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TEACHING READING IN ENGLISH THROUGH TRADITIONAL AND E-READING: TO PROMOTE CRITICAL THINKING



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Abstract

The main aim of the research paper is to know the perception of engineering students on traditional reading and electronic reading (e-reading) by conducting the survey method. And the survey results from online and offline reading are also graphically represented in. The survey was done online among the sample group. The research question is how e-reading has leverage over physical reading. Electronic reading or, more precisely, a computer-based form of the reading experience is the need of the hour for technical students. E-learning is possible through e-reading for digital-age learners/students. The research method is also descriptive. The paper also envisages that depending upon the type of e-text, the reader takes up reading. Reading relies on the size of the page, shape, and angle of the text. Therefore, reading is a multi-modal practice. The paper suggests practicing Activity theory which helps the teacher and the students to develop multi-modal reading besides applying the Construction and Integration model. The findings of the paper are students verbally expressed that physical or offline reading is more effective than online reading. But it is invariable that they have to learn how to communicate online. Either offline or online the students have to develop critical thinking skills through reading.

Keywords: e-reading, multimodal, print reading, reading, activity theory, critical thinking.

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Introduction

Subject experts have defined the act of 'Reading' in many dimensions. Christian Nutshell (2000) defines reading as involving varied ways of looking at the word. They are 'Decode, decipher, identify, articulate, understand and respond.' Christian definition is applicable to online and offline reading.

Readable handwriting and spelling are considered traditional forms of reading for students. But in this digital era, they are in need of acquisitions of new skills from new technologies. They are: how to operate a computer, what role a keyboard plays, how to select the content, and ways and means of processing and presentation of information. It completely reshapes the skill of "reading." Besides these new skills, a technical student is supposed to be trained in multi-literacy like visual literacy, and intellectual literacy. In other words, after completion of graduation when they attempt any national or international exam in English, the examinee should not feel any inadequacy in their spoken or written communication. The research problem is the student is unable to score the desired results after reading English for sixteen years in the Indian education system. Hence the present research topic of teaching reading is the need of the hour for the upcoming technical or non-technical graduates. It should be relegated to the back benches. Research Questions are: a) Do English teachers encourage online or offline reading in class? b) Do the students learn more online/offline? c) How does the print media help the students to develop reading comprehension in English? Research Objectives are:

to explore how the blended medium (print and e-book) of teaching reading English helps the students through the online survey; to assume the reading in print media may become achieved; and to

cultivate multi-modal e- book reading at present and in the future.

Literature Review

Jack C. Richards and Theodore S. Rodgers envisaged that 'Pawley and Syder estimate native speakers have hundreds of thousands of prepackaged phrases in their lexical inventory, the implications for second language learners are uncertain.'

Lisa Allcott, a blogger from New Zealand says, "I spend a lot of time in front of my laptop reading for research. But when I'm reading for pleasure, I usually grab a print book."

Regarding adapting to a fast-paced world, in 2018, journalist Sally Blundell interviewed neuroscientist Maryanne Wolf for *The New Zealand Listener*. As Blundell and Wolf note that: 'By and large, reading on a screen encourages multitasking, a different form of attention, a different speed of processing'.

Researcher Ziming Liu also says that:

"...screen-based reading behavior is characterized by more time spent on browsing and scanning, keyword spotting, one-time reading, non-linear reading, and reading more selectively, while less time is spent on in-depth reading, concentrated reading, and decreasing sustained attention."

Comparing print and digital reading, in Naomi Baron's 2017 article, [Reading in a digital age](#), her review of related research included a 2011 study by Ackerman and Goldsmith. This study noted that when students have a choice, they spent less time on digital reading, and had lower comprehension scores.

To summarize the above views, Second language learners have less vocabulary for expression. Taking the relevance of the above literary survey, the key concept is the students are very much adept at using print books rather than online reading. But during the digital era, e-learning has more significance than in the earlier period.

