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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul karya ilmiah (artikel) : Conformity Analysis of Commercial Space Utilization as The Tourism-Supporting Activities: A Case Study at Sosrowijayan, Yogyakarta

Jumlah Penulis : 2 penulis

Status Pengusul : Adhisty Manan dan **Ragil Haryanto**

Identitas Jurnal Ilmiah :
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Semarang, 06 Juni 2020
Reviewer 1,

Prof. Dr. Ir. Nany Yuliastuti MSP.
NIP. 195407171982032001
Departemen PWK FT UNDIP

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d. Penulisan angka Figure and Table tidak lazim (menggunakan angka romawi, titik, angka arab). Tabel dan beberapa Figure yang dicantumkan tidak dirujuk di text. Editor kurang cermat. Terbit setiap bulan dan setiap terbit lebih dari 30 artikel. Kuat dugaan, ini adalah jurnal predator.

Semarang, 03 Juni 2020
Reviewer 2,

Prof. Dr.rer.nat. Imam Buchori,ST
NIP. 197011231995121001
FT. Undip Jurusan PWK

(3)

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Total = (100%)	14,5	14,0	14,25

Semarang,

Reviewer 1,

Prof. Dr. Ir. Nany Yuliastuti,M.S.P
NIP. 195407171982032001
FT. Undip Jurusan PWK

Reviewer 2,

Prof. Dr.rer.nat. Imam Buchori,ST
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The Effect of Job Stress Toward Employee Performance Through Job Satisfaction of PT Muara Alam Sejahtera Employees
Agustina Hanafi, Zunaidah, Mistari Ulfa

Abstract: The purpose of this study to analyze the effect of job stress on performance, the effect of job stress on job satisfaction, the effect of job satisfaction on performance, and the effect of job stress on performance through job satisfaction. Job stress is a condition of psychological distress felt by employees as a result of organizational stressors. Job stress can affect job satisfaction and employee performance. Job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of ones job or job experiences. Using the survey data on 126 employees of PT MAS, data analysis in this research using Structural Equation Model (SEM) in model and hypothesis testing.

DOI: 10.29322/IJSRP.8.8.2018.p8002
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Assessing the influence of process interventions of community health volunteers on use of community based health management information systems in selected counties, Kenya
Susan. N. Mambo, George W. Odhiambo-Otieno, George Ochieng-Otieno ,Wanja Mwaura – Tenambergen

Abstract: The World Health Organization (WHO) identified information as one of the six key pillars of an effective health system. In this context, the need to strengthen community health information has been felt globally. African countries have faced the greatest challenges in collecting, analyzing, evaluating and interpreting indicator data to guide evidence based policy-making. The generation of health information starts at the community level through the Community-Based health information system (CbHMIS) (Kaburu, Kaburi, & Okero, 2016). At the community level, this source of information is complete in coverage and in planning and action-oriented (Odhiambo-Otieno, 2005).

DOI: 10.29322/IJSRP.8.8.2018.p8003
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Factors Affecting Rehabilitation of Food Security: A Study in Earthquake - Affected Districts in Nepal
Dhruba Raj Ghimire

Abstract: Half of Nepalese people are not able to feed themselves with the food they need for healthy life. This is either due to food not being available at the household or they do not have economic or physical access to buy the required amount or type of food for the nutritional requirement. The mega earthquake on 25th April 2015 and its powerful aftershock on 12th May disrupted living conditions of people in about ten districts. Thousands of people were rendered homeless.

DOI: 10.29322/IJSRP.8.8.2018.p8005
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Project Management Training: A Determinant of Project Implementation by Grass-root Support Non-Governmental Organizations in Embu County, Kenya
Mbogoh, Elizabeth Wanjira

Abstract: This Literature Review intended to highlight Project Management Training as a determinant of project implementation by Grass-root Support Non-Governmental Organisations in Embu County, Kenya. The reviewer had studied grass-root support NGOs with projects in the fields of Agriculture, Micro-Finance, Education, Health and Nutrition and found that majority of staff in these organisations did not have any basic training in Project Management. Findings from various studies have indicated that organizations in diverse industries have embraced Project Management but the implementation process remains a challenge, resulting in well-formulated strategies failing at the implementation stage because of a myriad of factors ranging from unrealistic expectations, poor methodology, poor requirements, inadequate resources, poor project management, untrained teams, unrealistic budgets, to poor communication and more.

DOI: 10.29322/IJSRP.8.8.2018.p8006
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Perspective of Manager and Expert Practitioner on User Needs of City Park in the Framework of Sustainability of Public Open Space Management of Malang City East Java Indonesia
Hendra Kurniawan, Agung Murti Nugroho, Amin Setyo Leksono

Abstract: Urban park as public open space that sustaining pillars of environmental, economic, and social of urban sustainability is a place managed by user needs approach as input, and target it as part of long-term objectives and values [2]. This qualitative research used two-parks case study approach in Malang City studied through the perspective of the manager and professional landscape architect. The objective of this study are to describe the attributes of urban park user needs commonly considered in urban park management; and (2) to reveal the implementation of that value within its management framework. In-depth interviews and previous research studies were combined to explore and investigate data, then filled in the frame work analysis instruments which include the use of user needs data and supporting resources as inputs; programs or activities, approaches and related indicators as output; and related management objectives or goals as outcomes.

DOI: 10.29322/IJSRP.8.8.2018.p8007
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Design and Manufacturing Process of Plastic Injection Mold
Maung Maung Myint, Khin Khin Khaing

Abstract: One of the most common methods in producing plastic products is injection molding for many purposes ranging from a daily product to high-tech equipment. This paper is to display how to design a complete mold and to examine the material, forecast the possible defects, and optimize the design to achieve the maximum outcome of the products with minimum cycle time in each production cycle. The CAD/CAM software is applied as the analysis tool for the particular chosen product "Clothes-hanger". In this paper, it will describe the behavior of plastic material starting from the filling phase until the end of the cooling phase in the injection process. The final result shows the possibility of having cavity designs of "Clothes-hanger" in one mold plate of the size 330mm×458mm×53mm.

DOI: 10.29322/IJSRP.8.8.2018.p8008
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Comparison of Cultural Heritage Tourism Towards Sustainable Development Case study: Special Region of Yogyakarta, Indonesia - Bangkok, Thailand
Bitta Pigawati, Revi Nurrokhmi

Abstract: Tourism is a tourism activity supported by various facilities. Cultural heritage is a cultural legacy in the form of materiality object, it can be in the form of Heritage Objects. Cultural heritage tourism in the Special Region of Yogyakarta, Indonesia and in Bangkok, Thailand have similar characteristics. However, In Southeast Asia, Thailand is a leading country in Cultural Heritage preservation.

