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Message from the Editor-in-Chief

TOJDEL welcomes you. TOJDEL also thanks all researchers, practitioners, administrators, educators, teachers, parents, and students from all around the world for visiting the volume 5 and issue 2. TOJDEL has diffused successfully innovation on new development in distance education and e-learning around the World.

TOJDEL is a quarterly journal (January, April, July and October). This online periodical is devoted to the issues and applications of education. Reviewed by leaders in the field, this publication is designed to provide a multi-disciplinary forum to present and discuss all aspects of distance education and e-learning.

TOJDEL provides new developments in distance education forum and focal point for readers to share and exchange their experiences and knowledge each other to create better research experiences on distance education. The main purpose of this sharing and exchange should result in the growth of ideas and practical solutions that can contribute toward the improvement of distance education.

TOJDEL records its appreciation of the voluntary work by the following persons, who have acted as reviewers for one or more submissions to TOJDEL for v5i3. The reviewers of this issue are drawn quite widely from distance education field. Reviewers' interests and experiences match with the reviewed articles.

I am always honored to be the editor-in-chief of TOJDEL. Many persons gave their valuable contributions for this issue. I would like to thank the editorial board of this issue.

TOJDEL invites article contributions. Submitted articles should be about all aspects of distance education science. The articles should also discuss the perspectives of students, teachers, school administrators and communities. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJDEL. All authors can submit their manuscripts to tojdel.editor@gmail.com for the next issues.

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For any suggestions and comments on the international online journal TOJDEL, please do not hesitate to contact with us.

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A COMPREHENSIVE FRAMEWORK FOR LEARNING EVENTS

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ABSTRACT

Intelligent video surveillance system plays a vital role in learning the events remotely. In recent years, surveillance systems are widely used in all places starting from border security application to street monitoring systems. The surveillance system can also be used to monitor the activities of a student who learns the course through distance e-learning. The teacher can use a surveillance monitor to watch the behavior of the student from a remote place. In e-learning scenario, attending the course or learning with system are considered as usual activities and the other activities like walking, bending, paper passing and hand waving are referred to as unusual events. The intelligent surveillance system has to learn itself the events in the capturing video and make a decision about the event whether it is usual or unusual. This paper deals with an algorithm for a machine learning approach to learn the video events. It presents a detailed review of various techniques for abnormal event detection in video and it presents current scenario of research in this area. It detects the events using features of histogram of optical flow orientation, magnitude and entropy (HOFOME) combined with the histogram of oriented gradients (HOG). It classifies whether the event is usual or unusual with different machine learning classifiers namely Classification Tree (Ctree), Support Vector Machine (SVM). This paper presents the experimental results of the algorithm applied on benchmark dataset. The performance comparison shows that the proposed work outperforms the state of the art methods.

Keywords: Intelligent video surveillance; e-learning; abnormal event detection; HOFOME; HOG features; Ctree; SVM; classifiers.

INTRODUCTION

Internet-based education and e-learning have become an emerging technological trend as a result of advancements in network and information technology (Jian Yu 2009). In recent years, video surveillance system has been used as a third eye to monitor persons, places, events and more. Currently millions of surveillance cameras are used for several purposes (Wahyono 2016) like crime detection in country borders, airports, illegally parked vehicle detection, fire detection, human detection and tracking, smoke detection and unattended object detection in shopping centers, underground stations, sport stadiums, residential streets and more.

Video surveillance approach can also be used for an intelligent e-learning system to monitor the persons learning through distance education. It can be used as a virtual supervisor for online examinations, web-based online training. In e-learning system, teacher or course co-ordinator will be in one place who needs to monitor the events or activities of students in another place. Hence surveillance-based intelligent e-learning can play the role of learning or monitoring the events from remote distance. Whenever the student logs in e-learning course, the camera in front of the person starts capturing the happenings. A self-learning hardware system with software support shown in Figure 1 can be used for learning the events from distance which shows framework for the design of intelligent e-learning system. Hence, this paper presents a machine-learning algorithm for unusual event detection. In the context of outdoor pedestrian area monitoring, the non-pedestrian entities in walkway like skaters, bikers, small carts, wheel chair are abnormalities. In e-learning scenario, while attending the course in virtual class room, activities of persons like walking, bending, hand waving and paper passing are defined as abnormal events. It detects the events of video by using a hybrid model of extracting two features namely motion and shape. The motion feature is obtained with histogram of optical flow orientation, magnitude and entropy (HOFME) and the appearance or shape information is obtained with histogram of oriented gradients (HOG). It classifies the events as usual or unusual based on the training given to classifiers. Two different classifiers such as Ctree and SVM are used for comparing the performance of the proposed method. This approach is suitable for



monitoring the activities of person undertaking e-learning course while learning the course or attending the online examination.



Figure 1: Framework for an Intelligent e-Learning system Design

The organization of this paper is as follows. Section II gives a detailed survey on unusual event detection and video summarization with comparison of various approaches used in literature. Section III describes the proposed approach in detail with the flow diagram. Section IV illuminates the experimental results and discussion with comparison table showing the performance comparison of the proposed approach with that of the existing methods. Section V gives the conclusion and future work.

LITERATURE REVIEW ON UNUSUAL EVENT DETECTION

Definition of Unusual event

The terminology event depends upon the scenario being considered in the application. It denotes what is happening in the area under coverage. In this paper abnormal event means that an event which happens unintentionally, abruptly and unexpectedly that needs an action to be taken. The generic flow diagram of unusual event detection is given in Figure 2.



Figure 2: Flow diagram for Unusual Event Detection

Detailed survey on unusual event detection

An unsupervised approach has been developed by Hua Zhong (2004) to detect unusual activity in a large video. It detects the objects that are moving in the video and extract features using motion, color/ texture histograms. In the work proposed by Chen Change (2011), optical flow is calculated for every pixel in the region using Lucas-Kanade methods. Then a codebook is created and the Bayes classifier is used with a threshold to make a decision whether the event is abnormal or not. Gal Lavee (2005) uses the Nearest Neighborhood algorithm with Euclidean distance measure. A Neural network is trained using a back propagation algorithm and a decision tree is built with minimal entropy. Adam (2008) extracts information from regions and evaluates their normality. It uses Lucas-Kanade method for optical flow calculation and it considers both velocity and direction. Trajectory-



based anomalous event detection approach proposed by Claudio (2008) uses Support Vector Machines (SVMs). Although SVMs are used as tool for classification and clustering approaches, Claudio introduces novelty by using SVM to address the problem of anomalous event detection. In Reddy (2011), the anomaly detection is performed using region based approach which splits the scene into regions. It uses three feature descriptors namely average optical flow as a measure of speed, size and texture. Weilun Lao (2009) presents a framework of four processing levels for human behavior analysis. The levels are background modeling, object-based trajectory estimation, event-based semantic analysis and finally visualization which includes calibration of camera and reconstruction of 3-D scene. The work offered by Vijay Mahadevan (2010) combines both the spatial and temporal maps of anomaly detection. The method proposed by Zhigang Ma (2013) is named as Semantic Analysis via Intermediate Representation (SAIR). Ivanov (2009) proposes a method based on the acceleration and velocity of the objects in the scene for unusual event detection. A set containing macro-block motion vectors is used as feature for detection of abnormal event in compressed video streams (Nahum Kiryati 2008). Bin (2011) presents a sliding window technique to learn the initial dictionary of events. The occurrence of unexpected event in moving object environment can be detected early using statistical motion pattern formulated by Bayes rule as shown in equation (1).

The posterior probability,

$$P(\alpha_i \mid \beta) = \frac{P(\beta \mid \alpha_i)P(\alpha_i)}{\sum_{i=1}^{n} P(\beta \mid \alpha_j)P(\alpha_j)}; i = 1, 2, ... n$$
(1)

where, $P(\beta | \alpha_i)$ is the likelihood function, $P(\alpha_i)$ is priori probability and $\sum_{j=1}^{n} P(\beta | \alpha_j) P(\alpha_j)$ is the evidence.

A one-class classification method is used by Balakrishna Mandadi (2013) with an assumption that the training set consists only usual events. It models video by a bag-of-words method and uses a probabilistic approach for training data which uses Latent Dirichlet Allocation (LDA) framework. Kullback-Leibler divergence and Bhattacharya distance are used for the detection purpose.

Multi camera video surveillance system

Carter De Leo (2014) suggests anomaly detection in multi camera system by modeling the number of occurrence of activities as binomial distribution. Misrepresentation of anomalies are detected using PLCA mixture model. Than (2007) proposes a software system for tracking recurring events in multi-camera environment. It mainly focuses on people chasing in the manner of post-event analysis for the purpose of investigation of events. Hong Lin (2014) proposes a work for human activity identification system with multiple cameras. It can recognize activities even in cross-views. Wahyono (2016) handles real time processing of manifold data of four distinct cameras simultaneously using multi-threading approach and detects suspicious event automatically. In the work proposed by Hanning Zhou (2006), the video segments captured by different cameras are combined using a Coupled Hidden Markov Model (CHMM). The time dependency among the local activities are modeled with the formulation of Probabilistic Graphical Model (PGM). A Dynamic Time Warping (DTW) model is used and then optimization is done using Monte Carlo algorithm.

Comparison

Unusual event detection approaches used in the literature are compared and listed out in the Table 1. It lists out the various features and datasets being used. The literature publication frequency in IEEE for unusual event detection is shown in Figure 3.





Figure 3: The frequency of publications in IEEE for abnormal event detection

First author	Methodology	Features	Dataset
Wahyono (2016)	Multi-threading strategy, GUI, Mixture of Gaussian model		i-LIDS
Hua Zhong (2004)	Histogram, Co-occurrence matrix, Bipartite graph co- clustering	Motion, color, texture	
Chen Change (2011)	Lucas-Kanade method for optical flow, Bayes classifier	Motion	
Gal Lavee (2005)	Nearest neighbor algorithm with Euclidean distance	Color, texture, shape	CanonZ100 camcorder Video
Adam A (2008)	Lucas-Kanade method for calculation of optical flow, pdf histogram.	Region based	
Claudio (2008)	Support Vector Machine for trajectory based analysis	Spatial features	
Reddy V (2011)	Region based segmentation, Cascaded model for classification.	Speed, size and texture	UCSD
Weilun Lao (2009)	Four level frame work for human motion analysis.	Shape	
Vijay (2010)	Temporal and spatial anomaly maps are fusion and threshold detection	MDT, spatial saliency	UCSD
Zhigang (2013)	Semantic analysis via Intermediate Representation	Low level features	TRECVID MED11
Ivanov I (2009)	Acceleration and velocity of the objects are used for unusual detection.	Acceleration, velocity	PETS
Nahum (2008)	Probability density function of motion features.	Motion features	SONYTRV 900E PAL
Carter De (2014)	Probabilistic Latent component Analysis mixture model	Optical flow features	PETS 2001
Than V (2007)	Pixel-based background modeling, HOG for object classification,		MIT pedestrian dataset
Balakrishna (2013)	Latent Dirichlet Allocation (LDA) for Bag-of-words approach, Bhattacharya distance and Kullback-Leibler divergence for detection	Spatio- temporal features	Own video data captured

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Hong Lin (2014)	Harris 3D and HOG/HOF descriptors, Bag-of-Words approach, view invariant feature representation.	Spatio- temporal	IXMAS dataset
		points, global	
Hanning (2006)	Coupled Hidden Markov Model(CHMM)	Visual feature	Terrascope dataset

Video summarization:

The detected events are clustered together which can be used for summarizing the video covering the activity or behavior of candidates undertaking e-learning courses while learning and also attending the online examinations. Video summarization is helpful to quickly surf through the video instead of spending more time on it. Video summary is an abstract view of original video. It is constructed by concatenation of selected video segments called as key frames. The flow diagram for video summarization is shown in Figure 4.



Figure 4: Flow diagram for video summarization

Video summarization types

Key frame based video summarization:

Key frames or representative frames are a set of significant images being extracted from video source. The summarized video is also known as static story board or still-image abstract.

Video skim based video summarization:

The original video is segmented in time as video clips of shorter duration. Each segment is then fused by a gradual or cut effect. This is also called as movie story board, moving image abstract or summary sequence. The best example for this video skimming is the trailer of the movie.

Video summarization Methodologies

A framework for video summarization starts from video temporal segmentation through key frame selection to redundancy detection. Shiyang Lu (2014) proposes a work to achieve statically summarized video by identifying key frames with significant local features. Yael Pritch (2009) suggests a new technique for organized object reading and for framing the ground truth to work with SVM classifier. Michael Gygli (2014) uses temporal super frame segmentation with estimation of low-level, mid-level, high-level features. Zheng Lu (2013) segments video into sub shots using static-transit grouping method which is useful for unstructured egocentric video analysis. The work proposed by Kadir (2001) employs subsampling technique based on motion for video summarization. The work proposed by Sandra (2008) extracts color and visual features from color histogram adaptation technique. Similar frames are clustered with K-means algorithm. Each cluster is represented by its key frames which represent video summary.



Multi camera surveillance video summarization

Carter De (2014) presents an approach for multi camera video summarization for handling intra activity redundancy and inter activity redundancy. It uses probabilistic latent component analysis (PLCA) algorithm for identifying higher level activities in video. In object based method proposed by Fatih Porikli (2004), object tracking is performed at each camera using background subtraction and mean-shift analysis. Then Bayesian belief network is employed to create a correspondence between various camera objects. The features and dataset used in the literature are listed in Table 2. The frequency of publications in IEEE under the topic of video summarization is shown as chart in Figure 5.

First author	Methodology	Features	Dataset
Carter De (2014)	Probabilistic Latent Component Analysis(PLCA)	Motion	Own dataset, PETS2001
Shiyang (2014)	Bag-of-Importance model with group sparse property.	Local visual features	Open video project OVP, VSUMM, Youtube.
Michael (2014)	Super frame temporal segmentation, selecting visual interestingness, combining subset of super frames	Temporal gradients, motion features	SumMe dataset, Berkeley Segmentation dataset.
Zheng Lu (2013)	Static-transit for segmenting video into sub shots, SVM classifiers	Optical flow, blur feature	UT Egocentric (UTE), ADL
Kadir A. (2001)	Temporal sub-sampling of motion	Motion	
Sandra (2008)	Histogram adaptation, line profiles, K-means algorithm	Color, visual descriptors	Open video storyboard.
Fatih (2004)	Background subtraction, mean-shift analysis, Bayesian belief	Object based	ETRI dataset

Table 2: Comparison of the state of the art methods based on features and dataset used





Figure 5: Frequency of publications in IEEE for video summarization

The literature survey gives an exhaustive idea for selection of methodology, dataset and features. The frequency of publications in unusual/abnormal event detection and video summarization depict the focus of researchers in those topics during the period of 2000 to 2016 and 1998 to 2017(January) respectively.