The Need for a Multi modal Approach to Develop Critical Thinking Skills

The multi modal Approach is an imperative feature for technology-mediated learning for all technical students. Technical colleges such as Malla Reddy Engineering, Secunderabad, Telangana State and universities such as Jawaharlal Nehru Technological University, Hyderabad have used a range of conventional technologies to support technical learning and e-reading. In adopting multi modal approach the students can establish the relationship between ‘*semiotic resources* (i.e., the resources of and for making meaning) and students’ making meaning. The approach of multi-modality plays a prominent role in visual and non-linguistics semiotic resources. Semiotic resources may be images, colors, animated movements, writing, sound effects speech, and so on.

Theories such as the heuristic framework of Activity Theory (Engestrom,1987; Daniels,2001) help the students to draw attention to the socially situated character of meaning-making. Establishing the relationship between activity theory and the sources of multi-modality modes paves the way to ‘look beyond’ language alone. Conceptual tools are required for students to analyze meaning-making. The required tools are provided by social semiotic and multi-modality modes. English teachers have to set the mode of approach to teaching language. Mode means an organized set of resources. And the set of resources has to be used taking from the social life of a particular community to teach language on screen.

Hence, it is pertinent here to draw the attention that e-reading is different from the traditional forms of reading. The difference between printed text and screen-based texts is often talked about as the kind of linear and non-linear connections.

The English teachers who are committed have to introduce “new concepts” or “new technology” into the classrooms. It affects the social and spatial configuration of the teacher and the student. New technology is introduced so that it changes the meaning of learning in the classroom scenario. In this context, electronic reading makes an individual learner engaged with what is represented on screen. Activity theory and multi-modality complement each other. Hence, the way the student's critical thinking process changes. This procedure goes ‘beyond’ an individual and language. For this paradigm shift, the teacher may have an *interest* to bring out the desired results from the students in the classroom.

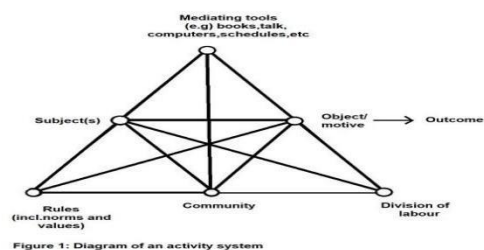


Figure 1: Diagram of an activity system

The process of activity system-based traditional or screen reading involves students, teachers, and the classroom. The system has tools. The ‘mediating tools’ are books, teacher’s talks, computers, and timetables. Tools include physical technical kind and mental conceptual tools modes (Vygotsky,1986). The technological tools are desktops, printers, keyboards, mouses, and pens. These tools transform how the students work with these tools, learning takes place and the process of critical reading is initiated. Students dealing with computers have a different lens of perception to deal with intellectual and practical problems. The activity system framework is a web of connecting to one another as part of learning. It also offers a transparent lens for teachers to explore unfamiliar areas with the students.

The researchers' aim is to develop both traditional and screen-reading for engineering students whether they read

short stories, literary texts, essays, handbooks, and so on. There is a purpose to reading any text such as reading for pleasure or reading for information. The ways of reading may differ like skimming, scanning, extensive and intensive reading. These different ways of reading are not mutually exclusive. For instance, the student often 'skims through a passage to see what it is about before deciding whether it is worth scanning a particular paragraph for the information he/she is looking for.' The Estimate, Read, Respond and Question (ERRQ) technique was developed by Dorothy Watson in 1985. The students estimate the text with rapid reading; read the text carefully; respond to the text and; question things about the text (Critically analyzing the text). The ERRQ technique is applicable to offline and online reading.

The researchers are interested to cultivate the reading skills such as recognizing the script/type of the text either in online or offline; deducing the meaning from the unfamiliar lexical item; understanding what is explicitly/implicitly stated; realizing the concept; how the topic sentence is presented; how the sub-themes are connected to the topic sentence; extracting the salient features of the text; basic reference skills and other skills.

The above skills are developed through several types of texts. The question -type can have two different functions.

