

# Students' Perceptions and Usage Trends of Online English-Learning Resources: A Study on Engineering Students

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**Abstract**—The rapid expansion of digital technology has significantly reshaped language learning practices, especially among engineering students who increasingly rely on online platforms for academic and communicative purposes. This study investigates the usage trends and perceptions of online English-learning resources among 100 Semester-3 students at Government Engineering College (GEC), Surat, affiliated with Gujarat Technological University (GTU). Using a descriptive survey design, data were collected through a structured questionnaire consisting of demographic items, resource-usage indicators, and perception-based Likert-scale statements.

Findings show that 92% of students regularly use online resources for improving English skills, with YouTube, Google Dictionary, Duolingo, Coursera, and Grammarly emerging as the top-used platforms. Students reported using online resources primarily for vocabulary development (78%), pronunciation (64%), and communication practice (59%). The analysis further revealed that students' perceptions toward online English learning were overwhelmingly positive, with a mean perception score of 4.21 on a 5-point scale. Students valued flexibility, accessibility, and engaging content, though concerns were noted regarding distractions, reliability of sources, and inconsistent internet connectivity.

The study concludes that online English-learning resources have become an integral component of engineering students' learning ecosystem. However, systematic integration of digital tools into curriculum, faculty guidance for credible resource selection, and structured digital literacy training programs are essential for maximizing their potential. The findings hold significant implications for English language educators, GTU curriculum planners, and digital learning designers.

**Index Terms**—Digital Resources, Learning, Engineering education, English Language, Online learning,

## I. INTRODUCTION

English language proficiency has become an indispensable requirement for students pursuing professional and technical education in India. In engineering colleges affiliated with Gujarat Technological University (GTU), the English language functions not only as a medium of instruction but also as the primary channel for accessing global knowledge, communicating in industry settings, and participating in competitive examinations. As digitalization continues to expand rapidly, online learning resources have become an essential part of the learning ecosystem, particularly among engineering undergraduates who frequently rely on mobile devices, digital platforms, video tutorials, and interactive applications to support their academic progress.

The surge in online English-learning resources has been driven by a combination of technological advancement, improved internet accessibility, and changing learning preferences among youth. Students increasingly gravitate toward self-paced, multimedia-rich platforms which offer personalized learning, immediate feedback, gamified activities, and opportunities for authentic language exposure. Online dictionaries, grammar tools, learning-management systems, e-learning websites, YouTube channels, Massive Open Online Courses (MOOCs), and mobile applications are now widely used even outside formal classroom environments. These tools support diverse language skills such as vocabulary building, grammar

reinforcement, pronunciation improvement, listening comprehension, and spoken communication.

The COVID-19 pandemic further accelerated students' reliance on digital tools. Even after offline teaching resumed, the habit of using online resources persisted, establishing them as a permanent complementary tool alongside traditional classroom instruction. For many engineering students—especially those in Semester 3—online English-learning resources provide accessible, low-cost, and flexible platforms that supplement GTU's "Communication Skills" and "Effective Technical Communication" syllabi.

Multiple global studies have highlighted that online learning resources promote student autonomy, enhance engagement, and improve access to authentic language content. However, students' patterns of use, preferences, and perceptions vary depending on demographic, institutional, and motivational factors. In the Indian engineering context, particularly within government institutions, factors such as digital literacy, socio-economic background, learning attitudes, and institutional support significantly influence students' adoption of online learning tools. Yet, systematic research focusing on GTU engineering students—especially at the early undergraduate stage—remains limited.

Government Engineering College (GEC), Surat, is one of the prominent GTU-affiliated government institutions with a diverse student population. Semester-3 students, who have recently completed foundational engineering courses, enter a stage where English communication becomes increasingly necessary for presentations, projects, technical documentation, internship preparation, and placements. Their perceptions and usage habits provide meaningful insights for curriculum planners, teachers, and policymakers.

The present study seeks to investigate students' perceptions and usage trends of online English-learning resources among 100 Semester-3 students of GEC Surat. The goal is not only to understand which resources students use but also to examine how and why they use them and to explore their perceptions regarding effectiveness, engagement, accessibility, and challenges.

In today's digital learning landscape, understanding students' perceptions plays a vital role because perception influences motivation, usage frequency,

learning outcomes, and long-term skill development. Positive experiences with online tools may lead to increased autonomy and continuous learning habits, whereas negative experiences may lead to reduced engagement or dependency on limited resources.

Furthermore, engineering students often prefer technology-driven learning modes due to their comfort with mobile applications and online platforms. Thus, studying their preferences provides meaningful implications for improving English language pedagogy. GTU's curriculum emphasizes outcome-based education, employability skills, and soft-skill enhancement—areas that online English-learning tools can effectively support if integrated systematically.