Limitations of existing works:

- The existing work of Colque (2016) results in moderate performance due to lack of shape and appearance information in extracted feature.
- In the existing work, classifier was trained with only normal patterns. During test phase, if the events differ from normal patterns then they were considered as anomalous which results in the equal error rate of is 32% for UCSD Peds 1 dataset.

Contributions:

- Exhaustive Literature survey on unusual event detection and video summarization
- A new hybrid model with motion and appearance information is being used to describe the event or activity in precise manner.
- In training phase, both normal and abnormal event features are used to improve the performance of the classification.

PROPOSED METHODOLOGY

The video covering the activity or event is preprocessed to make it suitable for further processing. The abnormal event / activity in video is detected by combining the motion information and appearance information. The motion feature is extracted using optical flow with histogram of optical flow orientation magnitude and entropy (HOFME). The appearance or shape feature is extracted with histogram of oriented gradient (HOG). The flow diagram for the proposed work is shown in Figure 6.



Figure 6: Proposed work flow

Histogram of Optical flow Orientation Magnitude and Entropy

The apparent motion of persons or objects from one frame to the next is represented by optical flow vector. In this paper optical flow is estimated using the pyramidal implementation of Lucas-Kanade algorithm.



Preprocessing:

The video is divided into non-overlapping spatio-temporal regions known as cuboids. As a first step, the video frames are converted to double precision images. Instead of extracting optical flow for a whole image, which is computationally expensive, each frame is compared with its next frame to find pixels having significant amount of motion. It is achieved with frame differencing between current frame f_c and next frame f_n . The pixel having the difference value greater than a threshold is considered and used for cuboid construction, otherwise the pixel is discarded (Colque 2016).Each cuboid consists of 'r' number of rows 'c' number of columns of image pixels with 't' number of frames ($r \times c \times t$).

Pyramidal Implementation of Lukas-Kanade Optical Flow:

The assumptions made in the Lucas-Kanade method are:

- Constant illumination assumption
- Spatial coherence between frames
- Motion in a small neighborhood is equivalent

For each and every pixel in the current frame C and next frame N, the optical flow in horizontal and vertical directions are determined (Jean-Yves Bouguet 2002). Let a pixel intensity in current frame $C(x,y)=u=[u_x u_y]^T$ is displaced to $(x+d_x,y+d_y)$ in next frame N. The cost function or mean square error is given in equation (2).

$$f(d) = f(dx, dy) = \sum_{x=u_x - w_x}^{u_x + w_x} \sum_{y=u_y - w_y}^{u_y + w_y} (C(x, y) - N(x + d_x, y + d_y))^2$$
(2)

Where, w_x and w_y denote window size containing equivalent motion neighborhoods. The pseudo-code for pyramidal implementation of Lukas-Kanade optical flow algorithm is given in the algorithm 1.

Algorithm 1: Pyramidal implementation of Lukas-Kanade optical flow

Aim: For a point u on the image C its respective position on the image N is found using the following steps. S-1: Construct pyramidal representations of C and N $\{C^L\}_{L=0,1,\dots,Lm}$ and $\{N^L\}_{L=0,1,\dots,Lm}$ $g^{Lm} = [s_{x}^{Lm} \ s_{y}^{Lm}]^{T} = [0\ 0]^{T}.$ S-2: Initialize the pyramid. Loop1: for L=Lm down to 0 with step change of -1 Position of point u on image C^L : $u^L = [p_x p_y]^T = u/2^L$. Derivative of C^L with respect to x: $C_x(x,y) = \frac{C^L(x+1,y) - C^L(x-1,y)}{2}$ Derivative of C^L with respect to y: $C_y(x,y) = \frac{C^L(x,y+1) - C^L(x,y-1)}{2}$ $S = \sum_{x=p_{x}-w_{x}}^{p_{x}+w_{x}} \sum_{y=p_{y}-w_{y}}^{p_{y}+w_{y}} \begin{bmatrix} C_{x}^{2}(x,y) & C_{x}(x,y)C_{y}(x,y) \\ C_{x}(x,y)C_{y}(x,y) & C_{y}^{2}(x,y) \end{bmatrix}$ Spatial gradient matrix: $\vec{v}^0 = \begin{bmatrix} 0 & 0 \end{bmatrix}^T$ Initialize the iterative L-K: Loop2: for k=1to K with step of 1 Image difference: $\delta C_k(x, y) = C^L(x, y) - N^L(x + g_x^L + v_x^{k-1}, y + g_y^L + v_y^{k-1})$ $b_{k=} \sum_{x=p_{x}-w_{x}}^{p_{x}+w_{x}} \sum_{y=p_{y}-w_{y}}^{p_{y}+w_{y}} \begin{bmatrix} \delta C_{k}(x,y)C_{x}(x,y) \\ \delta C_{k}(x,y)C_{y}(x,y) \end{bmatrix}$ Image mismatching vector: $\vec{n}^k = G^{-1}_{bk}$ Optical flow (Lucas-Kanade): $\vec{v}k_{=\vec{v}}k - 1_{+\vec{n}}k$ Next iteration assumption: End of Loop 2 on k $d^L = \vec{v}^k$ Optical flow at level L: $g^{L-1} = \begin{bmatrix} g_{x}^{L-1} & g_{y}^{L-1} \end{bmatrix}^{T} = 2 \begin{pmatrix} g^{L} + d^{L} \end{pmatrix}$ Assumption for next level L-1: End of Loop1 on L $d=g^0+d^0$ Final optical flow vector: Position of point on N: v=u+d Solution: The respective point is located at v on image N.



HOFME Feature descriptor

The optical flow data of each cuboid $(r \times c \times t)$ is used for feature vector construction. Hence total number of matrices of optical flow is one less than the number of frames in a video (nof-1). For each cuboid of the optical flow, its magnitude and orientation values are obtained. The entropy is computed from orientation matrix (Colque 2016). The orientation distribution is first obtained around a pixel *p* using its *m* values of neighborhoods (*m*=4) forming a patch. With the probabilities of the distribution *p_i* the entropy is calculated using the formula in equation (3). As there are three parameters namely orientation, magnitude and entropy, the histogram of these features is built as a cuboid with three co-ordinates as shown in Figure 4. Each feature value is quantized into

four bins. The bin ranges of orientation (θ), magnitude (M) and entropy (E) are{($\theta_1:0^\circ$ to 90^\circ), ($\theta_2:90^\circ$ to 180°), ($\theta_3: 180^\circ$ to 270°), ($\theta_4:270^\circ$ to 360°)}, {(M₁:0 to 20), (M₂:20 to 40), (M₃:40 to 60), (M₄:60 to ∞)} and {(E₁:0 to $\frac{1}{2}$), (E₂: $\frac{1}{2}$ to 1), (E₃:1 to $\frac{3}{2}$), (E₄: $\frac{3}{2}$ to 2)} respectively. For example, a pixel with features ($\theta=110^\circ$, M=2, E=1) will fall under the bin of (θ_2 , M₁, E₂). Hence each and every pixel with 3 features is grouped into one of the 64 bins in the feature cuboid.

The entropy for a pixel around a patch of *m* neighborhoods,

$$e(\mathbf{p}_i) = -\sum_{i=1}^{m} \theta(p_i) \log[\theta(p_i)]$$
(3)

HOG Feature

The histogram of oriented gradient (HOG) feature is extracted by following the steps shown in Figure 7. HOG features encode local shape and appearance information from regions within each frame. In HOG descriptor, the detector window is tiled with dense cell grids where each cell comprises histogram of gradient orientation bins each weighted by gradient magnitude. These features can be further utilized for classification of events in a video scene.



Figure 7: HOG feature extraction flow diagram

Gradient Computation

The input frame is passed to the central difference filter [-1 0 1] in order to compute the gradient. The forward difference is used to find the gradients at image borders. The gradient directions are determined in

counterclockwise from positive x-axis and the measured angles are in the range of -180° to 180°.

Spatial/Orientation Binning

The subsequent step is to compute a weighted vote for an oriented histogram channel which is done according to the gradient component orientation centered on each pixel. Then, cells are formed by accumulating the votes into

orientation bins. Cells may be in radial or rectangular form. Orientation bins can be spaced in the range of 0° to

 180° for unsigned gradient or 0° to 360° for signed gradient. The bilinear interpolation is performed on votes between the neighboring bin centers in both location and direction to diminish the aliasing effect.

Contrast Normalization

Local contrast normalization is essential to achieve remarkable performance, since strengths of gradient differ over a wide range due to foreground-background disparity and local illumination variations. Cells are clustered into larger spatial blocks and then contrast normalization is performed on each block individually. An overlap stride of as a minimum half the block size is chosen to make sure adequate contrast normalization.

HOG feature descriptor

The HOG feature descriptor is a vector of all the elements of normalized cell responses from all of the blocks. Larger the block overlap values acquire more information at cost of increased feature vector size which improves



the performance. As HOG feature is computed for each frame but HOFME feature for pair of frames it is enough to calculate HOG one less than the number of frames in video (nof-1).

Combined Feature Descriptor

The motion information extracted using optical flow is combined with the appearance information extracted from HOG. Hence the histogram of oriented gradient (HOG) feature vector of size $(1 \times g)$ is appended with the histogram of optical flow orientation, magnitude and entropy (HOFME) having size of $(1 \times h)$. Hence the hybrid model results in the feature vector of size $(1 \times (g + h))$. The combined feature outperforms well in detecting the unusual event compared to the existing methods.

Classification

The combined feature vector is used as input for classifier. Large number of frames are used for training the classifier with frames having normal abnormal scenes along with training label. Less number of frames are chosen for testing phase compared to that used for training. The features extracted from training frames containing normal and abnormal patterns are used as test vectors with testing label. Two classifiers are used for performance comparison namely classification decision tree (Ctree) and support vector machine (SVM) classifier. Classification decision tree is modelled with the training data and their corresponding classification label using binary splits. The model is used to predict the test data with the known or trained input-output data history of the model. SVM classifies test data using a trained support vector machine. It splits the data into two classes with hyper plane selected by sequential minimal optimization (SMO) and do binary classification.

EXPERIMENTAL RESULTS AND DISCUSSION

The input video is converted into frames. The frames are preprocessed to have gray scale (if they are in RGB color space) and frame differencing is applied on two successive frames. If the absolute difference is smaller than a threshold then the pixel is discarded, otherwise the pixel is considered for cuboid construction. The binary mask is applied over those two frames under consideration in order to get the cuboid of moving pixels alone. The cuboid is constructed with spatial window size of 30x30 (r=c=30) and t=2 frames (the current and succeeding frame). The optical flow is computed for each cuboid using Lucas Kanade Thomasi pyramidal implementation. As the optical flow is operated pixel wise 900 magnitude values and orientation values are obtained. The orientation parameter is used for entropy calculation. The optical flow orientation, magnitude and entropy are used as three co-ordinates to build feature cuboid of size 4x4x4 as there are four bins in histogram of each parameter. Hence the optical flow feature vector size is of (1x64) which represents motion pattern. As the performance of motion feature alone in anomalous event detection is not remarkable (Colque 2016), appearance information is also included. The appearance or shape data is extracted as the histogram of oriented gradient HOG feature using Dalal and Triggs approach. It results in a feature vector having size of (1x648) for each frame in UCSD peds1 scenario. Both the features are combined, the resultant feature vector has size of (1x712) for each frame. Training video features and testing features are passed to classifiers. In training phase, frames with normal and abnormal events are chosen and their corresponding labels are prepared to train the classifiers. The trained model is then used to classify the test data.

UCSD peds1 Dataset:

Matlab 2014a with image processing tool box is used for experimentation. The experimentation is performed on UCSD dataset which is out door scenario. The UCSD dataset is a publicly available annotated dataset for anomaly detection featuring pedestrian walkways (V. Mahadevan 2010). In this work the video sequences with only pedestrians are considered as normal event and the presence of non-pedestrian entities or unusual pedestrian motion pattern is marked as abnormal event. The UCSD ped1 dataset consists of 34 training video samples and 36 testing video samples. The unusual event detection accuracy is evaluated based on the criterion of frame-level, as the algorithm predicts the frame containing unusual event and compares with ground-truth annotations. Each video in peds1 has 200 frames hence the HOG and HOFME features are obtained for 199 frames of each. The frame showing normal event is displayed in Figure 8 (a). The difference between the successive frames is shown in 8 (b). Figure 8 (c) presents frame containing abnormal entity of a cycler and 8 (d) shows its difference from successive frame. The optical flow vector and HOG features are shown in 8 (e) and 8 (f) respectively.





(a) Outdoor pedestrian path way



(c) Frame containing abnormal event



(b) Difference Frame



(d) Difference of successive frames



(e) Optical Flow for 2 successive masked frames



(f) HOG descriptor visualization

Figure 8: Frames starting from input stage to feature description stage of training and testing for UCSD peds 1 dataset

The algorithm predicts the events in UCSD Peds 1 dataset and classifies with accuracy values of 81.03% and 82.66% and using Ctree and SVM classifiers respectively. The equal error rate which is a measure of percentage of mis-classified frames is calculated as 18.97% and 17.34% using Ctree and SVM classifiers respectively. The performance of proposed work is shown by metrics of precision, recall and F1-measure in Figure 9. The



performance metric values of accuracy, precision, recall and F1-measure for Ctree and SVM are listed in Table 3. The receiver operating characteristics of the proposed approach of using the combined feature (HOG and HOFME) with three different classifiers are shown in Figure 10. The receiver operating characteristics of Ctree and SVM classifiers show that the classifiers perform remarkably well in classifying events since the curves far above the linear curve which separates the area diagonally.

