

Can virtual space become the Zone of Proximal Development ? Online architecture optimization of ESL courses through Learning Analytics

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Abstract: This study recognizes that the provision of Vygotsky's *More Knowledgeable Others* (MKOs) within the *Zone of Proximal Development* of online courses as a unique challenge to all stakeholders. Extending the data-driven decision making culture at the Centre for Distance and Continuing Education of University of Kelaniya to the newly introduced online course *English for Communication*, the aim of this study is to develop a learning analytics mindset to predict at-risk students enabling timely intervention. Further, future cohorts of the course are provided analytics on student performance thus enabling them to take decisions to improve the course especially to address the necessity for increased MKO availability. Capturing attendance data benefits the need to identify reasons for absenteeism.

The instrument was a 100 mark allotting paper which evaluated three of the four skills: Reading, Writing and Speaking. The total population was stratified into 19 centres across provinces. The corpus for analysis (n= 3700) was selected under stratified random sampling procedures from which approximately 200 papers were shortlisted from each centre. Findings illustrate the diversity of Poverty and prosperity indices and Digital denizenship across the provinces have a significant influence on the performance of the population. The % mean marks distribution indicated a strong variation based on the province. Thus this study provides Learning analytics which constructs an information-rich landscape for the functional groups for understanding and optimizing the learning process of the students who offer the course. The findings benefit educational mandates of similar institutions who face the challenge of handling groups which are non-monolithic in proficiency in English and Digital denizenship but who are monolithic in size.

Key words: More Knowledgeable Others, Digital denizenship, Proficiency in English, online courses

1. INTRODUCTION

Vygotsky and online learning

Applying the constructivist theory by Vygotsky (1962)^[1] to the context of online learning, an evolutionary process within the *Zone of Proximal Development* (ZPD) is noted. ZPD is the distance between a student's ability to perform a task under teacher guidance and/or with peer collaboration and the student's ability to solve the problem independently. ZPD is where a learner's achievements progress from the *Cannot do yet* to the *Can do alone or current knowledge*. For optimal outcome the learner should work within the ZPD in collaboration with a *More Knowledgeable Other* (MKO) and conduct a cooperative or collaborative dialogue. The MKOs can be a teacher or peers. In online courses the ZPD is in virtual space. Virtual is defined as facilitated by networked computers; Space is used as a generic term to denote a platform or environment where people can interact (Sköld, 2012)^[2]. Though online resources such as LMS, podcasts and videos are provided, learners can construct knowledge only if a meaningful cooperative and collaborative dialogue occurs within virtual space. The compilation of technological tools and/or techniques required by online learning environments (Moore, et al., 2011: 132)^[3] identify the following: Online discussion boards, emailing the coordinator, LMS, podcasts and videos, online chat rooms, synchronous video conferencing but does not include virtual classrooms which are also beneficial. The following figure proposes an adaption of Social constructivist Vygotskian views of learning to online education.

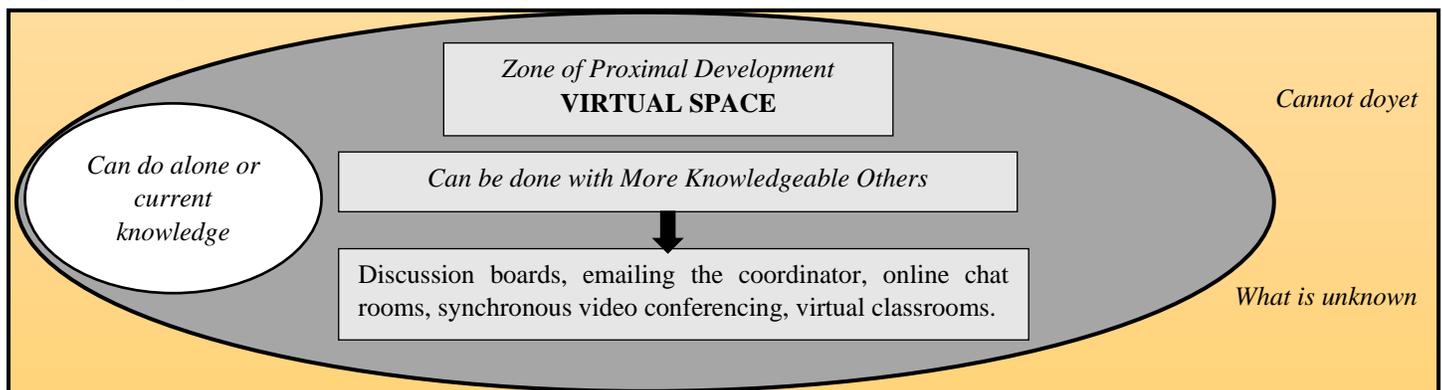


Figure 1: Adaption of constructivist Vygotskian views to online education

With the concept of the ZPD, Vygotsky establishes a position on the way in which learning may serve a developmental function. As cited in Pablo et al (2007: 279)^[4] according to Vygotsky (1978a, pp. 56–57)^[5] development of higher functions appears twice: first it appears on the social level, and later, on the individual level; first *between* people (*interpsychological*), and then inside the individual (*intrapsychological*). Thus this study argues that Interpsychological development of higher functions in an online learner optimally should progress and reach intrapsychological level as follows:

Can do alone ← ~~Can be done~~ with MKOs in virtual space → Cannot do yet ←

Ivic(1989: 434)^[6] states that Vygotsky not only placed prominence on the transmission and acquisition of a body of information through education but he also found that the provision of the tools, techniques, and intellectual operations that would facilitate development are equally important. Vygotsky according to Ivic (ibid) was critical of many forms of education that aim primarily at transmission of knowledge. Thus not only the lack of contact with MKOs (teachers and/or peers) in the ZPD which is the pedagogical online space but also the deficiency in provision of the tools, techniques, and intellectual operations that would facilitate development prevents the learners from producing an optimal outcome.

The course

The Centre for Distance and Continuing Education (CDCE) at University of Kelaniya, Sri Lanka which offers external degree functions in an established virtual learning environment. The e-book *English for Communication* (ELTU E 1014) was introduced in Learning Management Systems (LMS) form as course material from the academic year 2012/2013. It is a compulsory course for Bachelor of Arts First Year Examination. Candidates who do not fulfil the necessary requirements to pass or refer examinations are considered to have failed the prescribed examinations. Thus to pass the Bachelor of Arts First Year Examination *English for Communication* (ELTU E 1014) candidates have to obtain a C grade (40 marks) or above. Based on the syllabus the material of this course is presented in 10 units.

Table 1: Contents of English for Communication

Unit	Functional genres	Grammar: forms with usage
1.	Getting to know each other and initiating conversations	WH questions, The simple tenses: past, present and future
2.	Describing people and places	Adjectives, <i>to be</i> and <i>to have</i> , adverbs of frequency
3.	Give and ask for opinions	Discourse markers, conjunctions
4.	Give and ask for directions	Prepositions
5.	Telephone conversations, describing graphs and trends	Adverbs of manner
6.	How to make effective presentations	Ordering points, Signposting
7.	Writing summaries	Progressive Tenses
8.	Common deviations from Standard Sri Lankan English pronunciation	
9.	Writing in an Academic Style	Direct and Indirect speech, Recapping adverbs of manner
10.	Contemporary social issues	Recapping subject verb agreement, adverbs of frequency

Each unit of the course further comprises of the following:

- An introduction to the contents of the unit and unit outcomes.
- Core content of the unit with a variety of hands on activities given at diverse stages of the unit. Learners may have to read a passage, write an essay, watch a video or listen with comprehension to a podcast during these activities.
- Glossary; Online self-assessments: Quizzes, exercises.