Grader, the writer of *Literacy and Media Texts in Secondary English*, opines: 'What it means to be literate in the digital era of the twenty-first century is different than what was needed previously.'

The present scenario is in some of the engineering colleges the approach towards teaching reading of English is verbal: 'most learning happens through rote learning of facts and information and it is also not properly structured. In the olden days, a literate meant who could read and write, in other words, an educated person. The meaning of "literate" has changed

with the advancement of technology. The present technical student requires technical learning with the introduction of reading new technologies. This is a radical change in the 'reading' screen, which accommodates the new within the domain of the old.

The difference between reading printed texts and screen-based texts can be assessed in terms of efficiency, speed, and accuracy. The fundamental change in reading, using the new technology in the multi-modal environment, is beyond writing. In the present day, technical students find a way of making sense of images with the help of other modes. It leads them to understand that their reading is no less than reading a multi-modal designed written text.

Competencies Enabling Reading
Comprehension

Vellutino, F. R., Scanlon, D. M., & Tanzman, M. S. (1994) in their book *Components of Reading Ability: Issues and problems in operationalizing word identification, phonological coding, and orthographic coding* opine that 'the ability to obtain meaning from the written text for some purpose.' To understand the content or text the readers have to identify the words in a series, and comprehend the meaning of the word from the lexicon or from their prior knowledge calling out from their memory. The next phase is to "integrate individual word meanings into a coherent sentence-level comprehension.

Hence, reading comprehension competencies demand efficient coordination. The process involves decoding skills of the encoder expression and utilization of world knowledge with the Construction-Integration model (Kinstch, 1988, 1998, Perfetti, 1985, Snow, 2002, Vellutino, Scanlon, & Tanzman, 1994)

The reader's ability is exercised when the reader decodes accurately the meaning of

the words and automatically allows the reader to integrate the word meaning into the meaning of a sentence.

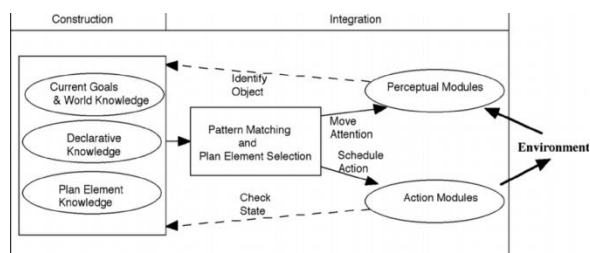


Figure2:Construction- Integration Model of Comprehension

The reader's ability is exercised by how the reader decodes accurately the meaning of the words and automatically allows the reader to integrate the word meaning into the meaning of a sentence.

Rachel M. Best et al in *Differential Competencies contributing to Children's comprehension of narrative and expository texts* quotes Kintsch's (1988, 1998) Construction - Integration (CI) model distinguishes three elements such as *surface code*, the *propositional text base*, and the *situational model*.

Hence, it is pertinent that the decoding skills and world knowledge through the Construction and Integration model is applied to the sample group.

Type of Research / Method

The method is 'An approach is axiomatic, a method is procedural' (Colin Harrison, 2004) Descriptive method includes surveys and fact-finding inquiries of different kinds. The major purpose of descriptive research description of the state of affairs as it exists at present. Descriptive studies are also called Ex Post facto research. The significant element in this research is the researchers do not have control over the variables; they can only report what is happening. So it is a survey method. But through the interpretation of the collected data, the researchers can assess the one-time scenario in the given situation.

The researchers followed the procedural method of researching the primary and secondary resources. Data was collected based on the survey method. The researchers analyzed the data after extensively reading the books and encouraged the students to nurture the technique of the SQ3R method. Edward Anthony, an American linguist conceptualizes the technique as 'A technique is an implementation that which actually takes place in a classroom.' (Jack C. Richards and Theodore. S.Rodgers, 2001)

Participants

The sample is taken for the research on Computer Science Engineering students. Though they can comprehend the passage in English, the Multi-national Companies (MNCs) are expecting them to have a critical reading of the concept while either reading through print copy or online content. Critical reading helps the students not only in learning the lesson but also helps in **everyday life activities which promote critical thinking**. Developing the competency of reading in English and the ability to read critically will have leverage over other students to survive in the competitive world. The text for the critical reading may be in the form of text messages, newspaper advertisements, laboratory reports, brochures, and many more.

