of the skills to carry out tasks (Task-skills) and manage tasks (Task management skills), the agents of change can function well especially because they always work together (Job role environment skills) in a team that mutually supports and strengthens each other. Likewise in Contingency Management skills, change agents always act quickly without knowing day or night, they work sincerely and wholeheartedly so that these conditions encourage them to easily adapt to the work they are assigned to (skills to adapt/transfer skill).

The knowledge and skills of change agents in Pangrango Village when related to competency characteristics according to Spencer (1993), show that the Change Agents have the following 5 (five) characteristics:

1. Motives. The actions taken by agents of change are based on the motives such as the pleasure of being able to assist people in need. This makes the change agents consistently develop goals that challenge themselves and take full responsibility for achieving those goals.

- Traits. Traits are characters that make people behave or how someone responds to something in a certain way. For example, self-confidence, self-control, fortitude or endurance. The agents of change tirelessly accompany the community.
- 3. Self Concept. Self Concept is the attitude and values possessed by someone. Attitudes and values are measured through interviews with informants so that they can know the value that change agents have and what attracts change agents to do something.
- 4. Knowledge. Knowledge is information that is owned by someone for a particular field. In connection with the tasks as agents of change, this knowledge is very important and supports the success of bringing innovation to the community.
- 5. Skills. Skills are the ability to carry out certain tasks both physically and mentally. By knowing the level of change agents' skills, human resource planning will have better results.

IV. CONCLUSION

The knowledge and skills of Change Agents are obtained through a long process of learning and experience while working with the community so that they are worthy of being called agents of change because they have contributed so much in carrying out community development. Knowledge of Change Agents consists of knowledge about the community that is being targeted by the service and knowledge of ways to approach the community. The knowledge possessed by informants is obtained by learning directly in the community and transferring knowledge from various agencies through a process of assistance or program socialization activities.

The skills possessed by Change Agencies consist of 1) The skills in conducting personal communication when building relationships and communicating with colleagues, the community and with stakeholders; 2) Skills in facilitating groups and meetings; 3) skills to motivate, increase enthusiasm and activate the community as well as skills in providing resources for the community; and 4) Skills in overcoming conflicts and negotiating and mediating.

REFERENCES

- Basri, Muhammad Luqman. 2015. Kegagalan Program Pemberdayaan Masyarakat ditinjaudari Proses Inovasi. http://karya-ilmiah.um.ac.id/ index.php/ disertasi/ article/view/42436
- [2] Christenson, J.A. & Robinson, JW. 1998. Community Development in Perspective. Iowa: Iowa State University Press.
- [3] Dirjen Pemberdayaan Sosial Perorangan, Keluarga dan Kelembagaan Masyarakat. 2017. Petunjuk Teknis Desa Sejahtera Mandiri. Jakarta: Kementerian Sosial Republik Indonesia
- [4] Havelock, Ronald G. 1995. The Change Agent's Guide 2nd., NJ: Educational Technology Publ
- [5] Havelock, Ronald G. 1995. The Change Agent's Guide 2ed., NJ: Educational Technology Publ

- [6] Luneburg, Fred C. 2010. Managing Change: The Role of the Change Agent. International Journal of Management, Business, And Administration. Volume 13, Number 1, 2010. Sam Houston State University
- [7] Mayo, M. 1994, "Community Work", dalam Hanvey and Philpot (eds), Practising Social Work, London: Routhledge.
- [8] Moeheriono. (2009). Pengukuran Kinerja Berbasis Kompetensi: Competency Based Human Resource Management. Jakarta: Ghalia Indonesia.
- [9] Moleong, J. Lexy. 2001. Metodologi Penelitian Kualitatif. Bandung. Remaja Rosdakarya
- [10] Muslim Azis. 2017. Analisis Kegagalan Program Nasional Pemberdayaan Masyarakat dalammembangun Kemandirian Masyarakat miskin (StudiKasus di Provinsi Daerah Istimewa Yogyakarta, Jawatengah, dan Jawa Timur). JurnalPenyuluhan Volume 13 Nomor 1. Bogor: InstitutPertanian Bogor.
- [11] Nandan, Monica. 2014. Social Workers as Social Change Agents: Social Innovation, Social Intrapreneurship, and Social Entrepreneurship. London: Human Service Organizations Journal: Management, Leadership & Governance. Volume 39, 2015. Issue 1 Pages 38-56.
- [12] Nasution, Zulkarimein. 1990. Prinsip-Prinsip Komunikasiuntuk Penyuluhan. Jakarta: Fakultas Ekonomi Universitas Indonesia
- [13] Notoatmodjo, S. 200. Promosi Kesehatan dan Ilmu Perilaku. Jakarta: Rineka. Cipta
- [14] Pitchford, M dan P Henderson. 2008. Introduction. Making spaces for community development. Bristol: The Policy Press
- [15] Rami Ahmad Aizuddin Md, Abdullah Ramle, Simin, Mohamad HafisAmat. 2017. Influence of Leadership In Rural Community Development In The State Of Terengganu, Malaysia. Asian Journal for Poverty Studies (AJPS): Indonesia.Volume 3 Number 1 (2017).
- [16] Rarun, Joseph. 2013. Pemberdayaan Masyarakat dan PerubahanSosial di Kawasan Wisata DanauT ondano Minahasa. Surabaya: CV. R.A. De Rozarie.
- [17] Richen, D.S. dan Salganik, L.H., 2003, Key Competencies for a Succesful Life and Hogrefe& Huber Publishers
- [18] Robinson, Jerry W dan Gary Paul Green. 2011. Introduction to Community Development: Theory, Practice, and Service-Learning. SAGE Publication Inc. USA
- [19] Roe, Robert A. 2001. Trust Implications for Performance and Effectiveness. European Journal Vol. 12, No. 5.
- [20] -----. 2002. What Makes a Competent Psychologist?. European Psychologist, Vol. 7, No. 3, September 2002, pp. 192–202 © 2002
- [21] Rogers, Everett, M. 1995. Diffusion of Innovation, Fourth Edition. New York: Collier Macmillan Publishing Co, Inc.
- [22] Sipahelut, Michel. 2010. Analisis Pemberdayaan Masyarakat Nelayan Di Kecamatan Tobelo Kabupaten Halmahera Utara. Tesis. IPB. Bogor.
- [23] Slamet Rosyadi, 2012. Good Governance Practices by Local Organization in Forest Resource Management. Journal of Administrative Science & Organization, January 2012. Volume 19, Number 1.
- [24] Soekanto, Soerjono. 1992. Sosiologi: Suatu Pengantar. Jakarta: PT. Raja Grafindo Persada.