Table 3: Performance comparison table of proposed work with different classifiers for UCSD peds1 dataset

Performance	Classifier type			
Metric	Ctree	SVM		
Precision	0.6941	0.7051		
Recall	0.9697	1		
F1-measure	0.8091	0.8270		



Figure 9: Different classifier performance comparison for UCSD peds 1 dataset



Figure 10: Receiver Operating Characteristics of proposed work with two classifiers for UCSD Peds 1 dataset



Comparison of various approaches

Quantitative results of proposed work in terms of Equal error rates (EERs), and Area Under Curve of ROC for Frame-level abnormality detection performed on UCSD Pedl dataset are given in Table 4. The values of proposed work are compared with that of Colque (2016) and other existing works in Table 4. The method proposed by Colque (2016) extracts only the motion pattern with HOFME feature, it does not include any appearance information which is very essential in learning the events of a video. Hence the proposed work includes appearance or shape feature using HOG along with motion feature using HOFME descriptor. The proposed methodology achieves remarkable improvement in performance compared to published state of the art methods

Table 4: Quantitative comparison of proposed approach with existing methods for UCSD peds 1 dataset

Method	EER (Equal Error Rate)	Area Under Curve (AUC) of ROC
Social Force (V. Mahadevan 2010)	31%	67.5%
SF-MPPCA (V. Mahadevan 2010)	40%	59%
MDT (V. Mahadevan 2010)	25%	81.8%
MPPCA(Yang 2013)	40%	20.5%
Adam (Yang 2013)	38%	13.3%
Sparse (Yang 2013)	19%	46.1%
Yang (Yang 2013)	23%	47.1%
HOFME (Colque 2016)	33.1%	72.7%
Proposed HOG+HOFME		
-Ctree	18.97	94.25
-SVM	17.34	-

Indoor e-class room scenario

The video has been captured in e-learning class room with students listening an e-course. In this scenario, the activities of students like listening, writing are considered as normal events while walking, bending, passing a paper are considered as abnormal or unusual events. The video consists of frames having normal event and abnormal events with the frame size of 480x864x3 in RGB space. The frames are being converted to gray scale and resized to size of (300x600). Then the steps proposed in the flow diagram are followed to get HOFME motion feature with size of (1x64) and HOG appearance feature of size (1x4896). The hybrid model results in the feature size of (1x4960). The sample frame of events captured in an e-classroom video is shown in Figure 11(a), the gray scale version of the frame is shown in 11 (b) which does not have any abnormality as all students are listening the e-lecture. One of the abnormal activities mentioned above namely paper passing among students is shown in 11 (c) which is processed to extract region having significant motion as displayed in 11 (d).







(b) Indoor e-classroom-Gray scale





(c) Frame containing abnormal events



(d) Difference Frame containing major movement region in paper passing event



(e) Optical Flow for 2 successive masked frames



(f) HOG visualization

Figure 11: Frames starting from input stage to teature description stage of training and testing for e-learning classroom video

The optical flow is computed for the frame shown in 11 (c) and its consecutive frame after applying the mask over the frames. The computed optical flow vector has two parameters orientation and magnitude showing the velocity with which pixel move in consecutive frames which is displayed in 11 (e). The histogram of oriented gradients is plotted on the frame for visualization as shown in 11 (f).

The extracted features are combined to have motion and shape information with feature vector size of (1x4960). The classification tree (Ctree) and support vector machine (SVM) classifiers are trained with training frame features and an unknown frame is given for test to classify it as normal or abnormal case. The receiver operator characteristics of each classifier are shown in Figure 12. Both the classifiers yield good classification performance as the ROC far above the linear curve still the SVM classifier yields better results compared to Ctree. The area under the curve of ROC of Ctree is 80.96% and that of SVM is 77.99%. The Ctree classifier results in accuracy of 72.13% with error rate of 27.87% and SVM classifier predicts test samples with accuracy of 72.95% and error rate of 27.05% which is pictorially shown in Figure 13. The performance metrics like precision, recall and F1-measure of Ctree are 0.5735, 0.8864 and 0.6964 and that of SVM are 0.59, 0.8182 and 0.6857 respectively shown in Table 5 which are represented as bar chart in Figure 14.





Figure 12: Receiver operating characteristics of (a) Ctree and (b) SVM classifiers for e-learning classroom video



Figure 13:Accuracy and error rate of (a) Ctree (b) SVM for e-learning classroom video

Table5: Performance comparison table of proposed work with different classifiers for e-learning classroom video

Performance	Classifier type			
Metric	Ctree	SVM		
Precision	0.5735	0.59		
Recall	0.8864	0.8182		
F1-measure	0.6964	0.6857		



Figure 14: Comparison of performance metrics of Ctree and SVM classifiers for e-learning classroom video

CONCLUSION AND FUTURE WORK

This paper presents a methodology for learning the event remotely to monitor the behavior of students undertaking e-learning courses. The video surveillance system is applied for an intelligent e-learning system to monitor the activities of students while learning and attending online examinations. The proposed approach extracts the combined feature of motion and appearance from the video. The motion pattern is obtained from histogram of orientation, magnitude and entropy of optical flow (HOFME) and as an improvement over this approach (Colque 2016), appearance is included using histogram of oriented gradients (HOG). The combined feature is used for training and testing different classifiers Ctree and SVM to detect and classify whether the activity of the students is usual or unusual. The proposed approach is experimentally verified on a publicly available dataset for anomaly detection named UCSD peds1. The results show that the algorithm outperforms well compared to the existing published works. Hence abnormal event detection applicable for student monitoring goal in intelligent e-learning is possible using a video surveillance system with this algorithm embedded on it which is proved by the results obtained with indoor e-learning classroom video. The detected events can be combined to have a summarized video to quickly surf through the activities or behavior of elearning candidates. The detailed survey for video summarization is also presented in this paper. It lists out techniques, datasets, features used in the literature for summarizing a video. An appropriate method can be derived from the survey and used for video summarization in future.

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A STUDY ON THE IMPACT OF E- CONTENT NEWS AMONG THE AUDIENCE IN TAMILNADU

(Quantitative Analysis Method)

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ABSTRACT

E- Content has grown to become an inseparable phenomenon of the human society today. News of E- Content and justice of the Indian society are amazing. We are consistently engaged in the everyday conversations with econtent e- films, e- books, e- newspapers, e- magazines, e- content broadcasts and publishing. E- News Content plays congregation criminality and a profession role in the criminal justice system. The efforts of e- content promote a long story short victimization by teaching crime prevention behaviors, increased society knowledge and society attitudes about crime prevention. The e- contents preoccupations mutually deviance and overemphasis on brutal e- content has attracted to concerns that coverage can cause e- content to rise. Even though mass e- content like newspapers, e- channels are providing more news and information about the crime, the common public have repeatedly victimized through various e- contents. The specific objectives of the study are the method of sources e- content news gathering and the perception among the public through the e- content news and the impact on the e- content news among the public. In such a scenario, e- news content has been playing an important role to construct the e- content awareness to the public by publishing e- news content alarmingly. This gap between the actual e- content and the one that is portrayed in the e- content and how it impacts that the people were been analyzed o exactly comprehend about e- content impact when e- news content is consumed separately public. The probability of Regression value is in effectively and accurately assessing the E- News content and impact on E- news content has used in this study to derive the result. Keywords: E- content, News Impact and awareness

I. INTRODUCTION

E- Content and justice of the Indian society is amazing. We are consistently engaged in the everyday conversations with e- content e- films, e- books, e- newspapers, e- magazines, e- content broadcasting and publishing (Jeff Sonderman, 2012). E- Content plays congregation criminality and a profession role in the criminal justice system. Victims, criminals, deviants, and law enforcement officials, public pessimism has extremely determined by their dramatics in the e- content. It researched on e- content and justice are derived from common point indicates that practically of the e- content. Therefore, the mass e- content, attitudes towards e- content and justice, there is no hunger to witness the effects on (Jeff Sonderman, 2012). The motive of this consider is the opportunity of force to observe how the broadcasting influences e- content consumption and audience perceptions of e- content and the fear of carrying out an activity of punishment that is to examine the attitudes of justice (Influence of mass media,2017).

As an e-content infringement is, the almost anti-social activity, which is established in contradictory forms as demonstrate of the society, evolved (Patrick J McGrath , 2015). Miscellaneous bodies as legislature and it is the profession of behavior and order enforcing agencies, mass e- content and community organizations are disquieting to resist the infringement against the society. However, in the community, the infringement activities are on a string to disparate reasons, including socio-economic issues and behavioral problems, etc (Gortmaker SL, 1990-Singh, Ghandour, 2012).

E- content is a universal phenomenon and lapse problem is a practically a socially and politically constructed phenomenon (Borge Bake, 2017). The tenor of breaking of the law considered a News and Newsworthy to the kinds of e- content to communicate on infraction to consume their tale bulletins, documentaries and analysis inches. E- Content is an unceasing source of fascination. Police, arm of the law and infringement stories are a symbol of staple assembly of exhibit making in social media programming and are a recurring coal and ice of day in and day out conversation (Wiley, 2017).

Today, police are waiting for accessible infraction devoted impression from the e- content and persuade of people's attitudes roughly e- content. The technology of e- content is on top of everything an extremely



convenient tool for e- content prevention (Allison Manning, 2012). The efforts of e- content promote a long story short victimization by teaching e- content prevention behaviors, increased society knowledge and society attitudes about e- content prevention. The police security and other government organization have designed programs to increase community cooperation and by advertising e- content-related information. Generally told of these caveats in gab a charge out of, the technology of broadcasting is likewise extremely enjoyable tool to captivate the criminal-justice program in the developing feebleness of communication. E- Content news and e- content-related news based programs in e- content are reducing crime rates and creating society safety (Douglas Holt, 2016).

This study aims to call a spade a spade the violence of the broadcasting in e- content prevention by providing an integrative approach for exploring the multiple roles of the e- content. National and independent studies continue to maintain that the e- content holds an important position for communication, information sharing and dissemination in society: "people rely on images of trends and prevalence made available by the experts and official sources". Therefore, the impact of e- content is more complex than a causal link or simply e- content conforming to dominant news values (Brendan O'Neill, 2014). In the end, through an inclusive, interactive and democratic relationship with a variety of e- content sources, there is space for clear results in doubt of e- content level of economic security guaranteed by government and thus averting e- content misuse, misconceptions and stigmatization, and for promoting successful strategies and policies (Natalie Fenton, 2009).

LITERATURE REVIEW

Mass e- content is a one of the best profession players in creating awareness on crime, prevention of infringement and creating community safety. E- Content price tag and victims of the misdemeanor are increased point by day right to contradictory reasons; including the mass e- content is not absolutely used. In an environment in which panics of youth infringement and unquestionable e- content are so mistaken of sync, policies affecting young people are escape to have been influenced such these irrelevant policies. "The children would be taken in to custody for the duplicate e- content, be the identical infirmity and have the same criminal history, notwithstanding the contradictory way they were described was comparatively shocking." Developments of communications strategies are to provide timely, accurate, and relevant information to these constituencies, public officials, policymakers, the electronic e- content and the public (Natalie Fenton, 2009).

Social ego of reality maintains the philosophical view that "all suggestive universes and on and on negotiations, there is a cave national products; their woman has its base of operation in the lives of concrete individuals, and has no empirical quality apart from these lives" (Smelser, 1992). The motivation, in more hot off the press times is that have integrated to researching on e- content. At one on the level, local e- content news producers construct a reality through the decisions constrained in the coverage of events and they are finding within a newscast. At another level, Viewers constitute their enjoyment realities by interpreting news over a set of civilized experiences. Researchers have generalized the following:

- 1. E- Content emphasizes complete 'up to views creating an idea of familiarity by the whole of distant group and places.
- 2. Live e-contant coverage gives viewers a summary of service in community affairs.
- 3. E- Content pictures seem absolute to viewers.
- 4. E- content coverage takes care of provides a more complete picture of the struggle entire other econtent.

The study describes at which relate misdemeanor stories appear newsworthy by giving all news values. Specific to infringement including the directly of predictability of the e- content (or at which point common or unusual the e- content is), risk (or the summary that consumers may be at risk of evocative victimization), whether the e- content has a sexual aspect to it, whether the culprit or victim is a celebrity or high-status person. Whether the e- content occurred locally, the directly of effort, the continuation of furnishings or graphic imagery, and whether youth are engrossed, bounded by others. The scope to which a specific contains these elements influences the probability that will be reported. Branch of knowledge "a case does not have to conform to generally the criteria in decision to make the scandal –although events that perform highly on the newsworthiness grow (that is, conform to be several of the news values) are preferably likely to be reported" (Development communication, 2017).

E- Content news values are qualified change overall time. Ultimately, the discussion of news values for both general and e- content news focuses upon the idea that dominant values are resting on the audience, whatever these ideals acknowledge the raffle and ego of resolute stories into news. This study is not distressed with where, these values end from, but as a substitute how they bias the stories produced individually in e- content (Photojournalism, 2017).



"E- Content news relies on sensational imagery for storytelling, ultimately if the images may contribute to the kinds of stereotypical beliefs that progress racism and discrimination- communications intrude (Arda Bilgen, 2012).

E- Content news coverage of breaking of the law inevitably raises issues of race. The impersonation of African-American and Hispanic suspects take care of creates an impression by all of White viewers that carry stereotypes. Likewise, the stand of victims take care of also is important. Local e- content news humanizes coverage by focusing on society and their emotions, including fear. Conflict is a driving police in news judgment, and racial conflict make out be seen as an impressive story (Arda Bilgen,2012).

The e- content's preoccupations mutually deviance and overemphasis on brutal e- content have attracted to concerns that e- content coverage can cause e- content to rise. This long-standing controversy is interested renewed attention on a string to concerns approaching the enforcement of ugly video games on children and teenagers. Thus, completely the probe on the "criminogenic" impact of e- content news has been inconclusive, in rich part discipline to the complication of establishing real world causal connections between news consumption and e- content (Newhagen, and Reeves, 1992- WHO | Alcohol, 2015).

II. OBJECTIVE AND HYPOTHESIS OF STUDY

Even though, mass e- content like newspapers, e- content channels are providing more news and information about the crime. The common public have repeatedly victimized through various e- contents. Awareness halfway the public on e- content and safeguarding themselves is less. According to the many research studies, major reason the moratorium is not responsible utilization of mass e- content.