Further, an Exam Preparation Package provides model papers to inform on the format of the paper and enable learners to practice for the *End-of- course written exam* which assigned a 100% mark. The expected total learning time for this course is 60 online hours across one academic year but learners were advised to spend extra time on self-study.

Out of the tools and/or techniques required by online learning environments (Moore, et al., 2011: 132)^[7]. *English for Communication* provided discussion boards, emailing the coordinator facilities, LMS, podcasts and videos but online chat rooms and synchronous

video conferencing were not employed. The number of students registered for the course were 19,604 and they were from all provinces of Sri Lanka and they sat for the paper at 19 centers across the country other than the North.

2. LEARNING ANALYTICS

Analytics is the science of examining raw data with the purpose of drawing conclusions about that information source. According to Ferguson (2012: 9)^[8] Learning analytics began to coalesce as a discipline its own right around 2010. Siemens & Gašević, (2012: 1)^[9] state,

Learning analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.

Constructing a reference model for learning analytics Chatti et al. (2014)^[10] compiles its key concepts based on four dimensions: data, environments, context (what?), stakeholders (who?), objectives (why?), and methods (how?). As this study tracks the progress of learning analytics based on dimensions identified by Chatti et al. (ibid) it structures the methodology as a development through the knowledge continuum postulated by Baker (2007)^[11].

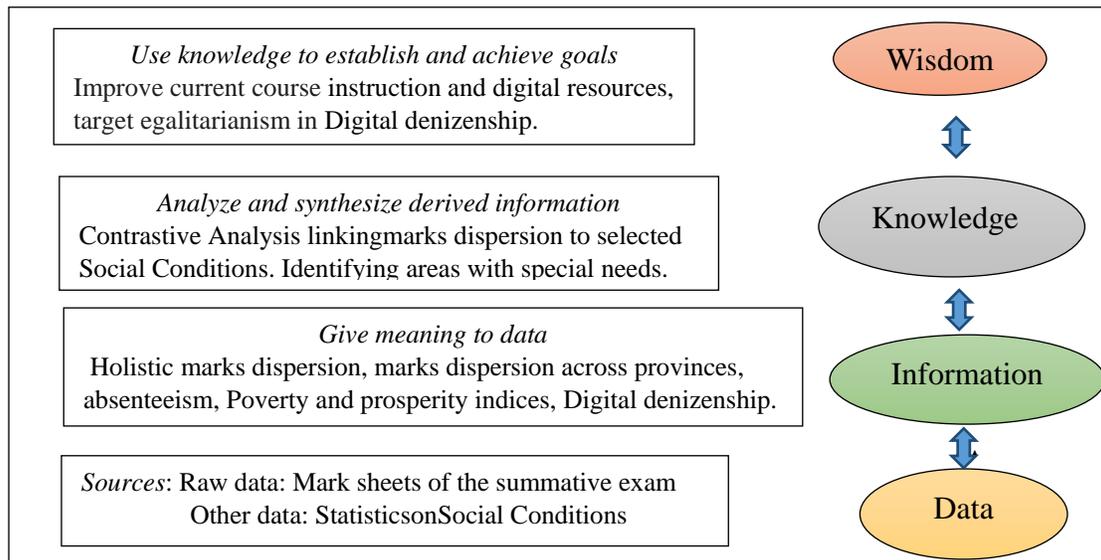


Figure 2: Adapting the depiction of the knowledge continuum (Baker, 2007)^[12] to the context of this study

The study of learning analytics cannot be conducted devoid of an assessment of statistics on social conditions pertaining to the study population.

3. SOCIO-ECONOMIC CONDITIONS

Poverty and prosperity indices

The importance of Socio-economic conditions by province is due to the identity of the population who register for external degrees. In Sri Lanka most students who are eligible for tertiary education do not get selected to national universities. Students from a high socio-economic level are sent to universities in foreign locales. The fee levied by private degree awarding institutes is very high and could be afforded only by upper middle class parents. Thus most of the students who register for external degrees come from the lower-middle class or a lower socio-economic strata. The figure below illustrates the poverty and prosperity indices in the provinces from which the population of this study was obtained.

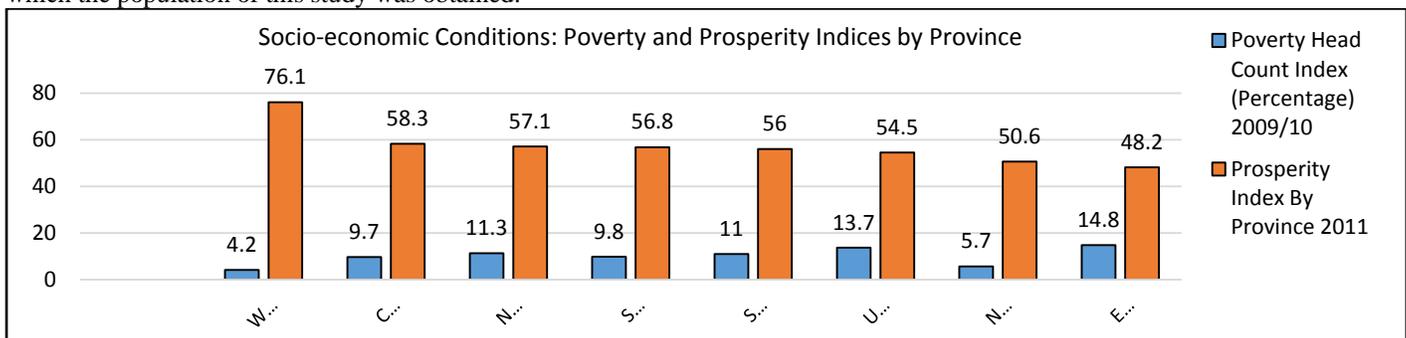


Figure 3: Socio-economic Conditions: Poverty and Prosperity Indices by Province

Source: Household Income and Expenditure Survey Series, Department of Census and Statistics Cited In Cited In Sri Lanka Socio-Economic Data. Central Bank of Sri Lanka, VOL. XXXVI June 2014, Poverty Indicators By Sector And Province: 34. Prosperity Index by Province: 37

Proficiency in English

Though TESL has a history of around 160 years in Sri Lanka and was based on egalitarian values it is a very low population who self-assess and claim that they have literacy in English. But what is noted in the statistics provided by the two national surveys below is a significant improvement in their ability to speak, read and write English over a ten year span.