The Arrangement of Universal Design Implementation in The Indonesia Disability Regulation and International Documents
Suryandaru

Abstract: The concept of universal design has been known in the engineering environment, especially Department of Architecture. It is an fundamental element to provide an accessible design for all including persons with disabilities. Therefore, necessary for us to review it in both of the national legislation, and international documents.

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Backpropagation Neural Network Experiment on Human Face Recognition
Mrs. Ni Ni Aung

Abstract: In Artificial Neural Network (ANN) experiments, the system of face recognition consists of image preprocessing, image segmentation, detection and feature extraction, localization and normalization and ANN. First, the process of preprocessing for human face is an improvement of the image data and image segmentation is the first step of image analysis that seeks to simplify an image to its basic component elements or objects. Then, the detection and feature extraction is the process of local feature and global feature for human face to extract features in localization and normalization. Finally, a back-propagation ANN is used and trained to recognize the actual human face images.

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Conformity Analysis of Commercial Space Utilization as The Tourism-Supporting Activities: A Case Study at Sosrowijayan, Yogyakarta
Adhisty Manan, Ragil Haryanto

Abstract: Yogyakarta city is known for its tourist attraction as it also becomes the second tourism destination in Indonesia. One of the tourism development centre in Yogyakarta is Sosrowijayan Tourist Village. Sosrowijayan became a tourist attraction in Yogyakarta City, especially Malioboro and there are also many other accommodation and tourism-supporting activities found in Sosrowijayan roadside.

DOI: 10.29322/IJSRP.8.8.2018.p8036
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Flow Analysis of Turgo Impulse Turbine for Low Head Power Plant
Hnin Hnin Ei, Myat Myat Soe

Abstract: Hydro energy is widely used in the small and remote areas that require only a small amount of electricity. The Turgo turbine is used for pico hydro power generation. The initial cost of the turbine is low and is similar to Pelton wheel.

DOI: 10.29322/IJSRP.8.8.2018.p8037
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Deceptive versus Informative Income Smoothing: Evidence from Audit Committee Attributes
Khairul Anuar Kamarudin, Wan Adibah Wan Ismail, & Sylvester Yasin

Abstract: The paper examines which income smoothing perspective (deceptive or informative) is more prevalent by focusing at four audit committee attributes namely audit committee size, the number of audit committee meeting, the proportion of non-executive, and the proportion of independent audit committee members. Using a sample comprises 604 public listed firms in Malaysia during the year 2008 to 2014, this study finds that firms with strong audit committee, which have large audit committee, more frequent meeting and high proportion of independent directors are associated with low extent of income smoothing.

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Assessing the influence of process interventions of community health volunteers on use of community based health management information systems in selected counties, Kenya.

Susan. N. Mambo[1], George W. Odhiambo-Otieno[2], George Ochieng'-Otieno[3] ,Wanja Mwaura – Tenambergen[4]

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DOI: 10.29322/IJSRP.8.8.2018.p8003
http://dx.doi.org/10.29322/IJSRP.8.8.2018.p8003

Abstract - The World Health Organization (WHO) identified information as one of the six key pillars of an effective health system. In this context, the need to strengthen community health information has been felt globally. African countries have faced the greatest challenges in collecting, analyzing, evaluating and interpreting indicator data to guide evidence based policy-making. The generation of health information starts at the community level through the Community-Based health information system (CbHMIS) (Kaburu, Kaburi, & Okero, 2016). At the community level, this source of information is complete in coverage and in planning and action-oriented (Odhiambo-Otieno, 2005). High health threats characterized by low levels of life expectancy, deteriorating healthcare facilities, high disease incidences, high levels of infant mortality (73/1000) and maternal mortality (488/100,000) specifically on communicable diseases are currently facing Kenya (Flora, Margaret, & Dan, 2017). The importance of effective information use is still a key impediment to these problems, hence affecting greatly the health care service delivery at all levels, and the worst level in its information use is level 1 – the community. In Kenya, According to a situation analysis on the state of Community Health Services in year 2014, the functionality of CbHIS was said to be at 64% which came down considerably to 55% in year 2015 documented by USAID, and that access to quality data was not guaranteed through the current CbHMIS. Some known and assumed barriers include: lack of proper processes, lack of physical access, lack of awareness of what is available; lack of relevance of available information (i.e. not meeting peoples' needs in terms of scope, style or format); lack of time and incentives to access information; and lack of interpretation skills (Flora *et al.*, 2017). Processes forms an integral part of performance (Aqil *et al*., 2009). In Kenya, the Kenyan Health Information System has had several weaknesses which include weak linkages, data sharing, inadequate feedback, and lack of an operational CBHMIS manual, among others. The purpose of the study was to assess the influence of process interventions of the CHVs on CBHIS use in Kiambu, Kajiado and Nairobi Counties, Kenya. The study objectives were to 1. examine the influence community units assesments on CbHMIS use; 2. Assess the influence of feedback on CbHMIS use; 3. Assess dialogue and action days influence on CbHMIS use; 4. Determine the influence of reporting channels on CbHMIs use. A cross-sectional analytical study design was adopted, utilizing both quantitative and qualitative approaches. The target population was 156 active CUs from the 3 counties, from whence a total sample of 122 CUswasderived. Multistage sampling was used to identify the CUs, and systematic random sampling to identify 366 respondents. One Focus Group Discussion with the members of the community health committees and two Key Informant Interviews (KIIs) were conducted in each of the three counties. The respondents in the KIIs were County Community Strategy Coordinators and Sub-county Community Strategy Officers. Quantitative data was analyzed using SPSS to generate univariate and bivariate analysis at $p<0.05$ significance level and results were presented in form of graphs, frequency tables, figures, and narration. Qualitative data was analyzed using content analysis based on key themes generated from the objectives. Majority were Females 72.4% n=265; majority attained secondary level education 42.6% (n=156); Non-formal occupation stood at 84.7% (n=310); Use of CBHMIS stood at 56.6% (n=207). Process interventions, 36% of the respondents agreed that the Sub-county team and CU leadership are quick to act on the feedback of our MIS reports. Process interventions (X_4) explains 67.4% of total variation in CbHMIS use. (R^2 = .674). Attention should be given to reporting channels by ensuring that CUs are technologically enabled to be reporting in a timely manner The study recommends that CUs should be provided with enabling technology and further capacity development in technical, computer and electronic reporting skills

Index Terms: Process interventions; Community Health Volunteers; Community based Health Management Information Systems; Use