In India, particularly Tamil Nadu, the breaking of the law outlay is increased every year. Many people are happened to victims for different e- contents. Therefore, there is a major gap between the e- content news gathering and scandal based infraction programs and its gold in mass e- content for community understanding, etc., to analyze the gaps and improve the situation. The major is an aim of an impact of e- content news on the state and empirical study in Chennai city. The specific objectives of the study are the method of source's e-newsgathering from the e- content, the perception among the public through the e- content news and the impact on the e- content news among the public.

METHODOLOGY

Research methodology is ways to the systematic solve the research problem, which may be understood as a science of studying how the research is done scientifically. This research survey method for collecting samples of Public and targeted Viewers this questionnaire method will hold to know the people's perception in Tamil Nadu and covering the violent news stories in the e-news bulletin. An impact of e- content news on the public and empirical study of samples will be taken 350 in Chennai city. The collected data will be processed and analyzed.

RESULTS AND DISCUSSION

The demographic profile of the e- content news of public has involved in this study. As per the samples, out of 350 publics, 54.9% were male and 46.1% were and female. With regard to the level of education, 22.9% of public had HSc; 26.0% of the public had under graduate degree. 34,3 % of the public had post graduation and 16.9 % of the public had professionals. Concerning marital status of the public," 60.9% of public were married and 39.1% of public were unmarried. With regard to the type of family, 52.9% of public were nuclear family and 47, 1% of public were joint family. In which the total number of family, 20.3% of public had three members in family; 36.3% of public had four members in family; 26.0% of public had five members of family and 17.4% of public were government sector employees; 25.7% of the public were private-sector employees. 18. 3% of the public were self-employed, 17.4% of the public were business and 22.6% of the public were other category. The collected samples reveal that, in terms of mother tongue, 86.0% of the public were Tamil and 14.0% of the public were other mother tongue(fig:1).

Exploratory factor analysis

Factor analysis is used to identify a smaller number of factors underlying larger number of observed variables.

Table:1 KMO and Bartlett's Test					
Kaiser-Meyer-Olkin Measure	of Sampling Adequacy.	.888			
	Approx. Chi-Square	1383.185			
Bartlett's Test of Sphericity	df	55			
	Sig.	.000			
		1			

Table: 1 Shows Kaiser-Meyer-Olkin (KMO) and Bartlett's Test.



The KMO ranges (Table 2) from 0 to 1, with higher values indicating greater suitability. Ideally, this value is to be greater than 0.7. According to Kaiser, a KMO measure of 0.9 to 1.0 is marvelous, 0.8 to 0.9 meritorious, 0.7 to 0.8 middling, 0.6 to 0.7 mediocre and 0.5 to 0.6 miserable (Marcus et al., 2006). Table 4 shows, with regard to e-content news awareness, Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) is 0.888 and Bartlett's test of sphericity is significant [Chi-square x2 (55) = 1383.18, p<0.001].

Table:2 Model Summary						
Multiple R	R Square	Adjusted R Square	Apparent Prediction Error			
.381	.145	.068	.855			
Dependent Variable: Gender						

Predictors: Consumption of E- content belief of E- content information pleasure of insurance plan fascinating for Viewers Expectation of E- content information exchange of attitude recognition of Public trade of sample in news attain the E- content news impact on viewers have an impact on audience needs of Public. Treating all predictors are as nominal yields an R 2 of zero.855. This huge quantity of variance accounted for is no surprise seeing that nominal cure imposes no restrictions on the quantifications. However, interpreting the results may also be intricate (table:2).

Regression 50.761 29 1.750 1.872 .005 Residual 299.239 320 .935 .935 .935 .		Sum of Squares	df	Mean Square	F	Sig.
Residual 299.239 320 .935 Total 350.000 349	Regression	50.761	29	1.750	1.872	.005
Total 350 000 349	Residual	299.239	320	.935		
1000 550.000 547	Total	350.000	349			

Dependent Variable: Gender

Predictors: Consumption of E- content notion of E- content information pride of insurance policy interesting for Viewers Expectation of E- content news trade of attitude awareness of Public trade of pattern in news reach the E- content information have an effect on viewers have an impact on viewers demands of Public.

The ANOVA table:3 shows that the residual sum of squares (the sum of squared deviations from the least squares line) is 299.239, at the same time the complete sum of squares (the sum of squared deviations from the simply) is 1466.433. Observe that (350.000-299.239) 350.000=0.145. That is equal to the unadjusted R square within the model abstract. The "Sig" of 0.005 is the significance level (founded on an "F ratio"). In different words are for the mannequin as an entire p < .05.





Fig:1

The above charts (Fig:1) shows the different types of professionals consuming the E- contents based on the occupation,

family types and the data collects and differentiate on the basis of their educational qualification.











Factors			gender	
		Male	And female	Total
	% of Total N	54.9%	45.1%	100.0%
Consumption of F content	Mean	21.69	21.21	21.47
Consumption of E- content	Std. Deviation	2.854	2.707	2.794
	Std. Error of Mean	.206	.215	.149
	% of Total N	54.9%	45.1%	100.0%
Percention of F content news	Mean	25.38	23.75	24.64
reception of E- content news	Std. Deviation	4.196	4.499	4.404
	Std. Error of Mean	.303	.358	.235
	% of Total N	54.9%	45.1%	100.0%
Satisfaction of Coverage	Mean	26.47	25.95	26.24
Substaction of Coverage	Std. Deviation	4.062	4.666	4.346
	Std. Error of Mean	.293	.371	.232
	% of Total N	54.9%	45.1%	100.0%
Interesting for Viewers	Mean	19.32	18.49	18.94
interesting for viewers	Std. Deviation	3.139	3.425	3.292
	Std. Error of Mean	.227	.272	.176
	% of Total N	54.9%	45.1%	100.0%
Expectation of E- content	Mean	12.01	11.45	11.76
news	Std. Deviation	2.008	2.178	2.102
	Std. Error of Mean	.145	.173	.112
	% of Total N	54.9%	45.1%	100.0%
Change of Attitude	Mean	33.53	31.66	32.68
Change of Multude	Std. Deviation	4.107	5.260	4.748
	Std. Error of Mean	.296	.418	.254
	% of Total N	54.9%	45.1%	100.0%
Awareness of Public	Mean	29.28	27.63	28.53
Awareness of Fublic	Std. Deviation	4.644	5.518	5.117
	Std. Error of Mean	.335	.439	.273
	% of Total N	54.9%	45.1%	100.0%
Change of Pattern in e- News	Mean	24.05	22.74	23.46
change of Fattorn in C Trows	Std. Deviation	3.468	4.141	3.837
	Std. Error of Mean	.250	.329	.205
	% of Total N	54.9%	45.1%	100.0%
Reach the F- content news	Mean	15.90	14.59	15.31
Reach the E content news	Std. Deviation	3.506	4.332	3.949
	Std. Error of Mean	.253	.345	.211
	% of Total N	54.9%	45.1%	100.0%
Impact on Audience	Mean	19.33	18.82	19.10
impuot on rudionee	Std. Deviation	2.875	3.046	2.960
	Std. Error of Mean	.207	.242	.158
	% of Total N	54.9%	45.1%	100.0%
Demands of Public	Mean	15.09	14.30	14.74
Demando or 1 done	Std. Deviation	2.771	3.507	3.145
	Std. Error of Mean	.200	.279	.168

Table:4



Table:4 Factors of Consumption of E- content in gender, Male is 54.9% and female is 45.1%. Perception of E- content news in Male is 54.9% and female is 45.1%. Satisfaction of Coverage in Male is 54.9% and female is 45.1%. Interesting for Viewers in Male is 54.9% and female is 45.1%. The expectation of E- content news in Male is 54.9% and female is 45.1%. Change of Attitude in Male is 54.9% and female is 45.1%. Awareness of Public in Male is 54.9% and female is 45.1%. Change of Pattern in e- News in Male is 54.9% and-and female is 45.1%. Reach the E- content news in Male is 54.9% and female is 45.1%. Impact on Audience in Male is 54.9% and female is 45.1% and female is 45.1%.

Variables			Unstandardise Coefficiet	S.E.	Standardise value	t Value	P value
Reach of E- content News-	<	Consumption of E- content	0.143	0.047	0.101	3.050	0.002**
Reach of E- content News-	<	Perception on E- content News	0.127	0.030	0.142	4.198	<0.001**
Reach of E- content News-	<	Change of Attitude	0.190	0.030	0.229	6.317	<0.001**
Reach of E- content News-	<	Awareness of Public	0.191	0.030	0.247	6.456	<0.001**
Reach of E- content News-	<	Expectations	0.383	0.038	0.372	10.214	<0.001**
Impact on Audience	<	Reach of E- content News	0.414	0.046	0.553	8.914	<0.001**

Table: 5 Regression weights

Table:5 shows that Right here the coefficient of Consumption of E- content is 0.143 represents the partial effect of consumption of e- content on attains of e- content news, retaining the opposite variables as consistent. The estimated constructive signal implies that such effect is clear that reach of e- content news would expand with the aid of zero.143 for each unit develop in Consumption of E- content and this coefficient price is enormous at 1% degree.

The coefficient of notion on E- content information is zero.127 represents the partial influence of attention on reach of e- content news, property the disparate variables as steady.

The estimated positive notarize implies that such effect is positive that extend of e- content information would pick up with the aid of 0.008 for each unit broaden in perception on E- content information and this coefficient worth will not be big at 5% level.

The coefficient of change of angle is zero. One hundred ninety represents the partial result of attitude on attains of e- content news, maintaining the unusual variables as steady. The estimated clear sign implies that such hazard is convinced that do of e- content news would develop by way of 0.204 for every unit revive in exchange of angle and this coefficient price is massive at 1% level.

The coefficient of recognition of Public is zero.191 represents the partial outcome of powerful point on ranking of infraction news; purchase the other variables as consistent. The estimated optimistic signal implies that such influence is optimistic that stretch of e- content information would expand by 0.304 for apart unit revive in realization of Public and this coefficient worth is proper at 1% level.

The coefficient of Expectations is 0.383 represents the partial outcomes of utilization of on reach of e- content news, protecting the opposite variables as consistent. The estimated positive sign implies that such outcomes are confident that stretch of e- content information would rebound via 0.383 for each unit increase in Expectations. The coefficient value is enormous at 1% stage and the coefficient of attain of E- content information is 0.414 represents the partial outcomes of impact on viewers marks, protecting the other variables as regular. The estimated confident sign implies that such result is confident that have an effect on audience marks would increase by way of each unit broaden in influence on audience and this coefficient worth is giant at 1% stage.

Indices	Value	Suggested value
CMIN	9.173	>0.05 (Hair et al., 1998)
P value	0.057	>0.05 (Hair et al., 1998)
GFI	0.991	>0.90 (Hu and Bentler, 1999)
AGFI	0.939	>0.90 (Hair et al. 2006)
CFI	0.992	> 0.90 (Daire et al., 2008)
RMR	0.063	< 0.08 (Hair et al. 2006)
RMSEA	0.071	< 0.08 (Hair et al. 2006)

Table:	6	Model Fit	
I uore.	0	1110401111	



From the above table it is determined that the calculated P price is 0.057, which is larger than 0.05, which shows perfectly match.

Here GFI (Goodness of fit Index) cost tag and AGFI (Adjusted Goodness of match Index) figure is higher than zero.9, which characterizes it's a just right fit. The calculated CFI (Comparative fit Index) value is one, because of this that it's a perfectly fit and additional it is rest that RMR (Root imply rectangular Residuals) and RMSEA (Root imply rectangular Error of Approximation) valued at is zero.000 which is under 0.10 which confirmed it is proper fit.

DISCUSSION

The e- content serves as the primary public supply of e- content expertise, when ingesting the e- content information by means of the viewers strongly creates. The E- content gives you the correct information always, E- content consumption on fear of e- content, punitive attitudes and perceived police effectiveness, bad or confident attitudes closer to the drive may just have an impact on swat staff policymaking and strategy and the-content material of lapse information entice. The audience to watch it thoughts and emotions with the aid of the obstacle centered e- content news, exotic e- content footages and bites and Sensational e- content reporting is guaranteed to lift scores, and is more and more profits and e- content sells.

E- Contents in relation to government officers, E- contents in relation to Politicians, E- contents concerning Celebrities, E- contents when it comes to Communal events, E- contents when it comes to scholars. E- Contents when it comes to fashioned folks, in depth insurance policy of e- content news with sufficient bites from the supply visual, which are used for e- content information is crucial and compatible. The Sources of information which might be used is reliable data, which can be used is modern day and imperative to the e- content information, the answer is given at all times to the news, regular follow-up of the e- content information is telecasted, information framing has been given in chronological order, using of moneymaking portraits and animation appropriately, suitable history musical tunes and results, The voice modulation gives the more influence and the wording and extra know-how on the e- content news are motive of reaching e- content news.

E- content channels to keep comply with-America for every e- content information has telecasted, TV channels to telecast recent news from the spot of e- content and TV channels to provide the specific reality about the e- content every time are reaching e- content information.

Taking any precaution measures to your house has to inform police, while, you relocating out of dwelling for a period of time studying any martial arts to trustworthy preserve yourself from victimized from e- content. The news is given in government sake only, impact the general public, Makes to repeat is the same e- content news for a quantity of times. Creates the final recognition among the community on the e- content incidents, satisfy the public demand on the e- content story, To telecasted for personal function of their competitors in information, extra dramatized than actual incidents of E- content, individual Competence and sensibility and Citizen attitudes towards the police could impact selections to file e- content.

E- content information telecasted creates law attention on the public this aid the police in preclude the e- content to occur do you suppose literally nontoxic in a society which you live now it reflects within the government equipment. E- content information telecasted tries to stimulate new e- contents legislation is enforced within the city at all levels and the information developing best sensation among the many public.

E- Content insurance policy has played a most important function in reshaping public opinion, and finally, criminal justice coverage. Formulating new laws in opposition to e- contents are strengthening the existing legislation and order, implementing legislation towards the accused on full drive. Growing cognizance in regards to the government moves against the e- contents, developing bridge between the federal government and society, Society Cooperating with Govt. E- contents will have to be pronounced to police right away and actions taken via the police must no longer be plagued by political Influences

E- content-show viewing is causing fear of e- content, if the TV application generates terrible mood experiences (e.g. Anxiousness, expectation of worst, overwhelms disgust). Then these experiences will influence how you work it to be hobbies for your own existence, E- content insurance plan on e- content can contribute to lapse prevention tactics, E- content sources vary in type and content material and may for this reason, have differential affects on how citizens view lapse and criminals. Each worry of e- content and punitive attitudes may just influence coverage making and law making through government organizations, as public support or opposition could determine policy. But this study of Structural Equation Model Analyzed on Cyber E- content and E- content Awareness in India has been proved social e- content create more awareness of cyber e- content prevention with highly statistical model.