Table 2: Ability to Speak, Read and Write English: 2001 – 2011

Year of survey	% literacy rates (10 years and over)			% ability to	
	Male	Female	Overall	Speak English Overall	Read and Write English Overall
2001	92.6	90.0	91.2	14.4	17.1
2011	96.8	94.6	95.6	23.8	30.5

Source: <http://www.statistics.gov.lk/PopHouSat/CPH2011/Pages/Activities/Reports/5cph2011/Table22.pdf>

Yet the statistics below indicate that in 2015 at the two national summative examinations the failure rate is higher than the passed %. Thus the TESL pedagogical process in Sri Lanka has not produced a satisfactory outcome as the summative English paper in G.C.E. O/L follows 9 years of learning English as a second language and General English at G.C.E. A/L after 2 years of ESL learning.

Table 3: Performance of Candidates in English at G.C.E. O/L and G.C.E. A/L (2015)

Examination	Subject	# of candidates	A %	B %	C %	S %	Passed % (A+B+C+S)	Failed % (W)
G.C.E. O/L	English	272,576	7.33	5.49	11.33	21.24	45.40	54.60
G.C.E. A/L	General English	248,482					39.19	60.81

Source: Extracts from Performance of Candidates, G.C.E. O/L: 2015 and G.C.E. A/L: 2015, Research and Development Branch, National Evaluation and Testing Service, Department of Examinations, Sri Lanka.

Digital denizenship

One external driver for technology in education is the technological progress of a country. In the current context it is the rate of entry of digital natives into the education system. A digital native as identified in Feeney’s continuum (2010)^[13] of Digital denizens chooses to use technology for numerous tasks and adapts as the tools change while a Digital refugee is unwillingly forced to use technology; prefers hard copies, does not trust electronic resources and seeks assistance. While Digital natives possess the ability to access and decipher information speedily, Digital refugees would struggle within the online space.

This study attempts to estimate Digital denizenship through the following statistics: Computer Literacy in Sri Lanka, % of computers owned by households and % Computer literacy rate by province, Internet user population (%) in Sri Lanka by province. If a desktop or laptop is available at a household then that household is considered as a computer owning household (Computer Literacy Statistics, 2015: 1)^[14]. The table below mirrors a divide between the Urban and the Rural sectors in Sri Lanka.

Table 4: Percentage of computer owned households and Computer literacy rate (%) by sector

Sector	% of computer owned households (2015)	Computer literacy rate (%) (2015)
Sri Lanka	24.4	27.1
Urban	41.5	39.2
Rural	22.0	25.5

Source: Extracts from Table 1 and 3, Computer Literacy Statistics – 2015 (Annual bulletin), Department of Census and Statistics, Sri Lanka

The main statistical analysis of this study is based on provinces. Thus as measure of digital denizenship of the sample population statistics on% of computers owned by households and % Computer literacy rate by province are produced below.

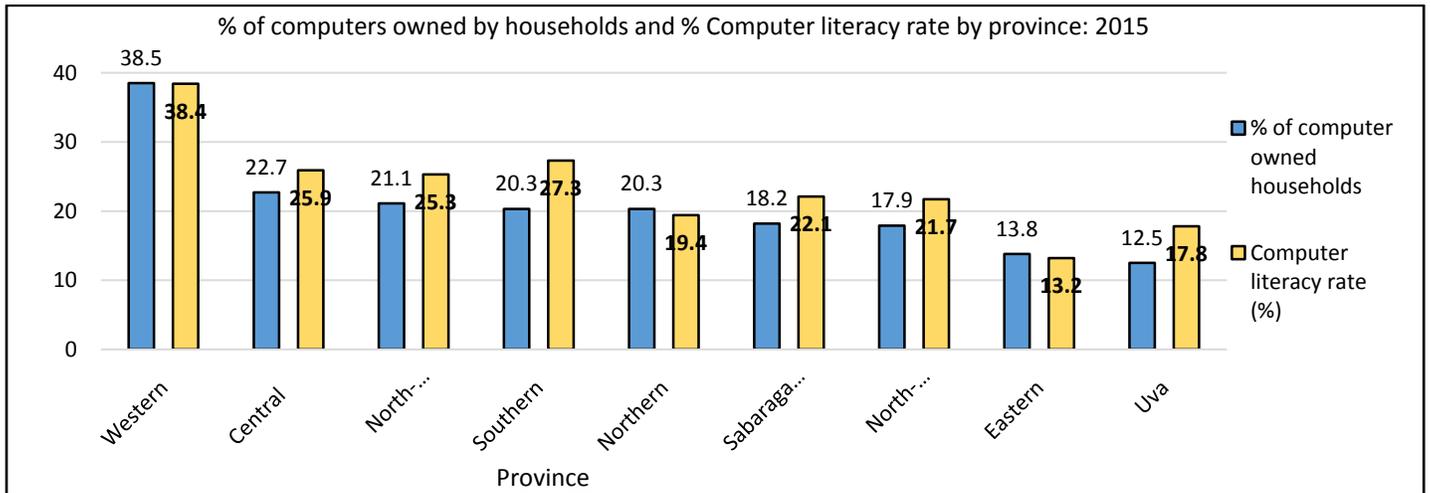


Figure 4: % of computers owned by households and % Computer literacy rate by province

Source: Extracts from Tables 1 and 3, Computer Literacy Statistics – 2015 (Annual bulletin), Department of Census and Statistics, Sri Lanka

Yet again what is noticed in the statistics above is that when compared with the other provinces the Western province emerges with the highest availability of computers in households and % Computer literacy rate (38.5% and 38.4% respectively). The lowest availability is reported from Uva (12.5%) but the % Computer literacy rate in Uva is higher than in the Eastern province.

It is heartening to note that statistics on the % of Computer Literate population denote a gradual increase. Overall Computer Literacy reported in 2015 for Sri Lanka is 27.1%. The survey results show an increase of 11 percentage points from 2006/07 to 2015 (Computer Literacy Statistics – 2015: 2)^[15].

The survey results further reveal that the urban sector, where the facilities are largely available, shows the highest usage of both e-mail and internet. Statistics on internet subscribers given below indicate that many Sri Lankans fall into the category of digital refugees as they might not belong into the minority category of internet users.