- [25] Sugiyono. 2014. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D. Bandung: Alfabeta
- [26] Spencer, L.M. and Spencer, S.M., 1993, Competence at Work : Models for Superior Performance, John Wiley & Sons. Inc.Well-Functioning Society, Göttingen, Germany: Hogrefe& Huber.
- [27] Sudarmanto. 2009. Kinerja dan Pengembangan Kompetensi SDM (Teori, Dimensi Pengukuran dan Implementasidalam Organisasi). PustakaPelajar. Yogyakarta.
- [28] Sukmawati, Aris Woro. 2013. Agen Perubahan dan Peranannyaterhadap KondisiSosial Masyarakat di Desa Mlatiharjo Kecamatan Gajah Kabupaten Demak. Journal of Educational Social Studies Jess 2 (1) (2013)
- [29] Sumarna, Ayi. 2018. Desa Sejahtera Mandiri. https://ciburial.desa.id/desa-sejahtera-mandiri/
- [30] Suryana, Asep; Dadang, Dadang; Trulline, Putri. 2016. Pengaruh Atribut Agen Perubahan (Agent of Change) Pendamping Program Keluarga Harapan (PPKH) terhadap Perubahan Sikap RumahTanggaSangat Miskin (RTSM) Peserta PKH di Kabupaten Bandung (Studi Kuantitatifterhadap Implikasi Program Keluarga Harapan (PKH) di Kabupaten Bandung). Jurnal Manajemen Komunikasi. Fikom Unpad. Volume 1, No 1
- [31] Triton, PB. 2009. Mengelola Sumber Daya Manusia. Yogyakarta: Oryza
- [32] Wahidin, Abdul; Kasnawi, Tahir; Muhammad, Rahmat. 2011. Peranan Agen Perubuhandalam Penguatan Kelembagaan Masyarakat (Studi Kasus: Pemimpin Kolektif pada PNPM MandiriPerkotaan di Kelurahan Ujung SabbangKec. Ujung Kota Parepare). https://anzdoc.com/abd-wahidin-tahir-kasnawi-rahmat-muhammad-abstrak.html
- [33] Wibowo. 2007. Manajemen Kinerja, Edisikedua, PT. RajagrafindoPersada, Jakarta.
- [34] Widhiowati, dkk. 2018. Alternatif Kebijakan Pemberdayaan Sosial dalam Penanganan Kemiskinan Keluarga Penerima Manfaat (KPM) di Indonesia. Bandung: STKS.
- [35] Yuniarsih, Tjutju dan Suwatno. 2008. Manajemen Sumber Daya Manusia. Bandung: Alfabeta
- [36] Sharma, R., Balhara, Y.P.S., Sagar, R., Deepak, K., Mehta, M.Heart rate variability study of childhood anxiety disorders(2011) Journal of Cardiovascular Disease Research, 2 (2), pp. 115-122.
- [37] Bhausaheb b. Jankar, devesh d. Gosavi (2017) adverse drug reaction of lithium carbonate-a review. Journal of Critical Reviews, 4 (1), 1-6. doi:10.22159/jcr.2017v4i1.14555
- [38] Silvia Priscila, S., Hemalatha, M.Heart Disease Prediction Using Integer-Coded Genetic Algorithm (ICGA) Based Particle Clonal Neural Network (ICGA-PCNN)(2018) Bonfring International Journal of Industrial Engineering and Management Science, 8 (2), pp. 15TO19.
- [39] Conte, E.On the logical origins of quantum mechanics demonstrated by using Clifford algebra(2011) NeuroQuantology, 9 (2), pp. 231-242.
- [40] G. Suseendran ; Noor Zaman ; M. Thyagaraj ; R. K. Bathla "Heart Disease Prediction and Analysis using PCO, LBP and Neural Networks" IEEE Xplore : 2019, pp. 457 - 460
- [41] Blockchain for Internet of Things (IoT) Research Issues Challenges & Future Directions: A Review, A Malak, NZ Jhanjhi, H Mamoona INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND NETWORK SECURITY 19 (5), 244-258