CONCLUSION

The aim of this study was once to carry out an empirical evaluation of the factors opting for the e- content information notion (SERVPERF) in regards to the eleven factors. Consumption of E- content, perception of E- content news, delight of insurance plan, interesting for Viewers, Expectation of E- content information, change of



angle, cognizance of Public, trade of sample in information, attain the E- content news, influence on audience and demands of Public. Pertaining to E- CONTENTSERV mannequin is utilizing a structural equation modeling. This study affirms and develops an instrument of carrier fine within the context of e- content industry, and examines the connection among e- content news satisfying. Consumption of E- content, perception of E- content information, delight of coverage, intriguing for Viewers, Expectation of E- content news, trade of attitude, awareness of Public, alternate of pattern in information, attain the E- content information, affect on audience and demands of Public. The proposed mannequin (E- CONTENTSERV scale was adopted with some modifications) is then calibrated using the information amassed from audience in Chennai metropolis, India. Eleven massive determinants of e- content information quality recognized are: Consumption of E- content, notion of E- content news, delight of insurance policy and exciting for Viewers, Expectation of E- content information, trade of attitude, attention of Public, trade of pattern in news, reach the E- content information, affect on viewers and demands of Public.

The findings show that Cronbach's alpha for all dimensions except for e- content consciousness are above 0.70, which shows a excessive stage of inner steadiness for the E- CONTENTPERF scale (E- CONTENTSERV mannequin with performance handiest measure). Moreover, over all Cronbach's alpha price for the E-CONTENTSERV dimension is 0.904 which is above the reduce off value of 0.007. Centered on the confirmatory coal and ice analysis, it gave a red slip be concluded that, the dimensions (E- CONTENTSERV mannequin with performance most effective measure) used on this be trained correctly match into the gathered data.

It might be very well concluded that the hypothesized three-aspect model matches the sample information. Founded on the viability and statistical significance of essential parameter estimates are the significantly excellent fit of the model (CFI, GFI, AGFI, NFI, IFI, TLI, and RMSEA). The study has to be concluded that the three-aspect mannequin proven in figure 1 represents an sufficient description of E- CONTENTPERF particular plan for the e- content news realization goodness of match indices support the model fit and these emphasized indices spell out the acceptability of this structural model.

Definitely, this is taught that it will probably be valuable for the misdemeanor e-news to establish the value given by using the sounding board for the various desirable causes pertaining to infraction information first-rate. In the present aggressive environment has to bear in mind the prevailing viewers and to elicit their opinion pertaining to various explanations main to e- content news awareness and satisfaction.

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CLOSING GAP BETWEEN LEARNING AND USE: OPERATIONALIZING THE SITUATED COGNITION CONSTRUCT TO CREATE AUTHENTIC ONLINE LEARNING CONTEXTS

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ABSTRACT

In response to the need to improve quality in online learning, the present developmental study utilized the pedagogy advocated in situated cognition theory to create authentic learning contexts in online learning. An indepth review of the literature in situated learning and online learning was conducted and six features of the situated cognition construct were identified and used as basis for creating a framework for operationalizing tasks in online learning environments. These features were specifically operationalized in a learning management system setting. In order to ensure quality, the framework was evaluated by one situated cognition expert and two online instructors and revised based on their feedback.

INTRODUCTION

Situated cognition or situated learning is an important theory that focuses on the whole process of learning. The theory outlines important implications for the design and development of classroom instruction, including the design of technology or computer based instruction. It is also a learning theory that accentuates and promotes real and authentic learning. In a situated learning environment, learning of skills and knowledge take place in contexts that reflect how that knowledge is acquired and applied in everyday situations (Lave & Wenger, 2003). Collins (2006) defined situated learning as "the notion of learning knowledge and skills in contexts that reflect the way the knowledge will be useful in real life" (p. 2). Against this background nonetheless, some scholars and theorists still assert that context in which learning takes place is secondary to the actual learning, that what is being learned cannot be separated from the context in which it is learned or applied, rather, it is an integral part of what is learned. The situated cognition theory proceeds on the latter body of knowledge and its proponents claim that human actions are dependent on the context in which they occur.

The present study utilized the pedagogy advocated in the situated cognition construct to create authentic learning contexts in online learning. The study specifically proposes scenarios to be delineated within a course shell in a learning management system that would promote authentic learning and close gap between learning and use for the online learner.

SITUATED COGNITION: ANALYZING THE THEORY

Herrington and Oliver (2000) provided a nine element framework which effectively details the principles of situated cognition and provides some guidelines for implementation: (1) provide authentic content that reflects the way knowledge will be used in the real life – nonlinear design, no attempt to simplify, (2) provide authentic activities – activities that have real world relevance, (3) provide access to expert performances and the modeling of process-access to social periphery, access to expert thinking, (4) provide multiple roles and perspectives – the opportunity to express different points of view, (5) support collaborative construction of knowledge – classroom organization into small groups, (6) promote reflection: opportunity for learners to compare with experts, (7) promote articulation – publicly present argument to enable defense of learning, (8) provide coaching and scaffolding – complex open-ended learning environment and (9) provide for authentic assessment – multiple indicators of learning.

It is interesting to note that the philosophy in situated cognition contradicts the emphasis in school and university which has been about extracting essential principles, concepts, and facts, and teaching them in an abstract and decontextualized form where information is stored as facts rather than as tools (Brown et al., 1989; Cole, 1990). Herrington and Oliver (2000) actually reiterated that much of the abstract knowledge taught in schools and universities is not retrievable in real-life problem-solving contexts, because this approach ignores the interdependence of situation and cognition.

A good example of the need to close gap between learning and use comes from the work of Miller and Gilder (1987) who worked on vocabulary teaching. Their work described how children are taught words from dictionary definitions and a few exemplary sentences. They compared this method with the way vocabulary is normally learned outside school. They concluded that people generally learn words faster and successfully in the context of ordinary communication. Brown et al. (1989) complemented this work by contending that learning



from dictionaries, like any method that tries to teach abstract concepts independently of authentic situations, overlooks the way understanding is developed through continued, situated use. Brown et al. (1989) went on to elucidate the notion of learning and enculturation. They argued that from a very early age and throughout lives, people consciously or unconsciously adopt the behavior and belief systems of new social groups. Given the chance to observe and practice in situ, the behavior of members of a culture, imitate behavior and gradually start to act in accordance with its norms. But then they observed that so too often, the practices of contemporary schooling deny students the chance to engage the relevant domain culture because that culture is not in evidence. For example, students may pass examinations but still not be able to use a domain's conceptual tools in authentic practice.

REAL WORLD EXAMPLES

Lave (2008) provided various examples of learning as a situated phenomenon. A good example involved members of a weight watchers program problem-solving to determine appropriate food servings. Dieters were asked to prepare their lunch to meet observer specifications. They were to fix a serving of cottage cheese, supposing that the amount allotted for the meal was three-quarters of the two-thirds cup the program allowed. Interestingly, the problem solvers did it by filling a measuring cup two-thirds full of cottage cheese, dumping it out on a cutting board, patting it into a circle, marking a cross on it, scooping away one quadrant, and serving the rest. Instead of using a paper and pencil algorithm, problem, setting, and enactment were the means by which checking took place. As Brill (2006) observed, this example illustrates how individuals frequently use cues and tools from the environment to create artifacts in order to solve puzzles encountered in daily living much more often than by directly calling on formally-learned knowledge and skills.

Carraher, Carraher, and Schliemann (2005) observed Brazilian children solving simple mathematical problems as they sold produce on the street. These same children failed to solve the same problems when they were presented out of context in conventional mathematical form. For example, one nine-year-old child answered a customer's question regarding the price of three coconuts by counting aloud, "40, 80, 120." But then the same child arrived at a result of 70 when asked to multiply three by 40 on a formal test. From this episode, context seemed to help the child's ability to solve a mathematical problem. So, Collins (2006) identified four benefits of situated cognition as a learning theory. He argued that students learn about the conditions for applying knowledge. Also, students are more likely to engage in invention and problem-solving when they learn in novel and diverse situations and settings. Third, it enables students to see the implications of knowledge. Fourth and finally, students are supported in structuring knowledge in ways that are appropriate to later use by, importantly, gaining and working with that knowledge in context.

AUTHENTIC LEARNING ENVIRONMENTS

A situated learning environment provides authentic activities which are ill-defined and students find as well as solve the problems. It is an environment where tasks can be integrated across subject areas, and it provides the opportunity to detect relevant and irrelevant material (Brown et al., 1989; Collins, Brown and Newman, 1989; Cognition and Technology Group at Vanderbilt [CTGV], 1990; Young, 1993). Learners in authentic learning environments participate in the actual experience (contextualized) rather than being external (decontextualized) to the event. Learning in context implies constructing an instructional environment that incorporates the tasks that learners must complete in order to be successful in their choice of practice. To be in context means learners interact with the values, norms, and true culture of a specific community or organization (Moore, 1998, Brown et al., 1989).

Driscoll (2005) recognized the importance of learning in context by emphasizing that learners who are learning in familiar contexts are more capable of relating new information than they would be in unfamiliar contexts. Brown et al. (1989) defined authentic activities as "the ordinary practices of the culture" (p. 6). More importantly, Choi and Hannafin (2005) contended that authentic activities are not simulated tasks or exercises that are usually found in formal education setting; they are actual real life activities that experts within the community perform while they are engaged in actual problem solving situations. Lave (2008) emphasized this point by providing the example of apprentice tailors who first start by only ironing finished garments and indicating that even though ironing is a very simple task, it still remains absolutely authentic. Against this background, Lave and Wenger (2003) observed that school activities students undertake, they argued, are simply not the activities of practitioners and would not make sense or be endorsed by the cultures to which they are attributed. Lave and Wenger (2003) went on to contend that when authentic activities are transferred to the classroom, their context is inevitably transmuted; they become classroom tasks and part of the school culture. But then Brown et al. (1989) went on to emphasize that the activities of a domain are framed by its culture. Their meaning and purpose are socially constructed through negotiations among present and past members. Authentic



activities then are most simply defined as the ordinary practices of the culture.

ASSESSMENT IN SITUATED COGNITION

Choi and Hannafin (1995) contended that the content of tests has an impact on both learning and instructional processes. They stated that in many cases, teachers often "teach to the test" (p. 63). When students eventually realize that they are being tested on their ability to recall the information that the teacher has presented, they start to memorize the required information, which in turn decontextualizes their knowledge, and learning becomes merely learning for the test. Altalib (2009) complemented this view by observing that adopting a situated learning strategy impacts the way in which learners must be assessed. He went on to mention that many of the traditional standardized tests that are administered, and the instructor constructed exams fall short of being able to measure many learning outcomes.

Several scholars have argued for the need to have assessment and learning in situated learning contexts done as part of learning rather than separated from it (Case, 2015; McLellan, 1995; Young, 1995, 1998). McLellan (1995) contended that evaluation in a situated learning context is based on dynamic, continuous, ever-emerging assessment of the learning process, the learner's progress, the instructional strategies deployed, and the learning environment. The goal according to McLellan (1995), is to better customize the instruction, adapting and refining instructional strategies to invoke and improve the learner's progress toward mastery. She went on to argue that evaluation must be inextricably coupled with learning, not set apart from it, since knowledge is situated. That knowledge is a product of the activity, context and culture in which it is developed and used, and must be evaluated as such. In fact, Young (1995) shared this view by arguing that assessment can no longer be viewed as an add-on to an instructional design or simply as separate stages in a linear process of pretest, instruction, and posttest. Rather, assessment must become an integrated, ongoing and seamless part of the learning environment. Case (2015) had actually argued that assessment must not only be integrated with instruction but must focus on the learning process as well as the learning products. Young (1995) went on to assert that multiple-choice items that assess the static factual knowledge of students must be replaced by cognitive tasks and assessments that can focus on the processes of learning, perception and problem solving. Young (1998) further argued that first assessment must emphasize process as much as product, second, assessment must move away from a linear additive model and accept at the onset, the complex, nonlinear and possibly chaotic nature of real learning, that is to say, assessment must acknowledge that learning, knowledge and thinking are situated as much and as such, they are inherently nonlinear. Finally, assessment must adapt to and take advantage of students working with technologies that extend perceptual and problem solving-capacities beyond what they could do standing alone on a desert island. It appears from their arguments then, that these scholars believe that it is more reasonable to conduct assessment alongside learning for it to make sense and assist learners make meaning of what they learn rather than make the two (learning and assessment) devoid of one another. The scholars, it appears, believe that while students learn, it is important to assess them on tasks that allow them to solve realistic problems.

COLLINS' MODELFOR ASSESSMENT IN SITUATED LEARNING CONTEXTS

Collins (1996) proposed a scenario for integrated learning and evaluation in a computer learning environment that could serve as a model for evaluation in situated learning environments. Collins' scenario included three kinds of evaluation measures; diagnosis, summary statistics, and portfolios. Portfolios, he argued, consist of learner-created products that reflect the processes of learning and development over time. Summary statistics show patterns and trends in the learner's development. Diagnosis is based on many kinds of information including portfolios and summary statistics, as well as teacher's continuous assessment of the learner's progress and capabilities. Diagnosis is dynamic, on-going, the teacher must at every moment analyze the progress of the learners and adapt or customize the methods, sequencing, and other conditions of learning to meet the emergent needs of the learners in real time. This, according to Collins, demands great skill on the part of the teacher. Collins (1996) explained that his model of evaluation derives from professional sports where extensive records are kept on players. While supporting Collins' model, McLellan (1995) contended that learning activities that center on reflection and self-assessment are extremely valuable for diagnosis. Reflection enables students to compare their own problem-solving processes with those of an expert, and another student, and ultimately, an internal cognitive model of expertise. In the final analysis, McLellan (1995) recommended that this three-part model proposed by Collins (1996) be adopted as an approach to assessing situated learning with the three parts providing different kinds of assessment measures.