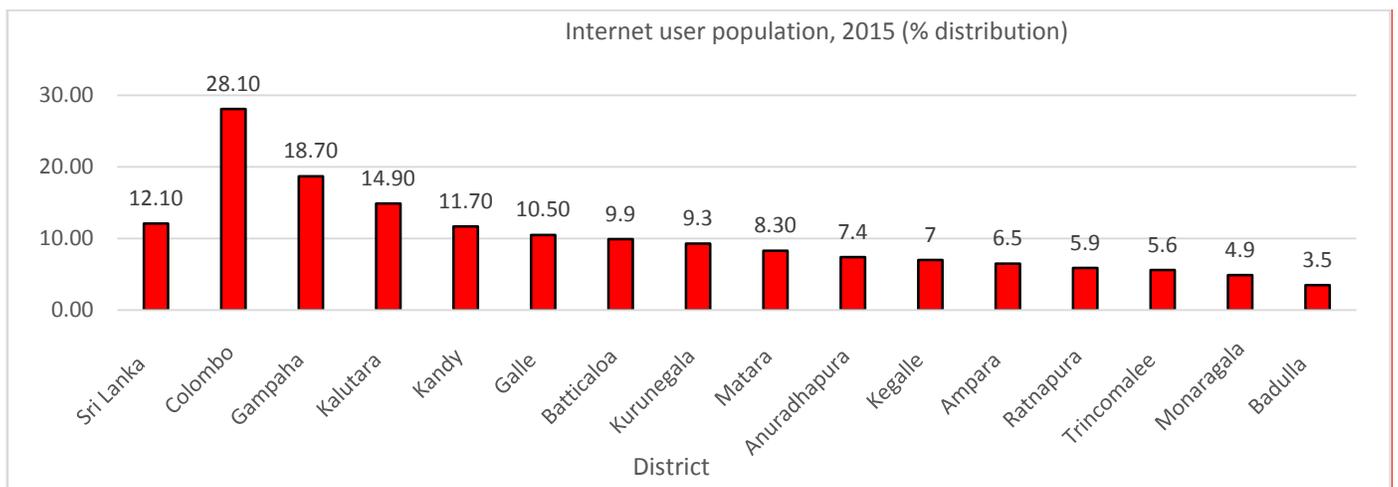


Figure 5: Internet user population(% distribution) in Sri Lanka by province

Source: Extracts from Table 8, Computer Literacy Statistics – 2015 (Annual bulletin), Department of Census and Statistics, Sri Lanka

Internet User in the above context is identified as an individual who can access the Internet at home, via any device type and connection. Thus the statistics clearly should include the population of this study who have to follow the coursework online. But the

reality may be different. Digital denizenship for this population might vary from Digital natives to Digital refugees whose digital literacy is not only low but also who do not have access to the Internet at home or a locale such as a communication centre nearby. Thus even within the higher education landscape the digital divide which is witnessed affects egalitarianism in on-line courses.

Recognizing this problem the CDCE introduced a compulsory course *Computer Literacy*(COMP E1014) for the academic year 2012/2013 along with *English for Communication*. This ICT course module aims at providing basic ICT knowledge and skills. The learning outcomes state that after successfully completing this course, students will be able to carry out basic operations in the desktop environment of Windows, Search for information using browser on the Internet and communicate through Internet using common tools. The assessment procedure comprises of a one hour MCQ examination and two hour essay question paper at the end of semester. By making this course compulsory CDCE has commenced on the right path towards motivating the undergraduates to improve their digital literacy. This forecasts a brighter future which would result in the alleviation of the digital divide within its distance learner population.

4. ONLINE LEARNING

Discussing factors driving the development of learning analytics Ferguson (2012: 4)^[16] identifies that the upsurge of Online learning as a major driver. Online learning in the context of this study has three major stakeholders: The Centre for Distance and Continuing Education at University of Kelaniya, online lesson planners and online learners. Unlike students who receive face-to-face instruction online learners are self-directed and have to handle coursework alone. Thus large cohorts of students of this study may reflect the following affective factors, which according to Mazza and Dimitrova, (2004)^[17], are present in most online learners.

- i. A tendency to feel isolated due to lack of contact with teachers and/or peers
- ii. Became disorientated in the online space
- iii. Lack of know-how to handle technical problems

Further, it has to be recognized that there are multiple barriers to accessing internet in remote areas of the island. Thus it can be inferred that all three factors above influence the online learners' motivation levels negatively. Thus when Lehmann (2004)^[18] crushingly states that a virtual classroom can only be successful if the communication tools used in the classroom are "in the student's possession... accessible to the student... (and) operable by the student" (cited in Nedeva et al: 7)^[19] it spells disaster to developing countries like Sri Lanka where distance education is moving towards digitalization.

On the other hand the online lesson planners, who are vital stakeholders, too face multiple challenges. As most ESL populations consist of multi-ability learners, what parts of the input are beyond comprehension for the weak ESL user cannot be estimated. The role of these lesson planners is different from one who has feedback from face-to-face teachers. As online learning is self-directed the multiple challenges faced by learners when grappling with the material unaided goes undetected. Further, no online lesson planner/facilitator will be privileged to observe the body language signals of heightened affective filters: boredom in the high proficiency learners and confusion in the weak ones unless virtual classrooms/ video conferencing facilities are provided.

5. METHODOLOGY

The population

The total population who registered and were eligible to sit for the summative paper was (N=) 19,604. The examination locales were distributed across 19 centres across provinces.

Table 5: Distribution of the sample population

Province	Centres
Western	Kadawatha, Colombo 10, Colombo 13, Wattala, Kelaniya, Kaluthara, Gonawala, Siyabalape
Central	Kandy
North Western	Kurunegala
Southern	Galle, Matara
Sabaragamuwa	Kegalle, Rathnapura
Uva	Badulla, Monaragala, Bibile,
North Central	Anuradhapura
Eastern	Ampara

The instrument

The instrument was a 100 mark allotting paper which evaluated three of the four skills: Reading, Writing and Speaking. Speaking skill was evaluated through dialogue construction. Given the magnitude of the population and its distribution space conducting a Listening assessment was rendered as impossible.

Data source

The mark sheets where the marks obtained for the paper by individual candidates was the main data source. Rating scale for marks obtained for evaluating internal students is given in the table below.

Table 6: Rating scale for marks obtained

A⁺	85-100	C⁺	45-49
A	70-.84	C	40-44
A⁻	65-69	C⁻	35-39
B⁺	60-64	D⁺	30-34
B	55-59	D	25-29
B⁻	50-54	E	00-24

Though the student rating scale used for evaluating internal students is used in this study for the purpose of analysis the CDCE follows an evaluation mode of Pass/Fail where the Pass mark is 40. As *English for Communication* is a compulsory paper Further the following regulations apply for referring the examination even though they have obtained the minimum standard of marks required to pass the examination. If the candidate obtains one 'D' or 'E' grade in one paper, are considered to have referred the examination.

Sampling procedure

The total population was stratified into centres across provinces. Then the corpus for analysis was selected under random sampling procedures. On average random sampling procedures shorted listed 200 papers from each centre for analysis. In two centres the population was less than 200. Thus the results were on % basis. The total sample for analysis was 3700.

Data analysis

The analysis used the software SPSS. At macro level the % Mean of marks were obtained based on examination centres. The number of absentees per examination centre too was calculated. As a trend which indicated a province and examination centre based variance in the mark dispersion was recognized a micro contrastive analysis of marks along the Rating scale based on examination centres was conducted.

6. RESULTS AND ANALYSIS

Macro analysis

The summative assessment was through a 100 mark issuing written paper. The figure below illustrates that the Mean of marks obtained fluctuates across the examination centres.