INTRODUCTION

Process Interventions

Information is any entity or form that resolves uncertainty or provides the answer to a question of some kind. It is thus related to data and knowledge, as data represents values attributed to parameters, and knowledge signifies understanding of real things or abstract concepts. Information is not an end in itself, but a means to better decision making in policy design, health planning, management, monitoring and evaluation of health programs and services including patient care (Jeremie *et al*., 2014a). Decision makers in many developing countries lack the required data needed for evidence-based health care management. One reason for this is that the routine national health management information systems (HMIS) do not extend to the 'last mile', the communities and the informal setting of villages, where a significant proportion of health events occur (Asangansi, 2012). A Community based health Information System (CBHIS) is a type of health information system that is based in the rural community and informal settlements of urban areas. The development of comprehensive community based health information systems is increasingly becoming important for measuring and improving the quality of health services. In Sub Saharan Africa (SSA), there is recognition of the importance of Health Information Systems (HIS) in the generation of reliable data and information. Little change is evident in the use of data to improve health care despite an increase data production at the community level. Many developing countries including Kenya have made efforts to strengthen their national health information systems to provide information for decision-making in managing health care services (Jeremie *et al*., 2014a). Processes form an integral part of performance (Aqil *et al*., 2009). Performance of Routine Information System Management (PRISM) framework was developed to improve routine health information systems (RHIS) and data use (Aqil *et al*., 2009). The framework is innovative in that it puts emphasis on RHIS performance and the three interrelated determinants of that performance: technical, behavioral, and organizational determinants. Process intervention components in this study was evaluated using the following indicators : Assesments; feedback; dialogue and action days; and reporting channels.

Assessments: Cheburet and Odhiambo-Otieno, (2016a) has found out that assessments promotes strategies for increasing the use of data in decision making that are generated from evaluation research. According to several researches the frequency of supportive supervision to health facilities on the other hand assisted in provision of feedback and cross checked the data quality and helped them make informed decision to avoid future errors (Mate, Bennett, Mphatswe, Barker, & Rollins, 2009) . However, Odhiambo-Otieno (2005) in his assessment stated that the objective of data collection by CHVs was to improve their own work, management and output but such an arrangement, would enable the community address some of its health-related problems with its own resources for example, construction of latrines and other health-related problems required assistance from the health system for example, immunization of infants (Mate *et al*., 2009).

Feedback: The role of feedback in ensuring good and high quality information in supporting the delivery of better healthcare is well documented (Kihuba, et al., 2014). While this invariably includes better data collection, the adoption of better data collection systems at the primary healthcare level is not always synonymous with the generation of information that can help in supporting decisions at the primary healthcare level. This situation was observed in Uganda, where the strengthening of data collection systems did not result in better utilization of the information at the primary healthcare level since all the efforts were directed towards better data collection, and none to analysis (Kihuba, et al., 2014). A caution regarding the of health information systems is that the information must be made relevant to the clinician as he answers to the needs of patients and should not just be relevant to epidemiology and other high level consumers of the information (Wright, O'Mahony, & Cilliers, 2017). This position is shared by who adapt it not just to the clinician, but also to the community. They indicate that the community should be able to access and use health data collected locally to make decisions regarding community health (Madon, Sahay, & Sudan, 2007). These views indicate that the consumers of information generated via community based health information systems are varied and can span both the providers and consumers of healthcare, individually and in concert. This position, when presented from the information needs view would then indicate that various players within the health information system will have different information needs (WHO, 2008). The decision making power available from health systems is indeed a useful and practical way of getting value from existing health systems.

Dialogue and Action days: Dialogue and action days refer to scheduled events that bring together the CHVs through community units and other community members including other players at level one together, and where health information is passed discussed and passed on. One of the benefits of community dialogue and action days is that they support the dissemination of key health indicators at community level (Jeremie *et al*., 2014a). Community dialogues are planned and done in a quarterly basis while the the action days are conducted monthly to respond to issues outlined as priority health issues in the community. Dissemination of health information is one of the benefits that should accrue from the implementation of the CbHMIS since the system should deliver higher quality information compared where it is lacking. In addition, the dialogue and action days play a major role in influencing the habits of health consumers in regards to their access to health services (Jeremie *et al*., 2014a). This can be attributed to the power of information to affect behavior, and in this case, the information is local and has an immediate local appeal.

Reporting Channels: Processes form an integral part of performance (Aqil *et al*., 2009). Performance of Routine Information System Management (PRISM) framework was developed to improve routine health information systems (RHIS) and data use (Aqil *et al*., 2009). The framework is innovative in

that it puts emphasis on RHIS performance and the three interrelated determinants of that performance: technical, behavioral, and organizational determinants. The data collection processes, systems, and methods, the behaviors of data users and how data are used for problem solving and program improvement, organizational structure and processes of the organizations that use the resulting information determine the performance of any system. The PRISM emphasizes that specific technical, behavioral, and organizational activities need to be implemented to improve demand for, analysis, review, and use of routine health data in decision making (Aqil *et al*., 2009). Majority of the staffs feel that analysis and direct utilization of health data/information were left for higher levels and their duty were only collecting and passing the data to the next levels (Abajebel *et al*., 2011). According to Abajebel *et al*., 2011, the organization and support supervision was an important component that was not taken seriously. Two out of five of the CHVs were able to be visited once. The level of efforts required for reinforcing report submission from the CHVs for collection and analysis was beyond the CHEWs capacities. This compromises the quality of data submitted by CHEWs since they have additional roles. This was also supported by Odhiambo-Otieno (2005) in his study that supervision empowered the community by ensuring that information was regularly fed back to the community and that community members were trained to interpret data through the spot-checks.

METHODOLOGY

The study adopted a cross-sectional analytical design, employing both quantitative and qualitative approaches. Kiambu, Kajiado and Nairobi counties formed the study location where a target population of 156 active Community Units (CU) was considered to arrive at a total sample of 122 CUs was derived using Mugenda fomula of populations below 10,000 (Sample = nf = n/(1+n/N)). Multistage sampling was used to identify the CUs, and systematic random sampling to identify 366 respondents. Quantitative data tools were semi-structured closed ended questionnaires; qualitative data tools included observation checklist, Focus Group Discussion (FGD) and Key Informant Interviews (KIIs) guides. Three FGDs with the members of the community health committees (one from each county) and Six KII were conducted (two from each County; Community Strategy Coordinators and Sub-county Community Strategy Officers were the KIs).Quantitative data was analyzed using SPSS to generate univariate and bivariate analysis at $p<0.05$ significance level; Qualitative data was analyzed using content analysis based on key themes generated from the objectives. Results were presented in form of graphs, tables, figures, and narration

RESULTS:

Process interventions indicators

The findings indicate that, on assessments, the respondents disagreed with the statement on the sub-county team assesses and ensures the management information system is working well (composite mean score, 2.98); that we have a technical support team who ensure the systems are working well (composite mean score, 3.17); and that our volunteers are ready to learn from past experiences and improve on the services that we offer (composite mean score, 4.08). On feedback, the respondents disagreed: Sub-county team and CU leadership are quick to act on the feedback of our MIS reports (composite mean score, 3.12), however, they agreed that we disseminate information in a way that it is understandable to our community (4.10). On Dialogues and Action meetings: the respondents strongly agreed with the statement that our community unit always holds review meetings monthly (composite mean score, 4.14). On reporting channels: respondents agreed with the statement that our community unit has a strategic plan in place that guides our activities (composite mean score, 3.52) as shown in table 1below.