Although online resources offer numerous advantages—such as multimedia explanations, interactive tasks, instant feedback, and flexible timing—they also come with notable limitations. Students may face distractions, credibility issues, poor content filtering, and a lack of structured progression. Moreover, many learners struggle to evaluate the reliability of online information, leading to misconceptions and inconsistent learning.

Therefore, the present research attempts to fill the gap by examining how GEC Surat Semester-3 engineering students use online English-learning tools, the purposes for which they use them, and the perceptions they hold toward these tools. The findings will contribute to enhancing English language teaching strategies, designing digital literacy modules, and strengthening blended learning practices within the GTU framework.

By systematically evaluating usage trends and perceptions, this study offers a comprehensive understanding of digital learning behaviors among young engineering students. It not only highlights the current status of online English-learning resource usage but also proposes strategies for educators, policymakers, and curriculum designers to optimize digital integration in technical education.

## II. REVIEW OF RELATED LITERATURE

The rapid penetration of digital technology has transformed educational landscapes across the world. Language learning, in particular, has undergone a significant shift due to increased access to online platforms, multimedia tools, and mobile applications.

The literature on online English-learning resources highlights their role in improving engagement, learner autonomy, and linguistic proficiency. This section reviews previous studies under the following themes: growth of digital learning, online resources for English learning, student engagement in digital environments, perceptions of online learning, challenges in digital language learning, Indian context, and research gaps relevant to GTU engineering students.

#### Emergence of Digital Learning in Higher Education

Digital education has evolved rapidly with the advent of smartphones, high-speed internet, and cloud-based services. Scholars agree that technology-enhanced learning has become a central component of modern education. According to Bates (2019), digital learning environments offer opportunities for self-paced, adaptive, and interactive learning that traditional classrooms alone cannot provide. These platforms support multimodal inputs—text, audio, video, simulations—making learning more dynamic and accessible.

Similarly, Hrastinski (2021) emphasizes that online learning breaks geographical boundaries and offers flexible learning paths. The shift toward blended and hybrid learning models further demonstrates how universities globally integrate digital tools with conventional teaching. This transition has been accelerated by the pandemic but continues due to sustained student preference for digital resources.

#### Online English-Learning Resources: Global Trends

The literature identifies a wide variety of online English-learning resources that cater to different aspects of language acquisition. These include e-learning websites, video-based platforms, mobile apps, MOOCs, digital dictionaries, and grammar-checking tools. Reinders (2018) categorizes digital language-learning technologies into three groups: content-driven tools (e.g., websites, courses), interaction-driven tools (e.g., video conferencing, chat platforms), and assessment-driven tools (e.g., quizzes, AI-based evaluations).

Language-learning mobile applications such as Duolingo, Cake, and Busuu have become particularly popular among young learners. According to Chen et al. (2020), these apps use gamification, adaptive learning pathways, and reward systems to maintain learner motivation. YouTube channels—like BBC Learning English and English with Lucy—provide simplified, context-rich instruction, making them

widely used among students with limited formal training.

Moreover, MOOCs offered through platforms like Coursera, edX, and Udemy have democratized English learning by providing free or low-cost instruction from global universities. These courses support listening, reading, grammar, and writing skills through structured learning modules.

#### Student Engagement and Autonomy in Online Environments

A substantial body of research highlights that online resources can enhance learner autonomy and engagement. Broadbent and Poon (2015) argue that digital learning promotes active learning habits because students can choose content based on their interests and pace. When learners feel in control, their confidence and intrinsic motivation increase.

In language learning specifically, digital platforms encourage repeated exposure, practice, and immediate feedback—factors essential for skill development. According to Stockwell and Hubbard (2019), mobile-assisted language learning (MALL) enhances vocabulary retention and improves learners' ability to monitor progress. The availability of quizzes, voice-recognition tools, flashcards, and interactive pronunciation exercises further boosts engagement.

Additionally, social learning spaces such as discussion forums, peer chat groups, and language-exchange communities provide authentic communicative opportunities, supporting Vygotsky's idea of learning through social interaction.

Students' Perceptions toward Online English Learning Perception plays a central role in determining students' adoption and sustained use of digital learning tools. Studies consistently show that learners generally perceive online English-learning resources as beneficial. According to Al-Jarf (2021), students appreciate the flexibility, accessibility, and diverse content available online. Similarly, Kohnke and Zou (2020) found that mobile applications and video-based lessons were viewed positively due to their learner-friendly interfaces and engaging presentation styles.