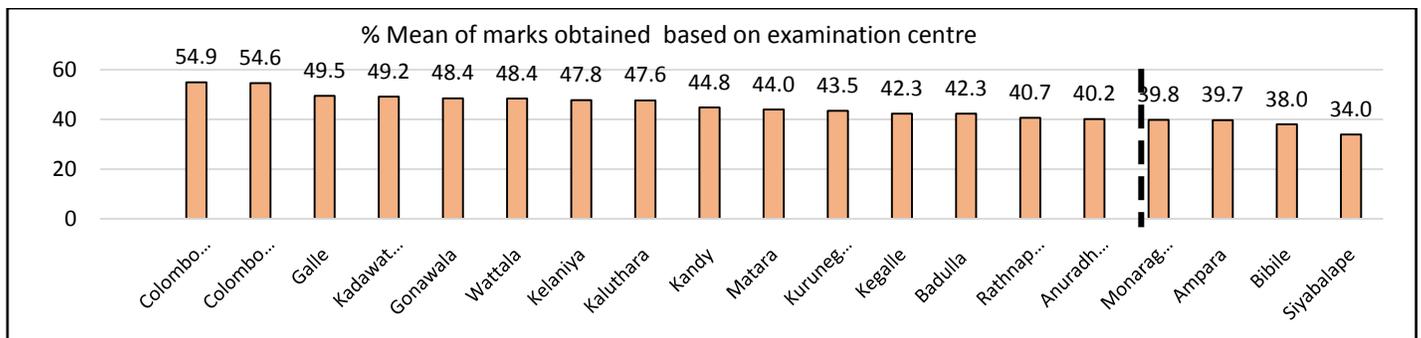


Figure 6: Mean of marks obtained based on examination centre

What is noted is that the % Mean of marks obtained at the examination centres in the Western Province: Kadawatha, Colombo 10, Colombo 13, Wattala, Kelaniya, Kaluthara other than Siyabalape is far above the pass mark of 40. Along with Siyabalape, Monaragala, Ampara (Eastern) and Bibile (Uva) had a % Mean of marks below the pass mark of 40.

With reference to Figure 3:Socio-economic Conditions: Poverty and Prosperity Indices by Province the Western Province claims the highest Prosperity index (76.1%) while Uva (54.5%) Eastern and (48.2%) are ranked the lowest. The low Socio-economic Condition in the latter two provinces would be an indication of poor digital competency and lack of internet facilities at home.

Another feature which requests attention is the high % of absentees per examination centre. According to the data in the Figure below absenteeism was the highest in the Eastern Province where the percentage Poverty Head Count Index in 2009/10 (Figure 3) was the highest (14.8%) across all provinces. This needs the attention of the policy makers as the lack of digital competency resulting in inability to access the e-book would have affected the confidence level of the learners making them disinclined to sit the summative assessment.

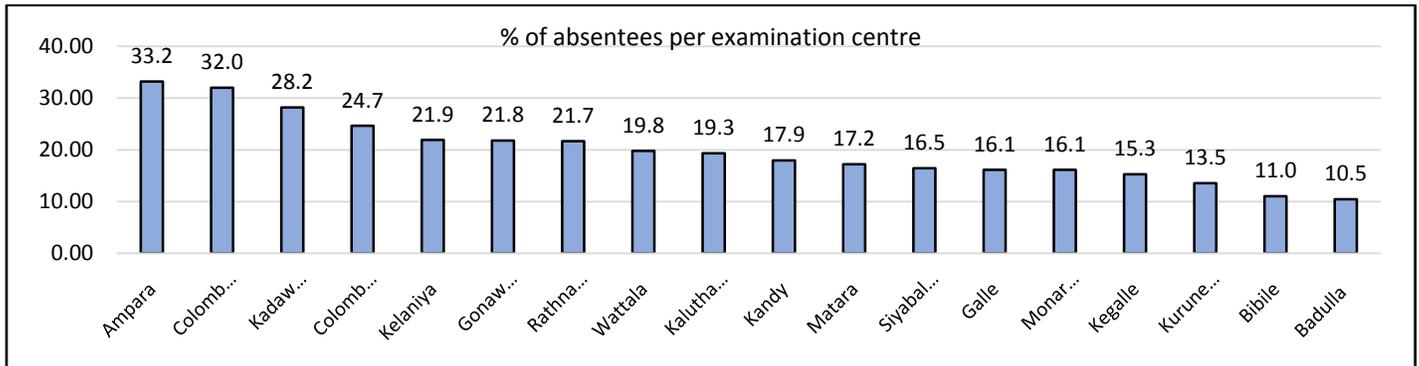


Figure 7: % of absentees per examination centre

Statistics presented in Table 3:Performance of Candidates in English at G.C.E. O/L and G.C.E. A/L (2015) in Sri Lanka indicates that the % of candidates who have obtained a Failed (W) grade are 54.60% and 54.60% respectively. Though the statistics do not provide an analysis based on provinces it can be suggested that Ampara falls into a district which has obtained a very low % (Polonnaruwa is the lowest) in eligibility for University Entrance (Passed in 3 Subjects) which is 59.13 % (Performance of Candidates: 8^[20]). Thus a multitude of factors would have contributed to the high % of absentees at Ampara.

Yet the next centres which indicate a high % of absentees: Kadawatha, Colombo 10, Colombo 13, Wattala, Kelaniya are urban areas in the Western Province where digital competency would be high and internet facilities would be available at home/communication centres. Further, proficiency in English too could be considered as high. The attention of the CDCE is drawn to this trend as English for Communication is a compulsory paper.

Comparison of marks distribution between centers based on provinces

The Standard Deviations obtained was high, ranging from Wattala 21.198 to Kandy 16.516 being the lowest, indicating that the data points are spread out over a wide range of values. Thus histograms indicating distribution of ratings scales across centres were used for micro level analysis. This wider spread indicates the dispersion over the mark range of the population undergoing rating. The following histograms indicate the marks dispersion analysis across the provinces. The candidates who sat for the paper in the Western province centres Colombo 10 and Colombo 13 obtained the highest % of passes (86.15 and 85.37% respectively) while the highest % of failure were witnessed in Siyabalape (56.76%).

Western province

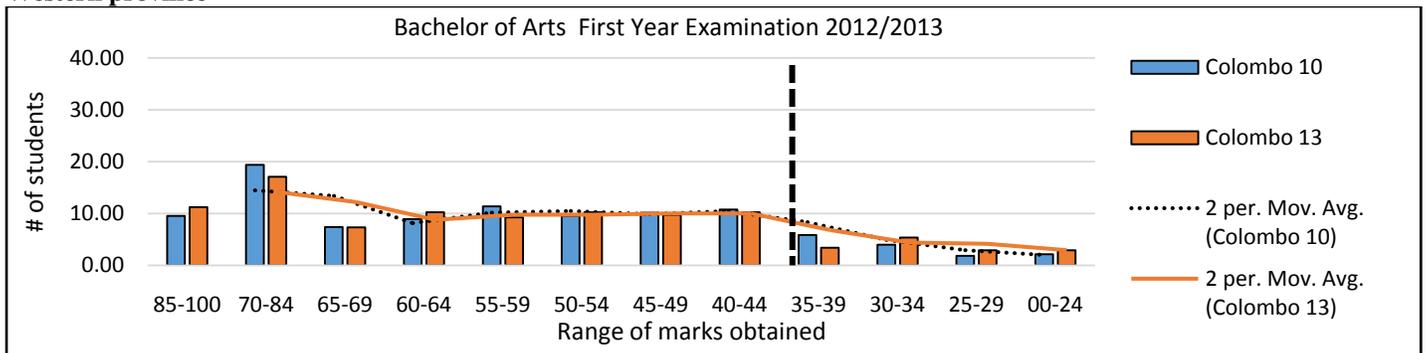


Figure 8: Contrastive analysis of marks obtained at Colombo 10 and 13 with trendlines indicating the moving average