Table 1: Process Interventions indicators

Indicator	Construct	N	Mean	Std. Deviation
Assesments	The sub-county team assesses and ensures the management information system is working well	365	2.98	1.31971
Assessments	We have a technical support team who ensure the systems are working well	363	3.17	1.16352
Assesments	Our volunteers are ready to learn from past experiences and improve on the services that we offer	362	4.08	0.94322
Feedback	Sub-county team and CU leadership are quick to act on the feedback of our MIS reports	363	3.12	1.36594
Feedback	We disseminate information in a way that it is understandable to our community	364	4.10	0.76569

Dialogues and action	Our community uniit always holds review meetings monthly	361	4.14	1.06952
Reporting channels	Our community unit has a strategic plan in place that guides our activities	359	3.52	1.06696

Quick Feedback on the MIS Reports

36% of the respondents said that the Sub-county team and CU leadership are quick to act on the feedback of our MIS reports while 17% of them disagreed as in figure 1.

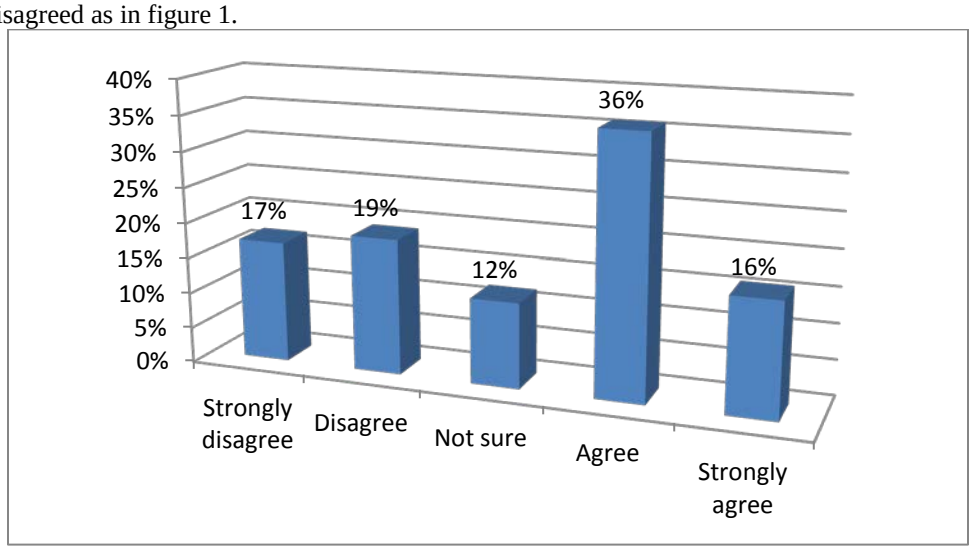

Figure 1: Sub-county team and CU leadership are quick to act on the feedback of our MIS reports

Assessments of Community Units

On assessments, 33% agreed to having a technical support team who ensure the systems are working well while only 8% strongly disagreed. This information is presented in figure 2.

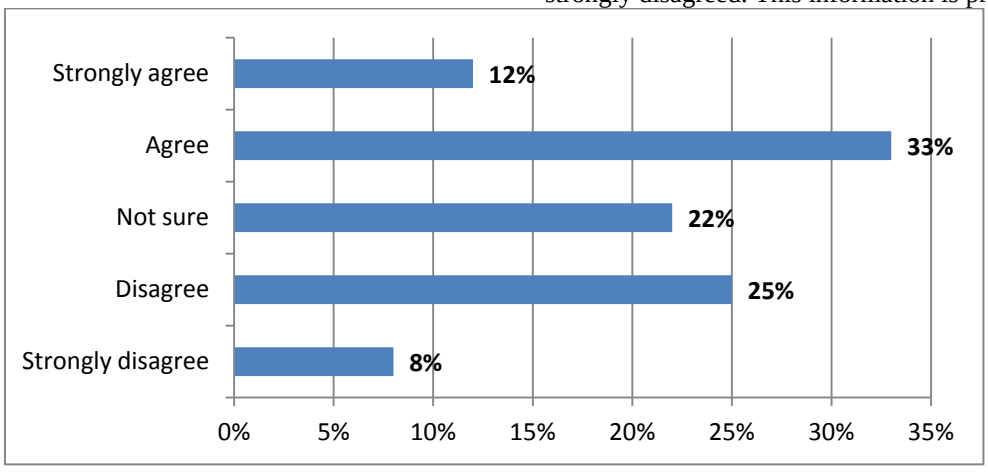

Figure 2: We have a technical support team who ensure the systems are working well

Relationship between process interventions and CbHMIS use:

The Bivariate correlations in Table 2: indicated that there is a positive and significant influence of process interventions of Community Units on the use of CbHMIS in Kenya across all parameters measured. However, reporting channels had the weakest relationship with use of CbHMIS (r =.252**, P = .001). This implies that attention to reporting channels will increase the use of CbHMIS by Community Units (CU). Similary, CbHMIS improves significantly when the community units have implemented certain process interventions.

Table 2: Relationship between process interventions and CbHMIS use

S#	Indicator	CbHMIS **Use**	P Value	n
1	Assessments	.369**	.000	366
2	Feedback	.697**	.000	366
3	Dialogue	.372**	.000	366
4	Reporting Channels	.252**	.000	366
5	Process-interventions Composite	.660**	.000	366

Process Interventions predictor of CbHMIS use: Regression

Significant parameters at Pearson correlation level were subjected to stepwise linear regression analysis and two were predictive (feedback and reporting channels) to use of CbHMIS, as shown in table 3. These findings were subjected to further analysis where a univariate linear regression model $Y = \beta 0 + \beta_4 X_4 + \varepsilon$ was used to determine the influence of organizational factors on use of CbHMIS by CUs. Results in Table 3 shows that the model is valid ($F_{(1, 363)} = 106.619$, $P = .001$) hence the explanatory variable (X_4, Process interventions) is good in explaining total variations in Use of CbHMIS by community units..

The study further showed that the process interventions of community units (X_4) explains 67.4% of the total variation in the use of information by community units in CbHMIS ($R^2 = .674$). The value of the constant in the Table 3 shows that the process interventions of community units will always exist at a certain minimum ($\beta 0 = 2.255$, $P < .001$). The process interventions of community units were found to influence the use of CbHMIS positively and significantly ($\beta 1 = .367$, $P < .001$). This confirms the findings of the bivariate correlations which indicated that when the process intervention factors of the community units are well implemented, the use of CbHMIS will improve.