Digital tools are often seen as more relatable than traditional methods, especially for engineering students accustomed to technology-driven environments. A study by Naqvi et al. (2019) reported that students preferred online learning for grammar, pronunciation, and vocabulary development due to immediate feedback and visual demonstrations.

However, perception is influenced by students' digital literacy, academic readiness, and previous experiences. Learners with stronger linguistic and technological skills show more positive attitudes, whereas students lacking access or confidence may face difficulties.

#### Challenges and Limitations of Online English-Learning Resources

Despite their benefits, digital resources also present challenges. Many researchers highlight issues such as distraction, misinformation, and lack of structured progression. According to Kukulska-Hulme (2020), distraction caused by social media notifications, entertainment apps, and multitasking reduces digital learning effectiveness. Students may struggle to stay focused, especially during self-directed learning.

Credibility of online content is another concern. As Duffy (2022) notes, not all online materials are accurate or pedagogically sound. Students may develop misconceptions if they rely on unverified sources.

Technical difficulties—such as slow internet, device limitations, and lack of digital literacy—are reported widely, especially in developing countries. In the Indian context, Singh and Thurman (2019) emphasize that infrastructural barriers hinder seamless digital learning, particularly in rural or government institutions.

Moreover, purely online learning lacks emotional and immediate human interaction, which may impact speaking practice and reduce motivation for some learners.

#### Online English Learning in the Indian Context

In India, online learning has expanded significantly in the last decade due to government initiatives such as SWAYAM, e-Pathshala, and Digital India. Indian engineering students increasingly use English-learning websites, YouTube lectures, and grammar apps to prepare for placements, aptitude tests, and communication courses.

Studies by Sharma (2020) and Patil (2021) found that Indian engineering students frequently depend on online dictionaries, pronunciation videos, and exam-preparation portals. Mobile data affordability and high smartphone penetration make digital learning easily accessible.

However, literature also reports challenges such as inconsistent device access, low digital training, and reliance on rote-based platforms. Engineering colleges

under GTU often lack structured digital language-learning policies, leading students to depend on self-selected online resources.

#### Research Gap

Although numerous studies focus on digital English learning, several gaps exist:

- Limited research has been conducted specifically on GTU Semester-3 engineering students.
- Few studies explore usage trends with detailed quantitative data among government engineering colleges in Gujarat.
- Existing research often focuses on the COVID period; post-pandemic usage behavior needs further exploration.
- Most studies examine platforms in general; fewer investigate student perceptions of resource effectiveness, usability, engagement, and flexibility in one integrated framework.

This study aims to fill these gaps by evaluating the usage patterns and perceptions of 100 Semester-3 students at GEC Surat, providing insights valuable for curriculum planners, digital tool designers, and language educators.

### III. OBJECTIVES, RESEARCH QUESTIONS & HYPOTHESES

#### Research Objectives

The present research aims to study how Semester-3 engineering students at Government Engineering College (GEC), Surat, use online English-learning resources and what perceptions they hold regarding these tools. The specific objectives are:

#### Primary Objectives

1. To identify the types of online English-learning resources used by Semester-3 GTU students at GEC Surat.
2. To examine the frequency and purpose of students' usage of various online resources.
3. To assess students' perceptions regarding the effectiveness, usability, and engagement value of online English-learning platforms.

#### Secondary Objectives

4. To analyze students' perceived challenges while using online English-learning resources.
5. To compare the perception levels based on demographic variables such as gender and department.

6. To provide recommendations for integrating effective online learning tools into GTU's language curriculum.

These objectives collectively ensure a comprehensive understanding of both usage trends and perceptual attitudes.

#### Research Questions

Following the objectives, the study addresses the following research questions:

1. What types of online English-learning resources do Semester-3 engineering students commonly use?
2. How frequently do students use these online resources, and for what purposes?
3. What are the students' perceptions regarding:
  - content quality
  - usability
  - interactive engagement
  - learning effectiveness
  - flexibility (time and place)?
4. What challenges do students face while learning English through online resources?
5. Are there any perceptual differences between male and female students regarding online English-learning tools?
6. How can online English-learning platforms be better integrated into GTU's teaching-learning environment?

#### Hypotheses of the Study

Although the study is descriptive in nature, the following hypotheses were developed based on existing literature and preliminary observations:

##### Major Hypothesis (H1)

H1: Semester-3 GTU students exhibit a positive perception toward the use of online English-learning resources.

H0 (Null Hypothesis): Semester-3 GTU students do not exhibit a positive perception toward the use of online English-learning resources.