The online survey takers are 126(boys:90; girls; 36) So boys are 71.3% and girls are 28.57%.

The offline survey takers are 84(boys:47; girls; 37) So boys are 55.95% and girls are 44.05%.

The students are from engineering backgrounds and they are studying I year engineering at Malla Reddy Engineering College (A). Their age ranges from 17+ to 18.

Survey through online links: on offline and online reading

Online Reading
link: <https://forms.gle/xmQQPqrUswxRVYbu6>

Offline Reading
link: <https://forms.gle/ZQ6xJHd5CiP6tIPcA>

Instruments /Materials

The instruments used in the survey links for offline and online are questionnaires, the Internet, observation, field notes, prescribed textbook, and other articles on the same content and documentation.

Procedures

The researchers felt the need of the hour is to improve the speed of reading among

Results

engineering students. For that, they wanted to conduct a survey to know how many are interested in offline reading and online reading. The researchers/authors created the survey links and for each type of reading they provided ten questions. The students' responses were documented. The researchers gave an interpretation to each response.

Sample Survey

The students from the engineering colleges where the researchers are working are taken as a survey group. The questionnaires were given to the students on online and offline reading by creating the links and asking them to choose yes or no responses.

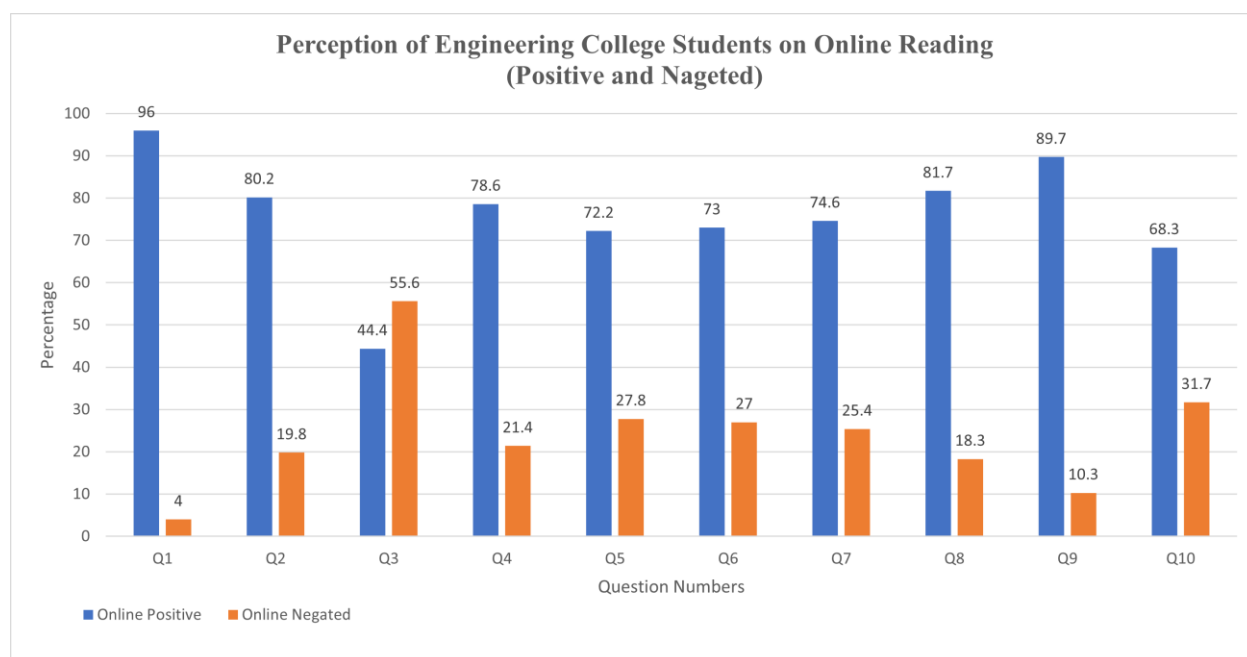


Figure 3: Perception of Engineering College Students on Online Reading

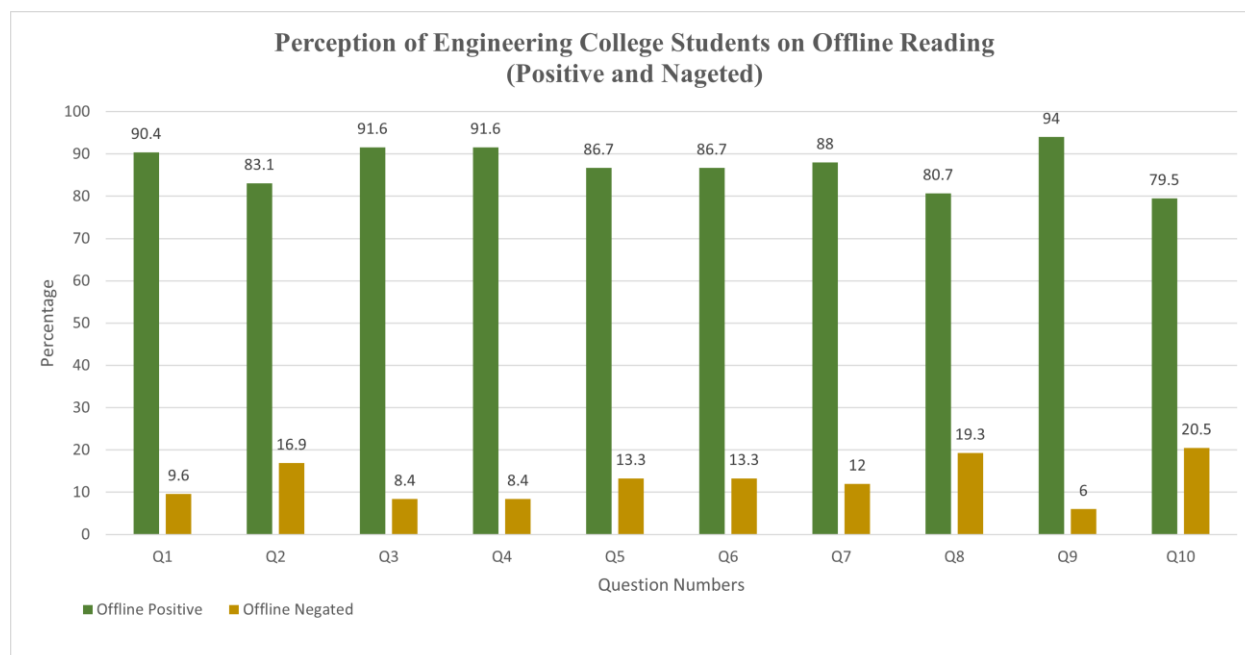


Figure 4: Perception of Engineering College Students on Offline Reading

The online survey takers are: 126(boys:90;girls:36);Whereas offline survey takers are: 84(boys-47;girls-37)

Observation:

The online survey takers are more than the offline survey takers.

Discussion: interpretation of the results

Online Survey Interpretation

Q1 Online gives quick links to other sites.

96% of readers agreed that online gives quick links to the readers. The readers may very often visit websites which is the reason they could affirm online reading connects to extensive reading through links, whereas 4% disagreed that they may be physical readers or text readers.

Q2 Quick links online diverge the readers' focus.

For this statement, 80.2% agreed, it may be because the respondents may have deviated their focus going into the different topics.19.8% disagreed as they may be focused online readers.

Q3 Information is not knowledge.

Fig.3: Information is different from knowledge.