Table 3: Model summary on process interventions - Regression

Model summary					
R	**R square**	**Adj. R square**	**Std. Error of the Estimate (SEE)**		
.821[c]	.674	.671	.33568		
Full regression model					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	84.202	3	28.067	249.081	.000[d]
Residual	40.791	362	.113		

Total	124.993	365			
Process predictors with CbHMIS **use**					
Model	Unstandardized Coefficients		Standardized coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.098	.103		10.666	.000
Feedback	.261	.022	.428	11.613	.000
process interventions composite	.620	.051	.663	12.214	.000
Reporting channels	-.136	.027	-.246	-4.990	.000
Assessments			.028[d]	.586	.558
Community Dialogues and Action days			-.034[d]	-.586	.558

*p<0.05

DISCUSSION

The study findings indicate that process intervention factors for community units have a positive and significant influence on the use of CbHMIS by community units in Kenya. This means that the more the community units implement different interventions the more they improve the use of CbHMIS.

It is evident that majority of the respondents (CHVs) in the community units in Kenya always hold review meetings (Dialogues and Action days). However, this study established that the review meetings are conducted quarterly as opposed to monthly as stipulated in the community strategy manual. These findings contradict a study by Pepela and Odhiambo where they found out that community units provided feedback through monthly review meetings (Pepela & Odhiambo-Otieno, 2016). In an FGD, the Community units cited that they are not able to hold monthly meetings due to logistical issues, however, they also noted that data is analyzed by the community health assistant but they are only able to make sense of it and hold action days quarterly.

The results showed that community units' feedback system is good in that the community units disseminate information to the community through ways that the communities are able to understand. However, feedback it was also established that the Sub-County teams and the community units leadership are not very quick to act on the feedback that they receive from the MIS reports. These findings concur with Aqil *et al*., that Feedback is an important process for identifying problems for resolution, for regulating and improving performance at individual and system levels, and for identifying opportunities for learning (Aqil *et al*., 2009). However, feedback remains a weak process of CBHIS in many developing countries.

The results showed strong a self-assessment nature by the community units on their activities including their CbHMIS however, It also noted that there are weak vertical assessments from the sub-county teams in that they also lack a team from the sub-county to assess their data and information needs. They also stated data tools stock outs and some of the tools are completely unavailable (MOH 517-Referral form) especially in Kajiado and Kiambu Counties. These results concur with a study by Pepela and Odhiambo that the process was majorly hindered by inadequate data collection and reporting tools (Pepela & Odhiambo-Otieno, 2016). Furthermore, Odhiambo-Otieno, (2005b); underscore that he design of HMIS and it implementation at the various level of health system require users expectation to inform data collection tools design. The tools being used in HMIS can either be paper-based or a combination of electronic data collection tools at facility level based on minimum dataset (Cheburet & Odhiambo-Otieno, 2016a) and (Odhiambo-Otieno, 2005b).

With the realization that processes are the backbone of performance (Aqil, Lippeveld, & Hozumi, 2009). Being that health systems are complex and dynamic, health system and health system strengthening frameworks have been developed to promote a common understanding among stakeholders. Frameworks can set realistic expectations and help prioritize investments across critical health system layers. Additionally, they can aid to identify where bottlenecks and problems exist, where and why investment is needed, what will happen as a result of efforts, and by what means change can be monitored. Nonetheless, the diversity of frameworks and the lack of common global consensus is confusion (Lenette, 2014)

Assuring measurement quality is not possible without establishing a formal process for checking data quality. Similarly, how well data are displayed reflects whether the data have been transformed into information (van Lohuizen and Kochen 1986), and shows its relevance for management, monitoring or planning purposes. Feedback is an important process for identifying problems for resolution, for regulating and improving performance at individual and system levels, and for identifying opportunities for learning (Knight 1995; Rothwell *et al*. 1995). However, feedback remains a weak process of RHIS in many developing countries. Feedback is

considered across/horizontal lower levels (CU to CU) and upper or vertical upper levels (Community to Subcounty and County). Facility staff receive feedback from self-assessing their performance using their own records and reports, and from the district management. The same process could be repeated at district or higher administrative levels

Community engagement is key to strengthening interventions that improve health outcomes. In particular, community based interventions are recognized as playing an important role in improving maternal, newborn and child health. Nevertheless, community-based systems have been largely ignored in health system frameworks (Lenette, 2014).

The study, therefore, concludes that process intervention factors of community units have a significant positive relationship influence on the use of CbHMIS in Kenya.

It is evident that majority of the respondents (CHVs) in the community units in Kenya always hold review meetings (Dialogues and Action days). However, this study established that the review meetings are conducted quarterly as opposed to monthly as stipulated in the community strategy manual.

The results showed that community units' feedback system is good in that the community units disseminate information to the community through ways that the communities are able to understand. However, feedback it was also established that the Sub-County teams and the community units leadership are not very quick to act on the feedback that they receive from the MIS reports.

The study revealed a strong a self-assessment nature by the community units on their activities including their CbHMIS however, It also noted that there are weak vertical assessments from the sub-county teams in that they also lack a team from the sub-county to assess their data and information needs. They also stated data tools stock outs and some of the tools are completely unavailable (MOH 517-Referral form) especially in Kajiado and Kiambu Counties.

Processes are a back-borne of any achievement, implementation of the right processes efficiently and effectively can improve the use of CbHMIS greatly. If process intervention factors of the community units are well implemented, the use of CbHMIS improves as indicated in this study.

It was also established that the Sub-County teams and the community units leadership are not very quick to act on the feedback that they receive from the MIS reports. The study revealed that there are weak vertical assessments from the sub-county teams in that they also lack a team from the sub-county to assess their data and information needs. Data tools stock outs and some of the tools being completely unavailable (MOH 517-Referral form) especially in Kajiado and Kiambu Counties was noted. This study therefore recommends that the counties to ensure that data tools.

Generally the use of the CbHMIS system (both manual and electronic) in the selected counties is very low. The electronic system is almost non-existent in all selected counties. The low use is attributed to the system quality, individual and institutional factors discussed above. There is limited use of computers as equipment in the facility due to the limited number.