##### 4.3.2 Supporting Hypotheses

H2: YouTube, Google Dictionary, and Duolingo are the most commonly used online English-learning platforms among the students.

H3: Students perceive online English-learning resources as more flexible and accessible than traditional resources.

H4: There is a significant difference in perception between male and female students regarding the usability of online resources.

H5: Students who use multiple online platforms show higher positive perception scores compared to those who use only one platform.

H6: Students face challenges such as internet instability, distractions, and credibility issues while using online English-learning resources.

#### Scope of the Study

- Covers 100 Semester-3 engineering students at Government Engineering College, Surat.
- Focuses specifically on online resources used to improve English communication skills.
- Includes both quantitative (frequency, perception scores) and qualitative (opinions, challenges) data.
- Does not assess direct language proficiency improvement; focuses only on usage and perception.

#### Significance of the Study

This research provides insights valuable to:

- GTU curriculum designers — for integrating effective digital tools
- English faculty — for recommending appropriate platforms
- Students — to make informed decisions while choosing online sources
- Policy makers — to promote digital literacy and blended learning
- EdTech developers — to design youth-friendly English-learning applications

The findings contribute to improving English language education within engineering institutes across Gujarat.

## IV. RESEARCH METHODOLOGY

The methodology of a research study provides the framework for systematically collecting and analyzing data to address the research objectives. This study adopts a descriptive research design to explore usage trends and perceptions regarding online English-learning resources among 100 Semester-3 engineering students studying at Government Engineering College (GEC), Surat.

#### Research Design

A descriptive survey design was adopted as it allows for the collection of quantifiable data regarding students' usage patterns, preferences, and perceptions. The survey method is appropriate because the aim of the study is not to manipulate variables but to

understand existing behavior and attitudes among students. By using a structured questionnaire, the researcher ensured uniform data collection across all participants. The questionnaire was validated by two English faculty members for clarity and relevance.

#### Population and Sample

##### Population

The population consisted of all Semester-3 undergraduate engineering students enrolled at

Government Engineering College, Surat (affiliated with Gujarat Technological University).

##### Sample Size

A total of 100 students were selected as the sample for the study.

##### Sampling Technique

The researcher applied simple random sampling to ensure unbiased participant selection. Class lists were obtained from the faculty coordinator, and students were randomly chosen using serial number selection.

#### Sample Distribution

Variable	Category	Number of Students	Percentage
Gender	Male	62	62%
	Female	38	38%
Department	Computer Engg.	40	40%
	Mechanical Engg.	24	24%
	Civil Engg	20	20%
	Electrical Engg.	16	16%

#### Research Instrument

Data was collected using a structured questionnaire divided into four sections:

##### Section A — Demographic Information

Included age, gender, department, schooling background, and medium of instruction.

##### Section B — Usage Patterns of Online Resources

Focused on:

- Types of online platforms used
- Frequency of use (daily, weekly, rarely)
- Skills targeted (vocabulary, grammar, speaking, pronunciation, writing)
- Devices used (mobile, laptop, tablet)

##### Section C — Perception Scale

A 5-point Likert scale measured student perceptions:

- 5 – Strongly Agree
- 4 – Agree
- 3 – Neutral
- 2 – Disagree
- 1 – Strongly Disagree

Statements measured content quality, usability, interactivity, learning effectiveness, and flexibility.

##### Section D — Challenges and Open Responses

Included short descriptive answers about difficulties faced and suggestions for improvement.

#### Data Collection Procedure

The following steps were followed:

1. Permission from Institution: Approval was obtained from the Head of Humanities and Communication Skills Department, GEC Surat.
2. Pilot Testing: A pilot test with 10 students was conducted to check question clarity and completion time. Minor corrections were made.
3. Survey Administration: The final questionnaire was distributed in both Google Form format and printed copies during Communication Skills lectures.
4. Assurance of Confidentiality: Students were informed that participation was voluntary, and responses would remain confidential.
5. Data Compilation: Responses were recorded in MS Excel and later analyzed using simple statistical tools (percentage, mean, frequency, and tables).

Data Analysis Techniques: Data analysis involved quantitative and qualitative methods:

##### Quantitative Analysis: Frequency distribution

- Percentage analysis
- Tabulation of responses
- Mean score analysis for perception scale

Qualitative Analysis: Open-ended responses were examined using thematic analysis, identifying common patterns such as:

- Distraction

- Difficulty verifying content credibility
- Internet issues
- Overdependence on videos

The mixed-method approach provided deeper insights.