Young (1995) argued that "the true test for successful learning is transfer of learners' skills from the situations in which they are learned to novel situations in which the relevant knowledge could also be applied" (p. 49). However Winn (2003) observed that the flexibility in performance that this requires is endangered not by placing students in all the situations in which their knowledge and skill will be applied, but teaching at a level of



generality that allows application in multiple settings. Interestingly, Winn (2003) contended that in spite of a great deal of research on transfer, there is still little knowledge on how to promote it. Studies on Situated Cognition

Research conducted by Lave (2008) provided evidence for the claim that the learner engages in situational meaning-making and acts upon this understanding to create plans for action. Lave's ethnographic studies in schools indicated that although a teacher had engaged in teaching a specific algorithimic problem solving strategy in a mathematics class, students' perceptions of the problem were conceptulized with reference to contexts larger than the restrictive parameters of the math problem statements and teacher expectations of how to answer the questions. For the students, the problem definition also included getting the right answer to satisfy the teacher's requirements. So, the problem of the students was not, it seemed, the acquisition of substantive knowledge and skills for use beyond the classroom, but rather the attainment of more immediate objectives, namely to please the teacher and presubably, earn a good grade. This contextually sensitive dynamic is what a theory of situated cognition attempts to identify and explain.

Herrington and Oliver (2000) conducted a qualitative study to determine the possibility of applying a model of instructional design based on the theory of situated learning to the design of a multimedia environment for university students. The study was done in three inter-related stages: First, to identify critical characteristics of a situated learning environment from the literature, to operationalize the critical characteristics of a situated learning environment by designing a multimedia program that incorporated the identified characteristics, and third, to investigate students' perceptions of their experiences using (the) multimedia package based on situated learning framework. Eight students were observed and interviewed. Findings suggested that the use of the situated learning framework provided effective instructional design guidelines for the design of an environment for the acquisition of advanced knowledge.

Griffin and Griffin (2006) investigated the impact of situated cognition on short- and long-term retention of map skills among fourth graders and the effect of cognitive style on their learning. Fourth-grade students were assigned either to situated-cognition instruction using cognitive apprenticeship or to a conventional-instruction treatment. The conventional-instruction group performed significantly better than the situated-cognition group on the immediate post written measure of map skills. This finding contradicted those of Griffin (2005), who had found no differences between groups on written assessments. More importantly, this called into question the proposition by Brown et al. (1989) that situated cognition produces more robust knowledge that encompasses and surpasses that provided by conventional instruction.

Herrington, Sparrow, Herrington and Oliver (2007) developed a program to introduce prospective primary and secondary mathematics teachers to a variety of assessment strategies used in K-12 mathematics classrooms. The program consisted of a CD-ROM which contained information on 23 assessment techniques. The data resulted from a wider study into students' use of interactive multimedia based on a situated learning framework. The data were obtained from observation and interviews with eight pre-service teachers and education undergraduate students. The students were given a complex assessment task that was sustained and ill-defined investigation of the resource and were required to prepare both a written report (to be assessed by the instructor), and an oral presentation to be made to a simulated school staff meeting (to be assessed by their peers). Upon being interviewed at the conclusion of the class presentations, generally, the students found that being assessed within the context of a teacher presenting a report to his or her colleagues during a staff meeting was a useful one. By and large, the students appreciated the opportunity to be assessed in a real life, simulated context. The findings of this study suggested that authentic assessment can be used successfully within an interactive multimedia learning environment. The students' comments revealed their perception that university education is relatively impoverished of authenticity, where students are required to absorb factual information provided in a "transmission" style of delivery largely devoid of any real-life relevance.

Cole et al. (2005) organized a series of activities involving reading, writing, and human-computer interaction tasks for children in elementary school. These activities were implemented in four different institutional contexts: School, a library, a youth club, and a kindergarten. Results showed that the children were performing the tasks very differently from context to context, depending on their own interpretation of the setting and on the social relations developed in each of them. Again, in his study, Lave (2008) demonstrated that participants show elaborate skills in a practical context (such as calculating prices on the market or calories in the everyday preparation of meals) while sometimes obtaining very poor scores in formal tests.

A study by Mondada and Doehler (2004) explored the interactive (re)- configuration of tasks in French second language classrooms. Stressing that learning is situated in learners' social, and therefore profoundly interactional



practices, the study investigated how tasks are not only accomplished but also collaboratively (re)organized by learners and teachers, leading to various configurations of classroom talk and structuring specific opportunities for learning. Recordings in classes specifically designed for newly arrived children between 10 and 12 years of age were made. The study found that there is need to go far beyond merely postulating activity as a contextual phenomenon but to also recognize that cognitive processes in general and language acquisition in particular are publicly deployed, socio-interactionally configured, and contextually contingent.

In general, these studies emphasize the importance of situating or contextualizing the learning of knowledge and skills which as indicated, promotes meaning-making on the part of the learner as it simulates the environment in which the knowledge will be applied. The studies further indicate that it is important to rid education of the practice where learning is relatively devoid of authenticity and where students merely absorb factual information without any real-life relevance.

ONLINE LEARNING PEDAGOGY

Online learning, has increased as an innovative and/or alternative form of education especially with the proliferation of a wide bandwidth Internet and various web technologies (Broadbent & Poon, 2015; Means, et al., 2010). The term online learning itself has evolved over the past few decades. In this study, online learning refers to learning delivered asynchronously through a learning management system (LMS).

Online courses comprise a number of features that are different from those of traditional classroom courses. One clear difference is the ability to access course material from outside the classroom through the Internet. Learners are able to access course material at their convenience. This type of any-time/any-place access enables students in an online learning environment more control over their own learning, a necessity for the constructivist view on education (Palocsay & Stevens, 2008). As Choi (2016) contended, online learning environments are very distinctive instructional environments in which the learner and instructor are physically separated, but communication is mediated by online technologies. To that end, viable technologies become a critical component of the whole learning process. And so, one issue that affects online courses to a greater extent than traditional courses is the rapid pace of technological change. A potential problem with online courses for instance, could be students spending too much time trying to learn how to use the technology required to access the course instead of concentrating on the actual course material. (Leidner & Jarvenpaa, 2005).

Another challenge associated with online courses is the increased effort required by instructors to design and develop an online course. It has been shown that online courses have a higher level of student initiated communication, which often requires the instructor to take a great deal of time to respond to student questions (Arbaugh & Rau, 2007). This increase in faculty to student communication may make instructors hesitant to implement online courses. The online course should therefore be developed before the course begins. A full set of modules or units, detailed projects and solutions, readings, and other materials should be made ready before the course begins (Schell & Janick, 2012).

As Schell and Janick (2012) contended, online courses are effective and support both faculty/student interaction as well as student/student interaction in ways that allow students to construct knowledge and learn to formulate processes for learning new material. Against this background, Palloff and Pratt (2007) reiterated the importance of making sure that the instructor has stronger presence in online learning environments and that the course itself needs to create a learning community amongst participants. Again, Hart (2012)'s meta-analysis of the literature on student persistence in online learning programs found that the following factors were associated with persistence: A sense of belonging to the learning community, motivation, peer, and family support, time management skills, and increased communication with the instructor. It can be inferred from these findings that good communication, support, a feel of belongingness and time management skills become very crucial to the success of an online learner.

It is clear that online learning continues to grow in popularity with the whole concept of any-time/any-place access being a huge advantage. From the literature, it can be deduced that communication mediated by technological applications becomes a crucial part of the whole process of learning in online environments. Again, it does follow that pedagogies that support student engagement and building a learning community are likely to result in positive cognition.



RESEARCH DESIGN AND METHODOLOGY

PURPOSE OF STUDY

The purpose of this study was to develop a framework for creating online authentic learning contexts utilizing the philosophy in the situated cognition construct. It was planned that the framework would be used by online instructors in a learning management teaching environment.

DEVELOPMENTAL RESEARCH STUDIES

Developmental research studies involve the production of knowledge with the ultimate aim of improving the process of instructional design, development, and evaluation. Such research is based on either situation-specific problem solving or generalized inquiry procedures (Richey & Klein, 2007; Richey, Klein & Nelson, 2004). A content analysis of the relevant literature indicated that situated cognition sets ground for authentic learning experience (Brown, 2006; Collins, Brown & Newman, 2009). The present framework carefully utilized this thinking to delineate contexts in online learning environments that would essentially result in authentic learning and purportedly close gap between learning and use. The framework was evaluated by a situated cognition expert and two online instructors before it was revised.

AUNTEHITIC LEARNING IN ONLINE LEARNING ENVIRONMENTS OPERATIONALIZED

Based on the situated cognition strategies identified from the literature espoused, and improved upon by recommendations from a situated cognition expert reviewer and two online instructors, a framework for creating authentic online learning environments was created. The framework would be used by online instructors in a learning management system environment to teach concepts using strategies that would essentially create authentic learning contexts.

STRATEGIES TO SUPPORT COLLABORATIVE CONSTRUCTION OF KNOWLEDGE

Strategies to Support collaborative construction of knowledge – classroom organization into small groups (Herrington & Oliver, 2000).

Example: Using the discussions feature in a learning management system environment to teach concepts in small groups:

- In a learning management system such as Canvas or Blackboard, break students in groups of three to four using the "people" or "groups" feature.
- Within each small group, allocate a discussion topic on any given concept being taught.
- Let group members post to discussion topic within their group.
- Make sure threaded replies are enabled.
- At end of each small group discussion, let each group present a summary of their discussion in a classwide discussion topic.
- Allow individual class members to post in plenary, summary discussion
- Instructor, make comments as necessary by posting in class-wide summary discussion.

Table 1. Collaborative construction of knowledge

STRATEGIES TO PROMOTE ARTICULATION

Situated Task: Promote articulation - groups to enable articulation, publicly present arguments to enable defense of learning (Collins, 2006; Herrington & Oliver, 2000).

Example: Using the discussions feature in a learning management system to run an asynchronous class debate:

- In a learning management system such as Canvas or Blackboard, create a discussion on a contentious topic.
- Divide class into two groups using any relevant criteria. Let each group take sides on the contentious



topic.

- Let instructor be chair, leading a debate on the topic by introducing it to the two groups.
- Let members from each group weigh in on the topic by posting to the discussion asynchronously.
- Let debate run for specified period of time with threaded replies allowed.
- At end of discussion, let each side make closing arguments on the topic.
- On final day of discussion, instructor closes debate by summarizing arguments from the two groups, making clarifications and elaborating.

Table 2. Promoting articulation

STRATEGIES TO CONDUCT ASSESSMENT AS PART OF LEARNING

Situated Task: Assessment should be done as part of learning rather than separated from it. It must become an integrated, ongoing and seamless part of the learning environment (Case, 2015; McLellan, 1995; Young, 1993, 1995).

Example: Using field observations in a communication class:

- In a learning management system such as Canvas or Blackboard, let any given lesson be based on field trip observation and reporting.
- For example, on a topic such as interpersonal communication, create a module page that teaches interpersonal communication by providing modalities for a field trip observation.
- Begin by defining interpersonal communication from the literature and provide relevant examples.
- Ask students to go and observe a court session in their community and identify any five aspects of interpersonal communication at play in the court room. Let students earn say four points for each aspect identified.
- For each aspect of interpersonal communication students identify in a court session, ask them to briefly describe a scenario that justifies their identification of that aspect. Allocate say five points for each brief description.
- Ask students turn in their observations in a drop box created for the project.
- Create a discussion topic on which each student summarizes their filed observations by posting to the discussion. Allocate 10 points for completing this specific activity.
- Let each student post a comment to at least two summaries provided by fellow students and allocate five points for each post.

Table 3. Assessment as part of learning

STRATEGIES TO PROMOTE REFLECTION

Situated Task: Using portfolios as an evaluation measure - Portfolios, consist of learner-created products that reflect the processes of learning and development over time. Learning activities that center on reflection and self-assessment are extremely valuable for diagnosis (Collins, 2006; McLellan, 1995).

Example: Using e-portfolios to enable online learners reflect on the process of learning over the course of a semester:

- In a learning management system such as Canvas or Moodle, include an e-portfolio project as a measure of students' progress to run from beginning of a course to the end.
- As course progresses, let students record outstanding lessons they get from each topic by taking reflection notes each week.
- As course progresses, let students record outstanding issues they faced from each topic by taking reflection notes each week.
- At end of semester, let students glean all reflections to produce an e-portfolio.
- Normally, learning management systems have provision for producing e-portfolios. Walk students into utilizing this facility to create their e-portfolios.



- An e-portfolio of this nature can comprise the following: What I learned from each topic, what issues I faced in each topic, what I learned from the course as a whole, how I will use knowledge gained from this course.
- Allocate say 100 points for this assignment and make sure it counts towards final grade. This will motivate students to complete the project.

Table 4. Promote reflection

STRATEGIES TO ENABLE LEARNERS SOLVE PROBLEMS IN REAL LIFE

Situated task: Authentic activities as actual real life activities that must be performed within the community in actual problem solving situations (Choi & Hannafin, 2005).

Example: Engaging learners in assignments that involve them in real life problem-solving situations:

- In a learning management system such as Blackboard, Canvas or Moodle, create a field study project as one of the assignments.
- For example, in an online education course, a field project requires students to make four visits to an elementary school in each student's community with prior arrangements made with schools.
- · While on school visit, student attends classes, talks to teachers, staff, administrators
- Student identifies a problem of any nature, be it academic (concerning teaching and learning, student behavior) or administrative.
- Student analyzes problem and proposes a solution to the problem.
- After field visit, each student comes up with a write-up which begins with a description of the problem followed by a proposed solution.
- Write-up is turned in via the relevant learning management system drop-box to be graded.
- A separate discussion topic is created where students briefly share what problem they identified from their field visits and the solution they proposed triggering an open discussion.
- Points are earned from field observations, problem description, proposed solution and discussion participation.

Table 5. Learners to solve problems in real life

STRATEGIES TO CREATE AUTHENTIC CONTEXTS THAT REFLECT THE WAY KNOWLEDGE WILL BE USED IN REAL LIFE

Situated Task: Provide authentic context that reflects the way knowledge will be used in real life (Brown, Collins & Duguid, 1989; Collins, 2006; Herrington & Oliver, 2000; 1993, Young, 1995).