REFERENCES

1. Abajebel, S., Jira, C., & Beyene, W. (2011). Utilization of Health Information System at District Level in Jimma Zone Oromia Regional State, South West Ethiopia. *Ethiopian Journal of Health Sciences*, *21*(Suppl 1), 65–76.
2. Aqil, A., Lippeveld, T., & Hozumi, D. (2009). PRISM framework: a paradigm shift for designing, strengthening and evaluating routine health information systems. *Health Policy and Planning*, *24*(3), 217–228. https://doi.org/10.1093/heapol/czp010
3. Asangansi, I. (2012). Understanding HMIS Implementation in a Developing Country Ministry of Health Context - an Institutional Logics Perspective. *Online Journal of Public Health Informatics*, *4*(3). https://doi.org/10.5210/ojphi.v4i3.4302
4. Cheburet, S., & Odhiambo-Otieno, G. . (2016a). process factors influencing data quality. Retrieved November 4, 2016, from http://journalissues.org/wp-content/uploads/2016/06/Cheburet-and-Odhiambo-Otieno.pdf
5. Flora, O. C., Margaret, K., & Dan, K. (2017). Perspectives on utilization of community based health information systems in Western Kenya. *The Pan African Medical Journal*, *27*. https://doi.org/10.11604/pamj.2017.27.180.6419
6. Jeremie, N., Kaseje, D., Olayo, R., & Akinyi, C. (2014). Utilization of Community-based Health Information Systems in Decision Making and Health Action in Nyalenda, Kisumu County, Kenya. *Universal Journal of Medical Science*, *2*(4), 37–42.
7. Kaburu, E., Kaburi, L., & Okero, D. (2016). Factors Influencing the Functionality of Community- Based Health Information Systems in Embakasi Sub-County, Nairobi County, Kenya | Qualitative Research | Quantitative Research. Retrieved March 19, 2018, from https://www.scribd.com/document/315323806/Factors-Influencing-the-Functionality-of-Community-Based-Health-Information-Systems-in-Embakasi-Sub-County-Nairobi-County-Kenya
8. Lenette, G. (2014). Strengthening_Community_Health_Systems_through_CHWs_and_mHealth.pdf. Retrieved July 14, 2017, from http://www.coregroup.org/storage/documents/Fall_Conference_2014/Strengthening_Community_Health_Systems_through_CHWs_and_mHealth.pdf
9. Mate, K. S., Bennett, B., Mphatswe, W., Barker, P., & Rollins, N. (2009). Challenges for routine health

system data management in a large public programme to prevent mother-to-child HIV transmission in South Africa. *PloS One*, *4*(5), e5483. https://doi.org/10.1371/journal.pone.0005483

10. Odhiambo-Otieno, G. W. (2005b). Implementing a community-based health management information system in Bungoma District, Kenya. Retrieved from https://tspace.library.utoronto.ca/handle/1807/38403
11. Pepela, W., & Odhiambo-Otieno, G. . (2016). Community health information system utility: A case of Bungoma C ounty Kenya. Retrieved November 4, 2016, from http://journalissues.org/wp-content/uploads/2016/04/Pepela-and-Odhiambo-Otieno.pdf

Backpropagation Neural Network Experiment on Human Face Recognition

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Abstract- In Artificial Neural Network (ANN) experiments, the system of face recognition consists of image preprocessing, image segmentation, detection and feature extraction, localization and normalization and ANN. First, the process of preprocessing for human face is an improvement of the image data and image segmentation is the first step of image analysis that seeks to simplify an image to its basic component elements or objects. Then, the detection and feature extraction is the process of local feature and global feature for human face to extract features in localization and normalization. Finally, a back-propagation ANN is used and trained to recognize the actual human face images.

Index Terms- image preprocessing, image segmentation, detection and feature extraction, backpropagation ANN

I. Introduction

The human face recognition is solved by using many methods. The images of human faces are made for many orientations and positions due to human faces position and the camera. Due to light source, the background and the appearance of human faces are dependent on the camera. There are important characteristics in the human faces and they are skin color, eye, mouth, nose, hair and other things. In the process of preprocessing, the human face images are preprocessed with standard algorithms to improve the overall brightness and contrast in the face images from lighting or camera to reduce variation. The image segmentation is the first step of image analysis that seeks to approach for edge detection, thresholding and feature extraction. In detection and feature extraction, the local feature is the information of eye, nose, and mouth that easily affected by irrelevant information and the global feature is to extract feature, such as face, from the whole image. In this research, the global feature extraction is used for human face.

III. Survey of Research

Now it is the time to articulate the research work with ideas gathered in above steps by adopting any of below suitable approaches:

A. Main Method

First, the face view is seen from preprocessing and the face pixel view is performed from image segmentation. Then, the face pixel feature from feature extraction and localization is extracted. For localization and normalization, the local view method for eigenface (use of a machine learning) approaches to deal with scaling variation. The image processing and computer vision have investigated the number of issues related to face recognition by human beings and machines. Face recognition is the identification of individuals from images of human faces by using a stored database of faces labeled with people's identities. This task is complex and is decomposed into the smaller steps of detection of faces in a cluttered background, localization of human faces followed by extraction of features from the face regions and finally recognition and verification is used by neural network.

Neural network is a parallel processing structure that has general large number of processors and many interconnections between them. The main characteristics of neural networks are to learn complex nonlinear input-output relationships, use sequential training procedures, and adapt themselves to the data. The research on human face recognition is important due to its application for security, information and observation.

II. Survey of Research on Human Face

The algorithm in human face recognition mainly consists of five procedures and they are (i) capture the image of human face from camera, (ii) preprocessing of human face for face view, (iii) segmentation of human face for face pixel view, (iv) feature extraction and localization of human face for face pixel feature and face feature location, and (v) ANN for target face classification.

Finally, the sample information from face feature location is trained for target face classification at neural network.

B. Systems for human face recognition

The general work for human face recognition is to implement face image recognition system. For pattern recognition techniques, there are three methods to perform the human face recognition. These methods are the principal component analysis,

the back-propagation neural network and counter propagation neural network. In this research, the back-propagation neural network is used for human face recognition

IV. FACE IMAGE PREPROCESSING AND SEGMENTATION

The image preprocessing stage is the most important part of the recognition system. This means that the remainder of recognition task is straightforward when the preprocessing is successfully performed. For face image preprocessing, human face photos are taken from CCD or digital camera and the shape of human face is scaled so that it has the same areas. The human face shapes must also be aligned for area of overlap to a significant metric.

The image segmentation is the process of the face image to subdivide an face image into its constituent regions or objects. For face image, segmentation algorithms are generally based on one of two basic properties of image intensity values. These two basic properties are discontinuity and similarity where the first category is to partition an image based on abrupt changes in intensity such as edges in an image and the second category is based on partitioning an image into regions that are similar according to a set predefined criterion. In this research, the first category is used for edges.

A. Lighting compensation and skin tone color

In face image preprocessing, the appearance of the skin tone color from CCD or digital camera can change due to different lighting conditions and the lighting compensation technique uses "reference white" to normalize the color appearance. The Figure (1) shows the background and human face and Figure (2) is shown to capture the face image by camera.

Figure (1) the background and human faces

Figure (2) the capture of human face

B. Color models

The color is represented by the following three components: (1) a component that measures the grayscale, or luminance, from to white, (2) a component that measures a "red to green" component and (3) a component that measures a "yellow to blue" component. However, there are other color spaces whose use in some applications. These colors include the NTSC, YCbCr, HSV, CMY, CMYK, and HIS color spaces. The conversion functions provide from RGB to the NTSC, YCbCr, HSV and CMY color spaces, and back. Several color models have been defined for the purpose of measuring or reproducing color.