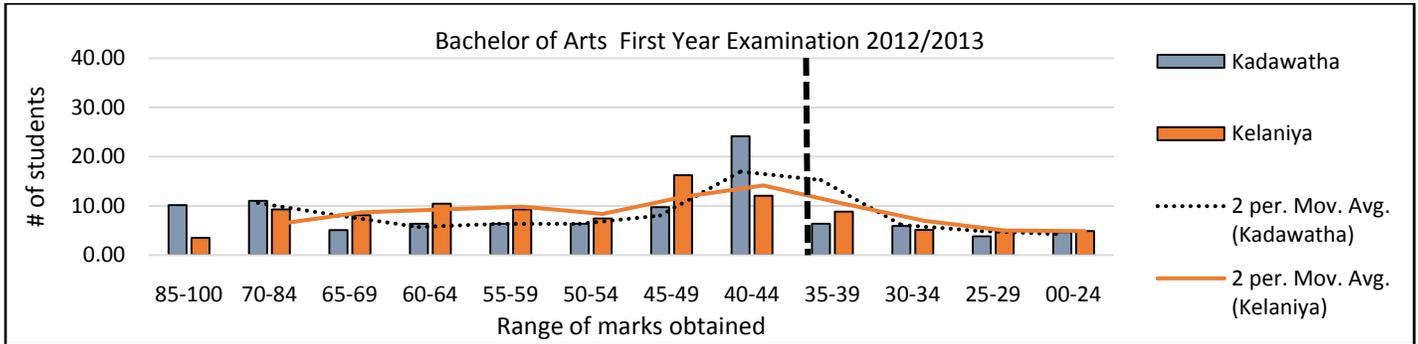


Figure 9: Contrastive analysis of marks obtained at Colombo 10 and 13 with trendlines indicating the moving average

Central province

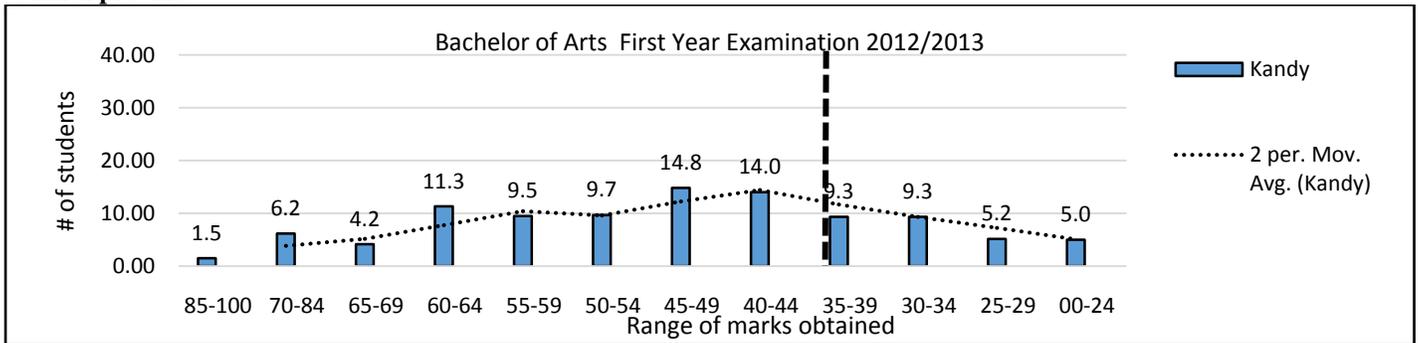


Figure 10: Marks obtained at Kandy with trendline indicating the moving average

Southern province

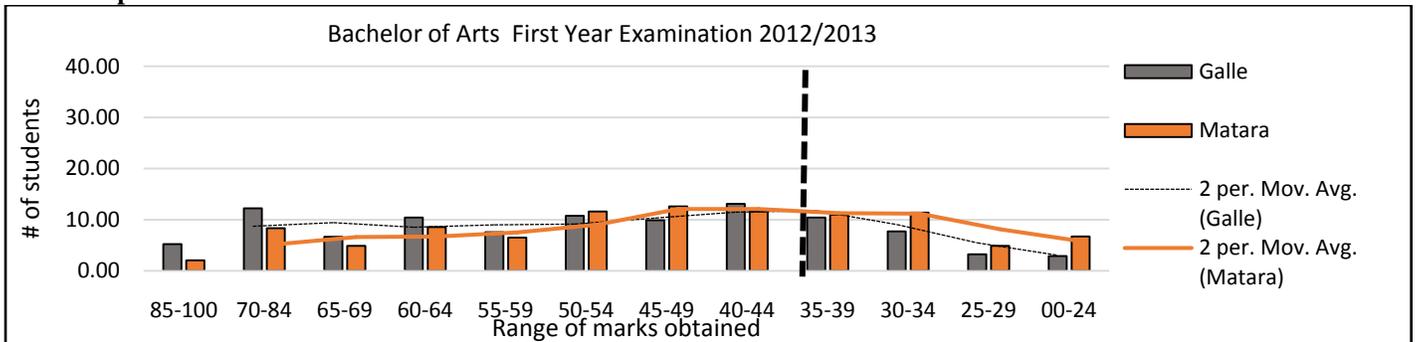


Figure 11: Contrastive analysis of marks obtained at Galle and Matara with trendlines indicating the moving average

North Central province Anuradhapura; North Western province: Kurunegala

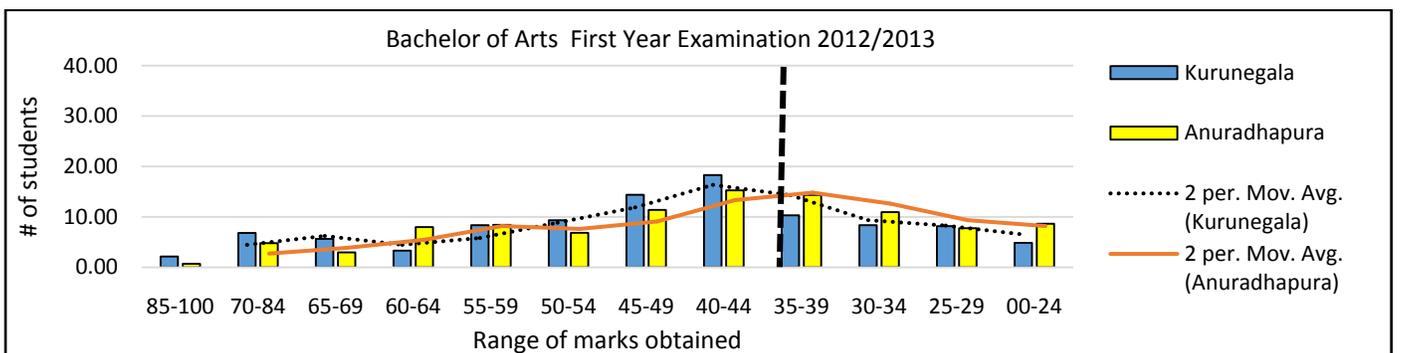


Figure 12: Contrastive analysis of marks obtained at Kurunegala and Anuradhapura with trendlines indicating the moving average