For the above statement, 44.4% agreed. Hence it is obvious that online readers could perceive that information is different from knowledge. Information means that facts are provided or learned about someone or something. Acquisition of facts, information, and skills through education or training.55.5% did not agree. The 55.5% percent of online readers might not have differentiated the variation between information and knowledge.

Q4 Screen-based reading behavior is characterized by more time spent.

78.6% agreed and 21.4% disagreed. More readers may be opined that screen-based reading behavior is characterized by more time spent on browsing and scanning, keyword spotting, one-time reading, non-linear reading, and reading more selectively, while less time is spent on in-depth reading, and concentrated reading. 21.4% disagreed because the readers may have fast reading habits so that they could evade the areas like browsing and scanning, keyword spotting, one-time reading, non-linear reading, and reading more selectively.

Q5 Online reading decreases sustained reading.

Sustained means continued for an extended period or without interruption. 72.2% agreed and 27.8% disagreed. The online readers might have perceived that their reading period may be continued for a longer period. Whereas some of the online readers (27.8%) did not experience the longer period hours while they are reading online content.

Q6 Less time in digital reading has the lower comprehension

Fig. 6: Reason for lower comprehension

73% agreed and 27% disagreed. The online readers might have felt that more time has to be spent with the system to have a comprehensive view of the content. A few readers did not accept as they might have faster readers of the online content hence their levels of understanding are higher.

Q7 Online reading improves skimming skills.

74.6% agreed and 25.4% disagreed. Some online readers might have improved their skimming which is the sub-skill of reading. Skimming helps engineering students to locate the area they wish to read easily. 25.4% did not agree as they have not noticed that skimming is helping them to read the content superficially. Q8 E-reading helps the reluctant readers.

Q8 E-reading helps the reluctant readers

81.7% agreed and 18.3% disagreed. The survey shows that 2/3 of online readers agreed that reluctant readers don't like to read printed text. 18.3% disagreed which means that if the attitude of the student is reactance toward learning, either offline or online reading will not affect them

Q9 Carefully designed e-books support reading abilities.

89.7% agreed and 10.3% disagreed. It seems to be a suitable survey question. Designing the syllabus suitable to the

levels of the learners motivates the reading abilities. A very negligible percentage of people disagreed.

Q10 Online reading improves speed reading.

68.3% agreed and 31.7% disagreed. Speed reading is a skill and practice. Avoiding regression and practice is required. Especially engineering comes to the first-year platform through the method of mugging. They may not have a culture of extensive reading. Hence, it is clear that more online content can be given to the learners to increase their speed reading.

Approximately 77% of survey takers did not like online reading. As the survey takers were from I year B. Tech, they might not realize the pivotal role of online reading in their career in the future.

Offline Reading or Print Reading survey Interpretation

Q1 Millward Brown found the brain processes physical and digital materials differently.

Millward Brown did not speak about brain processing of Physical and digital material 90.4% Yes whereas 9.6% No. In other words, they could browse for this name thoroughly.

Q2 Print materials were more likely to activate the medial prefrontal cortex and cingulate cortex.

The survey was done among engineering students who don't have the deeper medical knowledge to know the terminology like prefrontal cortex and cingulate cortex. The positive responses were 83.1% and the negative responses were 16.9%. And it is the correct answer. It confirms that they browsed thoroughly.

Q3 The LED screens' constant flickering glow creates more work for our eyes, causing visual and mental fatigue.

91.6% agreed. And 8.4% disagreed. It means that most of the students felt visual

and mental fatigue. 8.4% might be using LED screens at a minimal level.

Q4 Print readers were more likely to accurately recall the story's chronological order.

91.6% agreed that they can recall the story's chronological order. It is a significant expression that denotes that chronological order or logical representation gives the proper organization to either spoken or written content. As 8.4% negated, it may be because they may have not tried how to remember or recall the prior knowledge in a narrative way.

Q5 Print provides sensorimotor cues that enhance cognitive processing.

86.7% agree it confirms that their sensory organs will be in the active state when the print reading does take place. 13.3% disagreed which means that they did not realize that they could answer the above question with the help of somatosensory hints only.