C. Color transformation for human face

The color image processing of human face has three principal areas. They are color transformations, spatial processing of individual color planes and color vector processing. The color transformations techniques deals with processing the pixels of each color plane based strictly on their values and not on their spatial coordinates.

The techniques are based on processing the color components of a color image or intensity component of a monochrome image within the context of a single color model. For color images, the transformations of the form is

$$s_i = T_i(r_i), i = 1,2, \ldots, n$$

where $r_i$and s_i are the color components of the input and output images, n is the dimension of the color space of r_i and the T_i are referred to as full-color transformation (or mapping) functions.

The gray scale transformations of the human face from color image are independent of the gray level content of the image being transformed. In Figure (3) is shown as the gray scale transformation of face image.

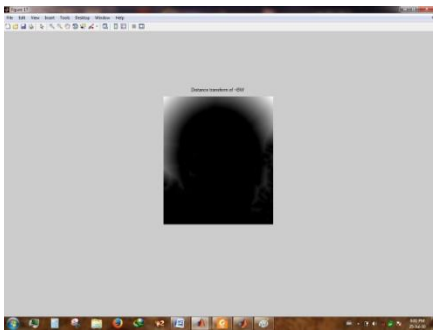

Figure (3) the gray scale transformation of face image

D. Human Face Segmentation

Face segmentation is the process of partitioning a face image into meaningful regions, in simple term it is to isolate a face from its background. The general approaches for segmentation are edge detection, thresholding, and relaxation. The morphological system is used to segment the human face. Morphology relates to the structure or form of face. The two principal morphological operations are dilation and erosion. These operations are customized for an application by the proper selection of the structuring element, which determines exactly how the face will be dilated or eroded.

Dilation allows objects to expand, thus potentially filling in small holes and connecting disjoint objects. The dilation process is

performed by laying the structuring element on the image and sliding it across the image in a manner similar to convolution. The difference is performed in the operation of a sequence steps. In dilation process, there is no change and move to the next pixel when the origin of the structuring element coincides with a "0" in the image. But, it performs the "OR" logic operation on all pixels within the structuring element when the origin of the structuring element coincides with a "1" in the image. In Figure (4) is shown as the dilation of face image.

Figure (4) the dilation of face image

Erosion shrinks faces by etching away (eroding) its boundaries. The erosion process is similar to dilation, but the structuring or moving element turns to "0" rather to '1". As before, slide the structuring element across the image and then follow two steps. In first step, there is no change and move to the next pixel if the origin of the structuring element coincides with a "0" in the image. In second step, it changes the "1" pixel in the image to "0" if the origin of the structuring element coincides with a "1" in the image and any of the "1" pixels in the structuring element extend beyond the face ("1' pixels) in the image. In Figure (5) is shown as the erosion of face image.

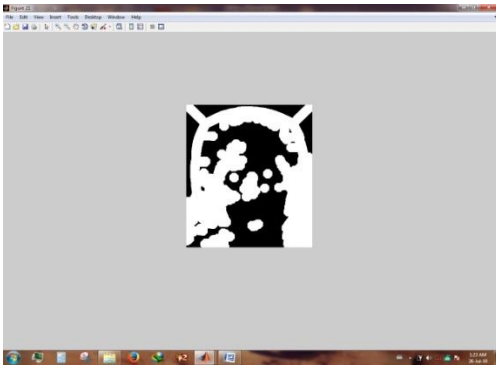

Figure (5) the erosion of face image

V. PATTERN CLASSIFICATION TECHNIQUES

There are many attempts proposed for recognition of human face and others objects in different areas and different techniques. There are three basic approaches. These approaches are (1) statistical pattern classification, (2) syntactic pattern classification and (3) artificial neural networks. The statistical approach depends on defining a set of decision rules based on standard statistical theory and the syntactic approach is to decompose a complex image pattern into a hierarchy of interrelated sub-patterns. But the neural network approach seeks to use artificial neurons that constructed from electronic devices, to form large interconnected networks. The main characteristics of neural networks are that have the ability to learn complex nonlinear input-output relationships, use sequential training procedures and adapt themselves to the data. However, the back-propagation neural networks are the useful technique for face recognition. The various architectures have been used with respect on the number of hidden layers and the number of neurons.

A. Backpropogation neural network

Backpropagation is the generalization of the Widrow-Hoff learning rule to multiple-layer networks and nonlinear differentiable transfer functions. Input vectors and the corresponding target vectors are used to train a network until it approximates a function, associate input vectors with specific output vectors, or classify input vectors in an appropriate way as defined by the face image. Networks with biases, a sigmoid layer, and a linear output layer are capable of approximating any function with a finite number of discontinuities.

There are many variations of the backpropagation algorithm. The simplest implementation of backpropagation learning updates the network weights and biases in the direction in which the performance function decreases most rapidly, the negative of the gradient. One iteration of this algorithm can be written

$$x_{k+1} = x_k - \alpha_k g_k$$

where x_k is a vector weights and biases, $g_k$is the current gradient, and α_k is the learning rate.

The structure of the backpropagation network has multiple layers of neurons with nonlinear transfer functions allow the network to learn nonlinear and relationships between input and output vectors are defined by log-sigmoid equation. Figure (6), Figure (7) and Figure (8) are shown to design the backpropagation network.

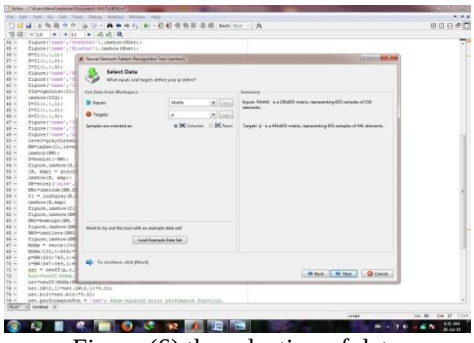

Figure (6) the selection of data

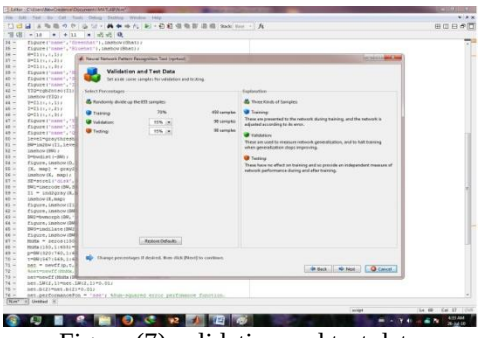

Figure (7) validation and test data

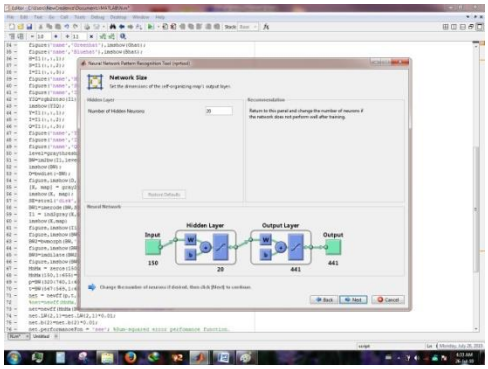

Figure (8) the neural network

Once the network weights and biases are initialized, the network is ready for training. The network can be trained for function approximation (nonlinear regression), pattern association, or pattern classification. The training process requires a set of examples of proper network behavior--network inputs p and target outputs t. During training the weights and biases of the network are iteratively adjusted to minimize the network performance function net.performFcn. The default performance function for feedforward networks is mean square error mse--the average squared error between the network outputs a and the target outputs t. Figure (9) is shown as the training network and Figure (10) is the results of network.