Example: Learning business concepts in a business environment:

- While teaching a concept such as "the major functions of business" in an introduction to business class, in an LMS module page, begin the topic by asking online students to read a chapter from an assigned text that talks about the concept being taught.
- In the relevant module, ask online students to come up with five questions from the chapter that was assigned to them.
- Questions should focus on application of the concepts learnt to an authentic business environment.
- Let every student make an appointment with a business manager of their choice in their community.
- After the conversation with a business manager, each student comes up with a write-up specifically focusing on how the concepts they read from the assigned chapter apply in the business they visited.
- Students turn in write ups through LMS drop box to be graded.
- Each student discusses their work in an open discussion set up for that purpose in the LMS.

CONCLUSION

In the development of the framework for creating authentic learning contexts in online learning, an in-depth review of the literature on the two domains, situated learning and online learning pedagogy was conducted and a criterion for the study, based upon six features of situated cognition theory was used as a basis for



operationalizing six tasks. A framework has, therefore, been delimited that instructors would use in a learning management system environment to employ authentic learning strategies that would essentially close gap between learning and use. Development of the framework was guided by thoughts gleaned from the literature on the domains, situated learning and online learning pedagogy. Again, order to ensure quality, the Framework was evaluated by a situated cognition expert and two online instructors who provided constructive feedback for improvement. The framework was, therefore, revised in line with the suggestions provided in the feedback from the three experts.

Table 6. Create authentic contexts

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PERCEPTIONS OF SENIOR HIGH SCHOOL STUDENTS TOWARDS E-LEARNING PLATFORM IN SOME SELECTED SENIOR HIGH SCHOOLS IN CAPE COAST METROPOLIS

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ABSTRACT

With the emergence of the internet, e-learning have enhanced and improve the quality of education delivery on equitable basis in second cycle institutions. This change in the learning experience could not have come at a better time. This has made it imperative that students not only need to use e-learning platform, but they need to become comfortable and competent in it use.

This paper examines the perception of Senior High Schools students towards the use of e-learning platform in selected Senior High Schools in Cape Coast Metropolis. Probability sampling technique was used to select 600 respondents from three mixed Senior High Schools. Questionnaire was used in collecting data. SPSS version 20.0 was the software used. Frequency tables and chi-square were used in presenting the data.

The study revealed that majority of the students has heard of e-learning platform. Challenges in the use of elearning platform include irregular internet access, lack of technical know-how and lack of feedback from peers and teachers. However, there were significant relationship between students' perceived ease of use and perception towards e-learning platform and a significant relationship between technology accessibility and computer ownership. We recommend that classrooms and laboratories in Senior High Schools should be fully equipped to support patronage of e-learning.

Keywords: Perception, E-Learning platforms

Background to the Study

The ascendency and expeditious development of Information and Communication Technology (ICT) has transformed society to information age where innovation is constantly changing the way things are done and improving on the previous ways of doing things. It is widely acknowledged that ICT can be used to improve the quantity (access) and quality of teaching and learning at any level of education. This was vividly captured by Allis (2013) who stated that

We are going to go from a world in which 24% of the population finishes secondary school to a world in which 46% of population finishes secondary school. It's a disturbing statistic: only one in four human beings today finish secondary schooling. But fortunately that's going to nearly double over the next 40 years. In terms of college completion, globally it's around 7% today. But the percentage of people with college degrees over the next 40 years is going to triple to over 20% of the population.

The above is possible through electronic learning (E-learning). E-learning, which is a form of education technology, has changed the ways teaching and learning is done at all levels of education. E-learning is pedagogy empowered by digital technology (Nichols, 2008). Thus, e-learning occurs when teaching and learning is mediated through ICT.

Achievement of universal primary education, which is one of the Millennium Development Goals ((MDG 2A)), can be facilitated by access to ICT (MDG 8F) like the use of e-learning platforms. This has made it imperative that students not only need to use e-learning platforms, but they need to become comfortable and competent in it use.

Regarding the use of e-learning within the school curriculum, Karon (2000) commented on its capability to improved accessibility of courses online that can be self-paced and tailored to the learner, as compared with conventional distance learning delivery agents. While Urdan and Weggen (2000), suggest that e-learning can result in a higher retention rate due to materials being personalized and reflecting different learning styles.

Student's confidence in e-learning can be explained through the attitude and behaviours of their teachers. Teachers' behaviour is a critical influence on students' confidence, and perception towards e-learning platforms as they provide important role model to their students (Derbyshire, 2003).



Ghana has developed a national framework on which the deployment of ICT in the education sector is to be based. This framework is contained in the Information Communications Technology for Accelerated Development (ICT4AD) document (Republic of Ghana, 2003). Ghana government's ICT4AD stated that ICT in general and e-learning specifically would be used to expand secondary and tertiary education to Ghanaians. It is on these premises that the government of Ghana is committed to the transformation of the economy of Ghana into information rich and knowledge based economy using the tools of ICT.

The government has acknowledged the need for ICT training in schools. The development of ICT in education will result in the creation of new possibilities for learners and teachers to engage in new ways of information acquisition and analysis. E-learning platforms however will enhance and improve the quality of education delivery on equitable basis in the second cycle institutions.

The quest of Governments all over the world is tuned toward strategies that increase access to innovative, inexpensive and quality education for their citizenry. Hence the introduction and integration of e-learning platforms into the teaching and learning process in the Ghanaian educational sector can be considered as the silver bullet to increase access education, enhances acquisition of 21st century skills, autonomous and lifelong learning. In spite of these laudable efforts, nothing substantial has changed at the pre-tertiary level of education in Ghana as schools are still following the traditional ways of teaching and learning that doesn't fit the information age.

Although technology has enabled online education in many countries, the situation is virtually not the same in Ghana. Secondary schools in Ghana have made little progress in building net-working infrastructure with acquisition of computers, but the integration of the technology into the teaching and learning process has been a challenge (Coleman, 2011). This has made the instructional delivery being instructor-led with a limited or absence of electronic collaboration among senior high students.

The use of e-learning depends on accessibility of ICT (hardware, software and Internet), perceived affordance, perceived usefulness and technological capability of its users and level of its integration into regular curriculum of the institution. Most e-learning researches have be done in the developed economies at all levels of education however, in Ghana, no study have been done at SHS level. It is against this background that this paper sought to find out the perception of SHS students towards the use of e-learning platform in their school. A study of students' perceptions towards e-learning is necessary so as to evaluate student's receptiveness towards e-learning (Rinaldi, 2013).

Research Questions

This paper is to investigate the perception of students towards the use of e-learning platform in some selected SHS in Cape Coast Metropolis. Specifically, the research will investigate into:

- 1. What is the perception of students towards the use of e-learning platforms?
- 2. What are the perceived benefits derived from using e-learning platform?
- 3. What are the perceived challenges student's encounters when using e-learning platform?
- The following hypotheses were formulated to be tested:

 H_0 1: There is no significant relationship between perceived ease of use and perception of students towards using e-learning platform.

 H_{o} 2: There is no significant relationship between student's perceived benefits and perception towards e-learning platform.

H_o 3: There is no significant relationship between technology accessibility and computer ownership.

Methodology

A multistage random sampling method was used as follows: All Senior High Schools in Cape Coast Metropolis formed the primary sampling frame and were clustered according day and boarding school. The researchers purposively selected mixed (co-educational) schools and a total of 3 schools were sampled. The schools were Aggrey Memorial Senior High School, Ghana National College and University Practice Senior High School. Two Hundred students were selected from each school. Individual students were selected or recruited into the study using systematic random sampling, whereby every stream in a school formed a secondary sampling frame.

Thereafter, the sampling interval was calculated based on a 10% of the school population. The result was then divided by the number of streams in the school to determine the sample size per class. The sampling interval (n) was then calculated by dividing the number of students in a stream by the sample size. The first student was selected blindly using a table of random numbers after which the remaining students were selected at regular



intervals (10) from the secondary sampling frame. This process was continued per stream until the required school sample size of 200 students was achieved from each school.

Questionnaire was used as research instrument in collecting the data and SPSS version 20.0 was used for the analysis. All respondents were given serial numbers to facilitate coding and analysis. Frequency tables and chisquare were also used in presenting the data. Conclusions from relevant related literature were captured along to authenticate the findings of the study.

Results and Discussion

Awareness of e-learning platform

Out of the 600 respondents, 348 (58.0%) were in the 15 - 17 age group. Female respondents were 300 (50.0%) of the total respondents with 225 (75.0%) in the age range of 15 - 19, 45 (15.0%) representing the age 18 - 20, and the rest 30 (10.0%) fell into the above 21 years. The sampled male were 300 (50.0%) with 193 (64.3%) in the below 15 age group, 66 (22.0%) were between 15 - 17 years, 29 (9.7%) for the age range of 18 - 20, 12 (4.0%) in the above 21 age group.

Table I: S	tudents awarene	ss on e-learni	ng platforms			
	Heard of e-lear trainin	ning before ng	Use of befo	ore training	Correct example	mple cited
	n	%	n	%	n	%
Yes	436	72.7	189	31.5	400	66.7
No	164	27.3	411	68.5	200	33.3
Total	600	100	600	100	600	100
Field surve	2015					

Field survey, 2015.

Table 1 showed that, 436 (72.7%) answered in the affirmative that, they have heard of e-learning platform and 164 (27.3%) answered in the negative. It can be concluded that majority of the respondents have heard of elearning platform. This result supports the findings of Gamal and Aziz (2011), who concluded that majority (80.0%) of the students are aware of e-learning.

Again, 189 (31.5%) of the respondents had received training in e-learning platforms whilst 411 (68.5%) had received no training in e-learning platforms. It can be concluded that majority of the respondents had no training in the use of e-learning platforms. However, this result contradicts the findings of Carter (2013), who concluded that majority (86.7%) of the students have received adequate orientation with the use of e-learning platform.

Respondents were further asked to give examples of e-learning platforms, and majority 400 (66.7%) did give examples of e-learning platforms whilst only 200 (33.3%) were not able to give correct examples of e-learning platforms. The finding did agree with the work done by Tagoe (2013), who concluded that students know examples of e-learning platforms.

Perceived ease of e-learning platform

Furthermore, respondents were asked to give their responses on the perceived ease of e-learning platform. The details of their responses are represented in Table 2. Table 2. Perceived ease of use of E-learning platform

Table 2. Teletiveu ease of use of	L-ICall	nng pi	ationin							
	SA	1	Α		D		SD)		
Statement	Freq.	%	Freq.	% 1	Freq.	% F	req.	%		
E-learning is user friendly	234	39.0	170	28.3	3 99	16.5	97	16.2		
Easier to become skillful with it	201	33.5	194	32.3	107	17.8	98	16.3		
Easy to enjoy lesson on e-learning	g 219	36.5	193	32.2	88	14.7	100	16.7		
Ease sharing ideas with colleague	s 199	33.2	242	40.3	8 85	14.2	74	12.3		

Field survey, 2015.

On perceived ease of use, a higher percentage of students agreed with the four statements specified as shown in Table 2. The finding support the work of Park (2009), who concluded that majority of the student's agreed that it is easy to use e-learning platform.

On the first hypothesis H_o 1, there was a significant relationship between student's perceived ease of use and perception towards e-learning platform (χ^2 (2) = 16.09; p < .05). This result supports the findings of Tagoe (2013) in Ghana who concluded that there is significant relationship between student's perceived ease of use and



perception of incorporating e-learning into teaching and learning. Furthermore, the results of this study are also supported by results of the investigation made by Liu, Chen, Sun, Wible, & Kuo (2008). Perceived usefulness of e-learning platform

Respondents were further asked to give responses on their perceived usefulness of e-learning platform. The details are represented in Table 3.

mg platte	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Sz	4	А	L	D)	SE)
Freq.	%	Freq.	%	Freq.	%	Freq.	%
236	39.3	189	31.5	97	16.2	78	13.0
199	33.2	208	34.7	98	16.3	95	15.8
209	34.8	198	33.0	96	16.0	97	16.2
189	31.5	223	37.2	99	16.5	89	14.8
198	33.0	215	35.8	90	15.0	97	16.2
	SA Freq. 236 199 209 189 198	SA Freq. % 236 39.3 199 33.2 209 34.8 189 31.5 198 33.0	SA A Freq. % Freq. 236 39.3 189 199 33.2 208 209 34.8 198 189 31.5 223 198 33.0 215	SA A Freq. % Freq. % 236 39.3 189 31.5 199 33.2 208 34.7 209 34.8 198 33.0 189 31.5 223 37.2 198 33.0 215 35.8	SA A D Freq. % Freq. % Freq. 236 39.3 189 31.5 97 199 33.2 208 34.7 98 209 34.8 198 33.0 96 189 31.5 223 37.2 99 198 33.0 215 35.8 90	SA A D Freq. % Freq. % 236 39.3 189 31.5 97 16.2 199 33.2 208 34.7 98 16.3 209 34.8 198 33.0 96 16.0 189 31.5 223 37.2 99 16.5 198 33.0 215 35.8 90 15.0	SA A D SE Freq. % Freq. % Freq. 236 39.3 189 31.5 97 16.2 78 199 33.2 208 34.7 98 16.3 95 209 34.8 198 33.0 96 16.0 97 189 31.5 223 37.2 99 16.5 89 198 33.0 215 35.8 90 15.0 97

Table 3: Perceived usefulness of using e-learning platform

Field survey, 2015.

On the perceived benefits of e-learning platform, a higher percentage of students indicated their agreement with all the statements. The indication is that students recognize the benefit of e-learning. This observation agrees with the findings of Ocak (2010), who concluded that students have good perception towards e-learning platform. Adamson, Murie, and Weyers (2004) also reported similar positive perception in student perception on e-learning survey report of students of University of Dundee. Another study by Spiceland and Hawkins (2002), also confirmed this research as the findings of the study reflected that students have positive perception toward e-learning platform.

On the first hypothesis H_o 2, a significant relationship was also found between student's perceived benefits and perception towards e-learning platform (χ^2 (2) = 29.37; p < .05). Martins and Kellermanns (2004) also found that perceived benefits of e-learning platform is positively and significantly related to the perceived usefulness.

Perceived challenges

Respondents were asked to state or give the challenges they face when using e-learning platform and the details of their responses are represented in Table 4.