Q6 Kindle is for reading for pleasure.

86.7% agreed that Reading is for pleasure. It is a welcomed attitude among the students. This attitude among students has to be cultivated and nurtured, so that general or academic, or technical reading can be a roller coaster for them. 13.3% disagreed. It may be because they might have thought that reading is only for exams.

Q7 To retain online information, handwriting is likely a superior memory tool.

88% agreed, it confers that handwritten notes mean printed content only can be a tool or device to operate memory and 12%

disagreed. Unless the student makes a note of the related points while reading the online information, the content cannot be registered in the mind. Note-making is an important written source for future revision.

Q8 A study also revealed that the e-reader is costlier.

80.7% agreed. Yes indeed. To access online content the user has to have Wi-Fi or an internet connection. In a country like India, all villages are not bestowed with the internet. 19.3% disagreed. It justifies that the 'yes' students are rich enough to afford the internet or Wi-Fi. And also spending on a book is a one-time investment whereas for online connection it may be monthly, quarterly, or annually.

Q9 Footnotes are used in a printed book and that is useful for comprehension.

94% agreed and 6% disagreed. The researchers express the satisfaction that students are aware that footnotes help the readers they can seek footnote help if the content demands extra information.

Q10 A printed book can be easily shared with friends, acquaintances, and relatives.

79.5% agree it confirms that 2/3 are interested to share the books whereas 1/3, whereas i.e., that is 20.5% are negative.

79.5% agree it confirms that 2/3 is interested to share the books whereas 1/3, i.e., that is 20.5% are not keen to share the books. It all depends on the one-to-one rapport.

Activity Theory is proved in the research paper as the students bringing the interconnection of modes, understanding the meaning of the given questionnaire, and learning.

Overall Perception of the Online and Offline Interpretation

Approximately 87.54% survey takers agreed to have an offline reading.

OVERALL PERCEPTION OF THE ONLINE AND OFFLINE INTERPRETATION
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Q. No.	Online Positive	Online Negated	Q. No.	Offline Positive	Offline Negated		
1	96	4	1	90.4	9.6		
2	80.2	19.8	2	83.1	16.9		
3	44.4	55.6	3	91.6	8.4		
4	78.6	21.4	4	91.6	8.4		
5	72.2	27.8	5	86.7	13.3		
6	73	27	6	86.7	13.3		
7	74.6	25.4	7	88	12		
8	81.7	18.3	8	80.7	19.3		
9	89.7	10.3	9	94	6		
10	68.3	31.7	10	79.5	20.5		
Online Positive		Online Negative		Offline Positive		Offline Negative	
Variance:172.7661		Variance:575.5461		Variance:21.4681		Variance:21.4681	
SD:13.14405		SD:23.9905		SD:4.6333		SD:4.6333	

Out of ten questions given on the offline interpretation, the average is 87.1 And the percentage is 87.16.

A higher percentage of the students responded aptly and positively and it is regarding offline reading.

Out of ten questions given on the online interpretation, the average is 76.9 And the percentage is 76.9.

A higher percentage of the students responded aptly and positively and it is regarding online reading.

The negated responses of offline average are 12.77 ; the percentage is 12.77

The negated responses of the online average are 23and the percentage is 23.

Limitations

The survey respondents are from Malla Reddy Engineering College, Maisammaguda, Secunderabad. The

survey is not extended to other engineering colleges in Telangana State.

Conclusion

The engineering students are crowded in one classroom sharing out-of-date textbooks with their classmates and using non-working systems. They are being taught by less-paid teachers who struggle to address the varied needs of adolescents. The governments, academicians, and syllabus designers have to address the problem and utmost care have to be taken on the budding engineers as the future of India is on the shoulders of the young. The problem is that there is no connectivity between what the students are learning in classrooms and the skills they need to survive and flourish in their local economies. This problem has to be resolved. Because 'Academic performance

depends on the quality and quantity of reading.'(M, Ashraf Rizvi, 2013)

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