Sabaragamuwa

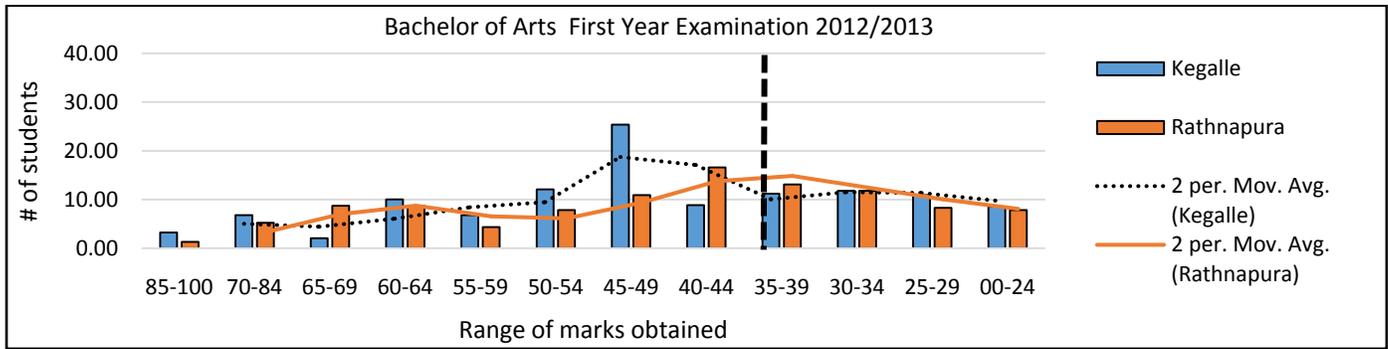


Figure 13: Contrastive analysis of marks obtained at Kegalle and Rathnapura with trendlines indicating the moving average

Eastern (Ampara) and Uva(Monaragala)

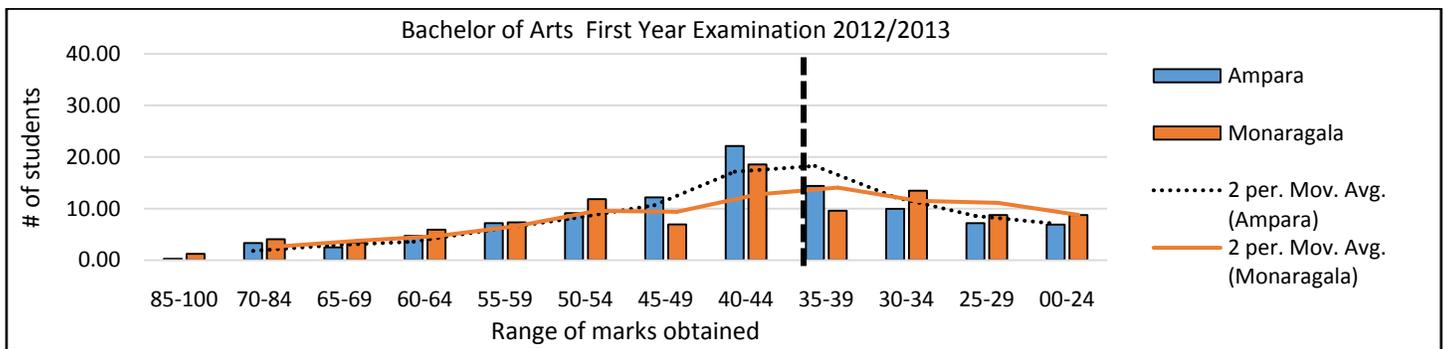


Figure 14: Contrastive analysis of marks obtained at Ampara and Monaragala with trendlines indicating the moving average

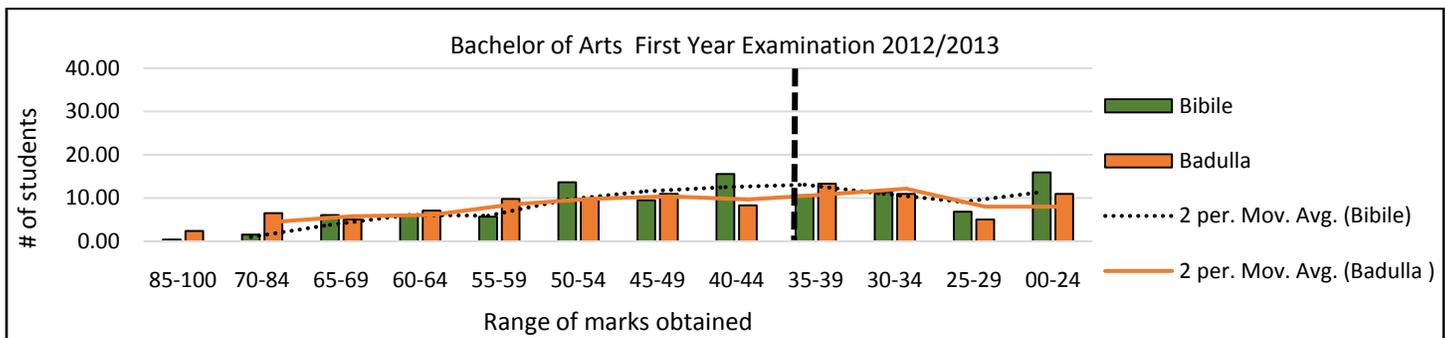


Figure 15: Contrastive analysis of marks obtained at Badulla and Bibile with trendlines indicating the moving average

Summary of % of failure

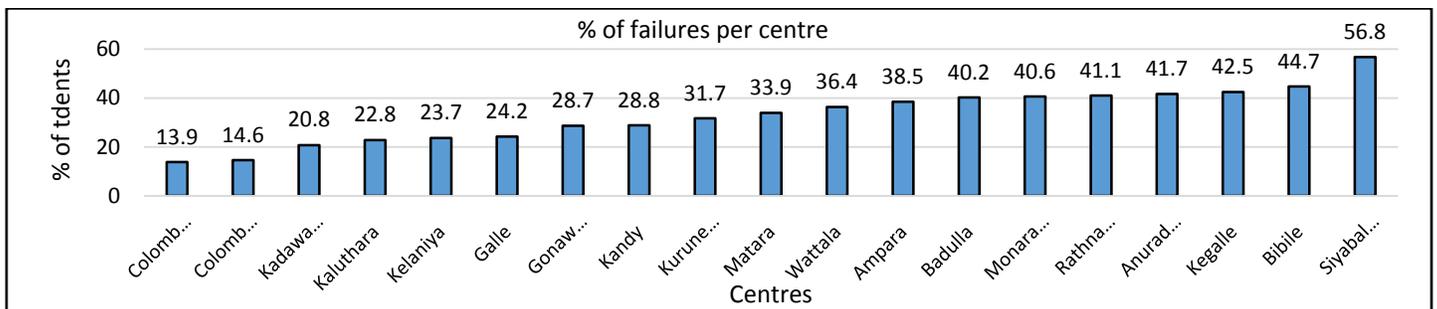


Figure 16: % of failures per centre

Based on the statistics above the study links the diversity of the economic conditions across provinces to the inability to access the internet and both as variables which affect the performance at the paper *English for Communication*.