Challenges	Frequency	Percent	
Irregular Internet access	262	43.7	
Low participation of other students	62	10.0	
Lack of feedback from the instructor	53	8.8	
Lack of feedback from peers	75	12.5	
Single students dominating	54	9.0	
Lack of group mentor	50	8.3	
Lack of technical know-how	44	7.3	
Total	600	100	

Table 4: Perceived challenges in using e-learning platform

Field survey, 2015.

The findings in Table 4 reveals that majority 262 (43.7%) of the respondents indicated that irregular Internet access serve as a challenge for then when using the e-learning platform. A deduction from Table 4 is that the three major factors that affect respondent's non-use of e-learning platform are irregular Internet access, lack of feedback from peers and instructors. These barriers were quite similar to the reasons given by Sphamandla (2015) as the major barriers affecting student's participation on e-learning platform. This is also confirmed Neo (2014) assertion of challenges that prevents students from using e-learning platforms.

Access to Technology

Student levels of access to technologies represent an initial factor that would shape their perception towards using e-learning platform. The details of their responses are represented in Table 5.



Table 5: Distribution of Access to Technology

		0.			
Technology access	Yes		No		
	Frequency	%	Frequency	%	
Ownership of computers	204	34.0	396	66.0	
Internet access	227	36.0	373	64.0	
Field survey 2015					

Field survey, 2015.

The data in Table 5 reveals that as many as 396 (66.0%) of the respondents claimed they did not own a computer. The remaining 204 (34.0%) responded in the affirmative. The study again revealed that 227 (37.8%) of the respondents indicated that they have access to the Internet and the majority 373 (62.2%) also stated that they do not have access to the Internet. A deduction from the above is that the majority of the respondents did not own their own computers and do not have Internet access. This outcome is consistent with the studies that revealed that most students do not own personal computers (Edumadze & Annor-Frempong, 2009, p.367) and also do not have Internet (Annor-Frempong & Edumadze, 2009, p.389). This is because of the policy of the Ghana Education Service that does not allow SHS students to bring computers/tablets/mobile phones to schools and the high cost of Internet connectivity that most schools cannot afford it.

The study found a significant relationship between technology accessibility and computer ownership (χ^2 (12) = 16.78; p > 0.002). This means student's who have computers or electronic devices for browsing and also have Internet services makes it easy for them to use the e-learning platform. In other way, students who do not personally have computers and have bad Internet services are reluctant in using e-learning platform. Thus, in general, accessibility of technology tends to affect student perception and correlates positively with the level of technology use (Agyei & Voogt, 2011). This result supports the findings of Dadzie (2009), who stated a significant relationship between computer ownership, usefulness and access to the Internet.

Recommendations

- 1. Ghana Education Service (GES) should mainstream e-learning into the curriculum of SHS to supplement the traditional face-to-face course delivery.
- 2. Systematic training on e-learning should be organized for students to enhance the adoption and regular patronage of e-learning platforms in order to improve their educational output and motivate those who are doubtful or skeptical in its usage.
- 3. Classrooms, dormitories, libraries and laboratories in SHS should be fully equipped to support the patronage of e-learning.
- 4. Eduvid Ghana limited should be encouraged to spread their e-learning platform in other SHS in other regions.
- 5. Modeled e-learning platforms should be done to engage users in interactive tasks and in collaborative learning not reading materials or notes to students to encourage others.
- 6. The Ministry of Education and the Curriculum for Research and Development Division (CRDD) in Ghana should encourage e-learning platforms, which use appropriate local teaching and learning styles that are user friendly, simple and easy to use in secondary schools.
- 7. Updated educational material with interesting animations should be uploaded in e-learning platforms in order to draw student's attention.
- 8. Ghana Education Service should allow students to use mobile devices that support e-learning platforms to motivate students to explore this technology in their studies. By doing this, teachers should monitor the usage of the mobile devices so that they will not misuse it.

Implications

The use of e-learning platforms seems to be the upcoming trend. It has been spreading worldwide. However, secondary schools in Ghana have not really begun to take advantage of the e-learning medium. The adaptation of e-learning platform in Ghana can provide more suitable solution in secondary schools education by filling in the gap in effective teaching delivery between teachers and students.

Better understanding of the negative factors contributing to disparities about student's perception towards elearning platform was identified. The findings of the study indicated that secondary school students have positive attitude towards e-learning platform. However, major challenges in the usage of e-learning platforms, which include irregular Internet access, lack of technical know-how and lack of immediate feedback responses from peers and instructors should be

However, there are important tasks that require attention and effort from Ghana government to ensure the development of e-learning platforms for student's patronage.



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THE STANDARD E-LEARNING TECHNIQUES ON VLSI DESIGN

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ABSTRACT

E-learning platform provides anywhere, anytime easy access for upgradation of knowledge and skills. It provides a platform wherein the individual gets a customized package related to key thematic areas, through a self-guided process. Despite this, it is felt that the system of E- learning can be made more effective and result-oriented particularly in the Indian context. Number of new innovative strategies are developed for E-learning. Educational systems are thus looking to e-learning programs to substantially improve the quality and content of their education. Integrating e-learning to existing educational system can, however, be a major challenge. In the existing educational system, Very-large-scale integration (VLSI) is the process of creating an **integrated circuit** (IC) by combining thousands of **transistors** into a single chip. With the advent of very large scale integration (VLSI) designs, the number of applications of integrated circuits (ICs) in high-performance computing, controls, telecommunications, image and video processing, and consumer electronics has been rising at a very fast pace. There are number of online courses offered in VLSI design but not standard. This present paper tries to suggest one of the standard E-learning system in VLSI called IEEE (Institute of Electrical and Electronics Engineers) blended learning program to improve the quality and content of education in VLSI design. **Keywords**: E-learning, IEEE, Blended learning program, VLSI.

1. Introduction:

Educational systems are looking to e-learning programs to improve the quality and content of their education [3-5]. VLSI is one of the broad field in an education system and need to be more specific as there cannot be just one course to learn all of it. There are many online courses in VLSI [1]. They are 1. Courses on SystemVerilog, Assertions, Coverage, OVM and UVM Verification Excellence, 2. Digital Design courses from IITM on NPTER NPTEL - Electronics & Communication Engineering, 3. Verification courses on Verification Academy - The most comprehensive resource for verification training. The only catch here is you need a corporate email id to login, 4. Physical Design courses from Udemy - VLSI Academy - Physical Design -Udemy. These online course focus on how to build an EDA tool. It will require programming experience (C++, Java) and basic knowledge of data structures and algorithms. An understanding of basic digital design: Boolean algebra, Kmaps, gates and flip flops, finite state machine design. Linear algebra and calculus at the level of a junior or senior in engineering. Exposure to basic VLSI at an undergraduate level is nice -- but it's not necessary. These courses are self-contained, but students with some VLSI will be able to skip some background material. VLSI Guru is the best VLSI training institute in Bangalore, offering courses on System on Chip (SoC) Design and verification flow; Online VLSI course with complete flexibility on Student Schedule. But these online courses are not standardized which is required for final implementation and validation of final product development in VLSI.

The objective of this work is

- To identify the standard E-learning tool called IEEE blended learning program for VLSI design.
- To study the E-learning tool about the various programs, advantages and requirements
- To analyze and prove the efficiency of that tool by making comparison of that E-learning tool with all other online courses.

Thus this paper is divided into 4 sections. Section 2 deals with introduction, various programs and advantages of IEEE blended learning program for VLSI design tool. Section 3 deals with the requirements of the same E-learning tool. Section 4 is about views on the same E-learning tool by Industry experts, Institute and E-learners on VLSI. Section 5 is on result analysis and discussion about the efficiency and percentage of learners of that IEEE blended learning program for VLSI design tool. Finally section 6



concluded that IEEE blended learning program for VLSI is a standard choice to provide a good opportunity for VLSI students to build the standard products by learning this E-learning tool.

2. IEEE BLENDED LEARNING PROGRAM

The IEEE Blended Learning Program in VLSI [2] employs the latest in applied and immersive e-Learning techniques in combination with extensive hands-on practice. This engaging online learning approach to reinforce core concepts is then coupled with highly effective and proven in-person instruction and hands-on applied training in a lab. VLSI professionals and students build competency and skills necessary to create complex products with the leading EDA tools used in the semiconductor industry

2.1 Various programs in IEEE blended learning program:

This dual in-depth blended-learning approach complements academic learning with training in industrial practices to prepare engineering students and professionals for a successful career in the semiconductor industry. The program includes[2]:

- Infrastructure comprised of core labs and facilities equipped with the latest Electronic Design Automation (EDA) tools.
- Instructors with many years of experience in the industry.
- Curriculum designed using industry input and reviewed by leading IEEE experts from academia and the VLSI industry.
- Q&A with industry experts.

2.2 Advantages of IEEE blended learning program:

With the **Blended Learning Program in VLSI**, learners have the convenience of "anytime" learning using an advanced online e-Learning platform. This proven approach provides students the confidence to build a career in the semiconductor field and equips engineering professionals with the skills to quickly become much more productive in their work. The Blended Learning Program in VLSI is based on a best practice structure designed to optimize the learning experience. The program introduces concepts in an easy to understand manner and reinforces application of those concepts at every stage — during practice in a simulation environment, assessments, and hands-on labs to make the training highly effective. This approach makes the program more engaging and rewarding for students, further increasing its training effectiveness and accelerating the learning process. The other advantages of this E-learning program is

- Learn relevant materials developed by industry experts
- Check your understanding through assessments at each stage
- Learn to apply concepts in instructor -Led Labs
- Master concepts through immersive e-learning
- Showcase the knowledge through IEEE certificate of completion
- Understand your competencies through performance analytics.

3. REQUIREMENTS OF IEEE BLENDED LEARNING PROGRAM:

3.1 Hardware Requirements

In order to use the Blended Learning Platform, a laptop or a desktop computer with following configuration is recommended:

- 1. Any processor with dual core or above configuration
- 2. 512 MB RAM (2-4 GB recommended)
- 3. LAN / WAN, Wi-Fi, or 2G/3G (Minimum 256 kbps connection). Note that the performance with lower speeds might be significantly degraded
- 4. Sound card and speakers to listen to the audio during e-Learning
- 5. Screen resolution 1024 x 768 or higher



3.2 Software Requirements

- 1. Flash player 9 or above
- 2. One of the following browsers
 - 1. Windows
 - 1. Internet Explorer 9.0 or above
 - 2. Mozilla Firefox 10 or above
 - 3. Google Chrome 15 or above
 - 2. Linux / Mac
 - 1. Mozilla Firefox 10 or above
 - 2. Google Chrome 15 or above
- 3. Pop-up blocker must be disabled
- 4. Speakers must be configured correctly for listening to the audio during e-Learning.

4. VIEWS ON IEEE BLENDED LEARNING PROGRAM:

Some of industry experts, students, the E-learner after gone through this IEEE blended learning program and gave their opinions which makes us to understand standard and the importance of e-IEEE blended learning program are given below [2].

"Great initiative to bridge the gap between academia and industry. The program is a step in the right direction to get students ready to face the industry faster and become more productive."-Mani Srinivasan, Director of Global Design Services and Product Organization, IBM.

"What makes the course unique is that all course material is thoroughly reviewed by leading IEEE experts from industry and academia before it is incorporated in the training program. This initiative will truly help India achieve a leadership position in the industry and help accelerate growth in the ESDM sector."-YatinTrivedi, Director of Standards and Interoperability Program, Synopsys.

"e-Learning was superb and innovative. This initiative by IEEE is very appreciable. The concept of the 'topic' is exceptional. The lab sessions were great – the tutors were very helpful. This program is the bridge between industry and academia. We were unable to express what the industry needed before taking this program – now we understand not just what the industry wants, but what we are expected to tell students."- Chetan Huchegowda - ECE, CMRIT.

The program can provide early experiences and deeper perspectives on the practical technology challenges in the industry. Thus, the students are better prepared to hit the ground running when they are hired by a company."-Vivek De, An Intel Fellow and Director of Circuit Technology Research, Intel Labs.

E-Learning course was a nice experience. We didn't have to sit in a classroom and rush through the topics. It was really nice to learn at my own pace. The labs were good, upto the industry standards and got a glimpse of how my working environment would be. The three things I liked about IEEE Blended Learning Course: There were not many students in the classroom and the learning process was slow and steady. The trainers were very helpful and cleared all doubts at any point of time. Great lab infrastructure and worked on Microsystem for the first time."- Student.

"E-Learning was superb and innovative. This initiative by IEEE is very appreciable. The concept of the 'topic' is exceptional. The lab sessions were great – the tutors were very helpful. This program is the bridge between industry and academia. We were unable to express what the industry needed before taking this program – now we understand not just what the industry wants, but what we are expected to tell students."-Industry expert.

"Looking to improve your practical skills and advance your career in VLSI, IEEE Blended Learning Program can help you gain the practical, hands-on skills top technology companies are looking for. The video in this program also features some of the students learning experiences and how the program added value to their engineering degree"-Professor.



5. RESULTS AND DISCUSSIONS

Here is a graph in Fig 1. shows the efficiency of this IEEE Blended Learning Program tool for VLSI compared to other VLSI online courses from the reviews of institute and industry experts and learners. The Fig. 2 shows the percentage of learner improvement in IEEE blended learning program after 2013. The result reveals that the efficiency of IEEE blended learning program for VLSI design is high as 90% and the percentage of learners of the same is also improved from 25% to 90% after 2013. Thus this reveals that VLSI experts can easily earn and develop their standard product by learning this E-learning tool.



Fig 1. Efficiency of Various online courses for VLSI design



Fig 2. Analysis on percentage of learners of various online courses for VLSI



6. CONCLUSION

E-Learning is a broad term that encompasses many teaching approaches, types of technologies and administrative practices. A challenge in analyzing E-learning is that the technologies and their educational applications are developing extremely rapidly. Today number of E-learning courses are available. But standardization of the course and it is incorporated with educational systems is a problem. So this paper gives a view of standard E-learning program in the field of VLSI called IEEE blended learning program. With the IEEE Blended Learning Program, we can adapt to the newest technologies and enjoy valuable instructional E-learning techniques. Also, we attain extensive hands-on practice to build competency and the skills necessary to create complex products with the leading EDA tools used in the semiconductor industry.

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