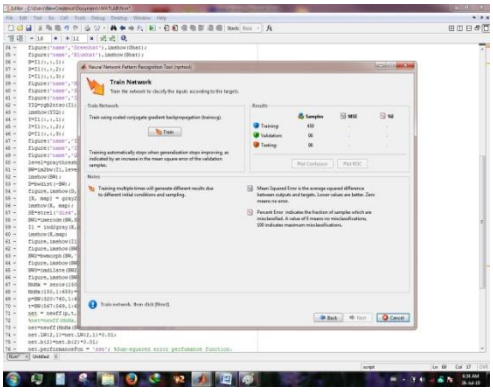

Figure (9) the training network

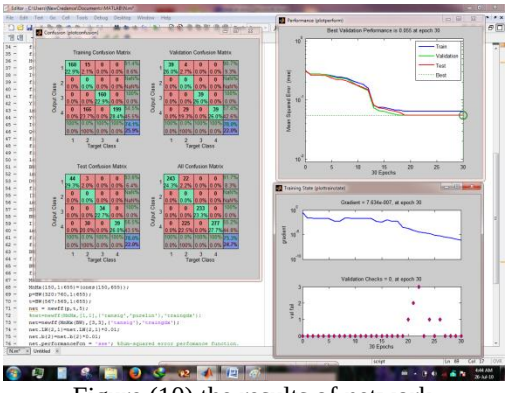

Figure (10) the results of network

VI. CONCLUSION

The purpose of the research is to measure overall progress in face recognition that determine the maturity of face recognition algorithms and have an independent means of comparing algorithms. And moreover, it is to recognize a person from an image containing the person's face, provided that another image of the same person exist in the system database. It is to apply an application area where computer vision research is being utilized in both military and commercial products. Some of the application areas include building security systems, verification of person identification documents, crowd surveillance systems, criminal purposes, and human computer interaction.

APPENDIX

```
CLEAR ALL;
CLOSE ALL;
I = IMREAD('C:\USERS\NEWCREDENCE\DESKTOP\N.JPG');
IMSHOW(I);
I1=IMCROP(I,[1671.5 639.5 654 762]);
IMSHOW(I1);
[X, MAP] = GRAY2IND(I, 16);
IMSHOW(X, MAP);
H_IM = IMSHOW(I1);
E = IMELLIPSE(GCA,[83.1846965699204 150.923482849604
528.678100263852 564.915567282322]);
BW = CREATEMASK(E,H_IM);
I2=IMCROP(BW,[83.1846965699204 150.923482849604
528.678100263852 564.915567282322]);
IMSHOW(I2);
I1=IMCROP(I,[1671.5 639.5 654 762]);
IMSHOW(I1);
T=EYE(1);
R=I(:,:,1);
G=I(:,:,2);
B=I(:,:,3);
FIGURE('NAME','RED'),IMSHOW(R);
FIGURE('NAME','GREEN'),IMSHOW(G);
FIGURE('NAME','BLUE'),IMSHOW(B);
YCBCR=RGB2YCBCR(I1);
IMSHOW(YCBCR);
Y=I1(:,:,1);
CB=I1(:,:,2);
CR=I1(:,:,3);
FIGURE('NAME','Y'),IMSHOW(Y);
FIGURE('NAME','CB'),IMSHOW(CB);
FIGURE('NAME','CR'),IMSHOW(CR);
RHAT=MEDFILT2(R,[5 5]);
GHAT=MEDFILT2(G,[5 5]);
BHAT=MEDFILT2(B,[5 5]);
FIGURE('NAME','REDHAT'),IMSHOW(RHAT);
FIGURE('NAME','GREENHAT'),IMSHOW(GHAT);
FIGURE('NAME','BLUEHAT'),IMSHOW(BHAT);
H=I1(:,:,1);
S=I1(:,:,2);
I=I1(:,:,3);
FIGURE('NAME','HUE'),IMSHOW(H);
FIGURE('NAME','SATURATION'),IMSHOW(S);
FIGURE('NAME','INTENSITY'),IMSHOW(I);
YIQ=RGB2NTSC(I1);
IMSHOW(YIQ);
Y=I1(:,:,1);
I=I1(:,:,2);
Q=I1(:,:,3);
FIGURE('NAME','Y'),IMSHOW(Y);
FIGURE('NAME','I'),IMSHOW(I);
FIGURE('NAME','Q'),IMSHOW(Q);
LEVEL=GRAYTHRESH(I1);
BW=IM2BW(I1,LEVEL);
IMSHOW(BW);
D=BWDIST(~BW);
FIGURE,IMSHOW(D,[]),TITLE('DISTANCE TRANSFORM OF ~BW');
SE=STREL('DISK',25);
```

```
BW1=IMERODE(BW,SE);

FIGURE,IMSHOW(BW1);

BW2=BWMORPH(BW,'SKEL',INF);

FIGURE,IMSHOW(BW2);

BW3=IMDILATE(BW2,SE);

FIGURE,IMSHOW(BW3);

MNMX = ZEROS(150,655);

MNMX(150,1:655)=(ONES(150,655));

P=BW(320:760,1:655);

T=BW(567:569,1:655);
```

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REFERENCES

[1] G. O. Young, "Synthetic structure of industrial plastics (Book style with paper title and editor)," in *Plastics*, 2nd ed. vol. 3, J. Peters, Ed. New York: McGraw-Hill, 1964, pp. 15–64.

[2] W.-K. Chen, *Linear Networks and Systems* (Book style). Belmont, CA: Wadsworth, 1993, pp. 123–135.

[3] H. Poor, *An Introduction to Signal Detection and Estimation*. New York: Springer-Verlag, 1985, ch. 4.

[4] B. Smith, "An approach to graphs of linear forms (Unpublished work style)," unpublished.

[5] E. H. Miller, "A note on reflector arrays (Periodical style—Accepted for publication)," *IEEE Trans. Antennas Propagat.*, to be published.

[6] J. Wang, "Fundamentals of erbium-doped fiber amplifiers arrays (Periodical style—Submitted for publication)," *IEEE J. Quantum Electron.*, submitted for publication.

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