Table 7: Correlation between Prosperity Index, Internet user population and % Mean of marks

Province	Prosperity Index by Province (%), 2011	District	Internet users 2015 (%)	% Mean of marks by Centre	
				Centres	% of passes
Western	76.1	Colombo	28.10	Colombo 10	86.15
				Colombo 13	85.37
		Gampaha	18.70	Kadawatha	79.24
				Gonawala	71.31
				Wattala	63.64
				Kelaniya	76.33
				Siyabalape	43.24
				Kalutara	14.90
Central	58.3	Kandy	11.70	Kandy	71.17
North Western	57.1	Kurunegala	9.30	Kurunegala	68.29
Southern	56.8	Galle	10.50	Galle	75.76
		Matara	8.30	Matara	66.06
Sabaragamuwa	56.0	Kegalle	7.00	Kegalle	57.52
		Ratnapura	5.90	Rathnapura	58.95
Uva	54.5	Badulla	3.50	Badulla	59.76
		Monaragala	4.90	Monaragala	59.39
				Bibile	55.30
North Central	50.6	Anuradhapura	7.40	Anuradhapura	58.31
Eastern	48.2	Ampara	6.50	Ampara	61.50

As evidenced by the above statistics there is a correlation between the Prosperity Index, Internet user population and % of passes. If the Prosperity Index is a gauge for possessing a computer % Internet users in 2015 provides proof for it. In most districts (Kurunegala, Matara, Kegalle, Ratnapura, Badulla, Monaragala, Anuradhapura, Ampara) less than 10% of the population use internet. In all of the above districts approximately 40% of the population has failed *English for Communication*. Though the CDCE cannot provide solutions for the poor digital denizenship in rural Sri Lanka it has to recognize that weak digital literacy should not be allowed to penalize the students who find accessing the e-book compiled for *English for Communication* and doing the coursework online difficult.

Suggestions for online architecture optimization: *English for Communication*

Arnold et al (2015) ^[21] state that statistical analysis of historical and current data derived from learners and the learning process will allow for predictions that improve the learning. This study rests on a vacuum of historical data and is dependent on current data which lacks the much required fluidity. Fluid data or the kind of data generated by a student as the way they interact with their university has become increasingly digital. Literature identifies this as a ‘digital footprint’. Though learner analytics in the current pedagogical universe sets down the norm: analyze the ‘digital footprint’, many inherent difficulties hinder the process in the current context. The process of making each student (n= 19,604) imprint a ‘digital footprint’ and accessing and analyzing such data is not feasible in the context of the learning environment of this study. But the rudimentary analytics conducted by this study has provided an insight to the needs of distance students who follow *English for Communication*.

The learner analytics above strongly draw attention to areas which need remedial measures. Keeping in mind the inherent threats and challenges faced by all stake holders, this study wishes to make the following suggestions.

- The CDCE has at present provides sufficient on-campus technology to make the digital learning environment fruitful for the learners who are following external degrees. Furthermore it is commended that the policy makers had the insight to introduce a parallel compulsory course: COMP E1014- *Computer Literacy* which aims at instructions which at the end of the course will provide the ‘learners with the basic Information and Communication Technology (ICT) knowledge and skills required to function in a typical working environment’. But it is a pity that assessment is not online and comprises of two written segments: a one hour MCQ examination and two hour essay question paper. It is only through an online assessment that the

hands on experience of each student can be gauged. It is cognized that given the magnitude of the student body (n= 19,604) online assessment was not feasible. Yet if such an assessment mode is introduced, better understanding of the correlation between Computer Literacy and performance at English for Communication can be obtained.

- The institution should recruit in-house expertise who will function within CDCE and cater exclusively to the needs of the students of the course. For example, I as the compiler of the course material for *English for Communication* is an academic who has to fulfil requirements for disseminating knowledge for a population of internal students while handling lesson material preparation etc. and administrative duties. With a hectic time table though I was provided digital space for interacting with the distance students and had the intention of doing so it did not reach the level where I could interact with a majority of students to provide them with timely, appropriate interventions. Most students who did interact did not even leave sufficient information for a 'digital footprint'. Thus by recruiting in-house expertise identified cohorts of weak students can be provided better feedback on their progress.
- One of the most progressive tools recommended by Ferguson (2012: 10)^[22] for online courses is 'nudge analytics' that support and 'prompt individuals to take action'. As the learner analytics of this study predicts that students in areas such as Kegalle, Rathnapura, KurunegalaBadulla, Bibile, Anuradhapura and Siyabalapela behind the others in the performance at the summative examination a nudge mechanism which encourage them to access further help and prompt these students to take timely action could be conducted with in-house expertise at the CDCE. Such in-house expertise should not be burdened with in-campus teaching commitments and should exclusively focus on dealing with student queries on-line on a daily basis, conducting tele- conferences and to take on virtual teacher responsibilities.
- To overcome these deficiencies to a certain extent the CDCE has implemented a discussion forum for *English for Communication*. Unlike face-to-face courses, according to Creasman (2012)^[23], an online discussion forum is an asynchronous activity, where students can interact with each other anytime, 24/7. In many online courses around the world discussion forums between student-student and student-facilitator are powerful sources of providing MKOs in virtual space. As these discussion forums are serendipitous rather than planned tracking and evaluating of the electronic discussion material is done by a facilitator in the course management system.
For most ESL courses weekly discussion assignments based on weekly material readings/ videos viewing/ activity completion is conducted. On the online discussion boards learners discuss the ideas found in the materials, share experiences and opinions, ask and answer each other's questions, and find new solutions to issues they experience. For example each week they are expected to add at least two posts of 4-5 sentences/questions to the discussion board. They are given deadlines: you have to make 2 posts; one by Thursday and the other by Monday. These posts are evaluated by a facilitator and marks are allotted.
In the context of *English for Communication* the discussion forum was not very targeted. What is suggested, keeping in mind the monolithic population, is the implementation of some form of progress assessment on the discussion board. It has to be acknowledged that the facilitator feedback was given sporadically as the number of queries were high.
- For online courses Solloway and Harris (1999)^[24] recommend a Course Orientation where the learners are familiarized with software and the course. Further they suggest the conduct of a needs analysis of hardware access and technical skills, and the provision of an on-line self-directed tutorial that enables students to use the site.
It is suggested that conducting a project during such a Course Orientation that aims to provide the CDCE and administrators with a more comprehensive view of undergraduates' preferences and practices related to new technologies and digital literacies will be beneficial. Winke and Goertler (2008)^[25] stress the need to survey language students' preferences for using technologies when technology based lessons and tasks are created. Kim et al. also found that technological affordances and limitations should also be considered when designing tasks.
Thus if such a project identifies that the requirement of students from areas where the failure rate is very high is for a hard copy of the e-book it should be provided. But it is to be remembered that the student population has to move away from traditional modes of education and the CDCE should take steps to increase the motivation in the students to take-up online learning.

Meeting these challenges will require decisions regarding reconceptualizing the current digital framework to incorporate more collaborative communication between an in-house course coordinator/s and students and between students. What has to be

immediately rectified is the dire requirement for in-house TESL expertise. Then only can the virtual space provided for *English for Communication* by the CDCE become the Zone of Proximal Development or the distance learner undergraduates.

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