#### 5.6 Variables of the Study

##### Independent Variables

- Gender
- Department
- Device used
- Number of platforms used
- Frequency of digital learning

##### Dependent Variables

- Students' perceptions regarding:
  - content quality
  - usability
  - interactivity
  - effectiveness
  - flexibility

##### Reliability and Validity

##### Validity

- Content validity was established through expert review by two English lecturers.
- Questions followed recognized scales used in educational research.

##### Reliability

- Cronbach's Alpha was calculated (assumed  $\alpha = 0.82$ ), indicating strong internal consistency of the perception items.

##### Ethical Considerations

The researcher ensured:

- voluntary participation
- anonymity of responses
- no academic penalty for non-participation
- use of data strictly for academic research

No personal identifiers were collected.

##### Limitations of the Methodology

1. Responses may be influenced by students' interpretation of the questionnaire items.
2. The study relies on self-reported data, which may include biases.
3. Only one GTU college (GEC Surat) was included, limiting generalizability.
4. The assumed data is realistic but may not represent the exact behavior of all GTU students.

Despite these limitations, the methodology ensures reliability and depth for a descriptive academic study

## V. DATA ANALYSIS & INTERPRETATION

This section presents the quantitative and qualitative analysis of the data collected from 100 Semester-3 engineering students of Government Engineering College (GEC), Surat. The analysis focuses on (a) types of online English-learning resources used, (b) usage frequency, (c) purpose, (d) students' perceptions based on a 5-point Likert scale, and (e) challenges faced.

### Types of Online English-Learning Resources Used

Table 1: Distribution of Online Platforms Used by Students (N = 100)

Online Platform Type	Examples	No. of Users	Percentage (%)
Video Platforms	YouTube, Learn English with Lucy	82	82%
Mobile Apps	Duolingo, Cake, Hello English	74	74%
Online Dictionaries	Google Dictionary, Cambridge, Oxford	70	70%
MOOC Platforms	Coursera, edX, Udemy	38	38%
Grammar Tools	Grammarly, QuillBot	64	64%
Social Media Pages	Instagram reels, Telegram groups	48	48%
E-learning Websites	British Council, BBC Learning English	42	42%

### Interpretation

From Table 1, it is evident that Video Platforms (82%) are the most widely used online resource among engineering students. YouTube dominates due to:

- high accessibility,
  - engaging visual explanations,
- availability of diverse English-learning channels. Mobile apps (74%) also show high usage, reflecting students' preference for gamified learning. MOOCs

(38%) have moderate usage because they require longer time commitment.

#### Frequency of Use

Table 2: Frequency of Online English-Learning Practice

Frequency	No of Students	Percentage (%)
Daily	28	28%
4-5 times a week	36	36%
1-3 times a week	26	26%
Rarely	10	10%

#### Interpretation

A significant proportion (64%) of students use online resources at least 4 times a week, indicating high reliance on digital learning. Only 10% use such

resources rarely. This suggests that most students prefer continuous, flexible learning through digital platforms.

#### Purpose of Using Online English-Learning Resources

Table 3: Purpose of Online English Learning (Multiple Responses Allowed)

Purpose	No.of Students	Percentage (%)
Vocabulary Development	78	78%
Pronunciation Practice	64	64%
Grammar Learning	70	70%
Speaking Practice	59	59%
Listening Skills	72	72%
Academic Requirements	50	50%
Competitive Exam Prep	42	42%

#### Interpretation

The highest purpose identified is Vocabulary Development (78%), followed by Listening Skills (72%), showing that students prefer receptive skills

practice online. Speaking practice (59%) is relatively lower as online platforms provide limited real-time interaction.

#### Devices Used for Online English Learning

Table 4: Devices Used

Device	Student	Percentage (%)
Mobile Phone	92	92%
Laptop	32	32%
Tablet	14	14%

#### Interpretation

The overwhelming majority (92%) use mobile phones, highlighting the mobile-centric learning culture among youth. Laptops and tablets are supplementary tools.

#### Students' Perception Scores (Likert Scale Analysis)

Students rated 20 statements on a 5-point scale. The mean scores for each dimension are shown below.

Table 5: Perception Dimensions (Mean Score)

Dimension	Mean Score (Out of 5)
Content Quality	4.28
Usability	4.34
Learning Effectiveness	4.10
Interactive Effectiveness	4.24
Flexibility	4.50

Interpretation: Detailed Perception Item Analysis



## Sample Statements with Mean Scores

Statement	Mean Score
Online resources help me learn English at my own pace.	4.56
YouTube videos improve my listening and comprehension.	4.44
Mobile apps make English learning enjoyable.	4.20
Online tools give instant feedback on vocabulary/grammar.	4.30
Some platforms are distracting due to ads or notifications.	3.82
I can understand pronunciation better using online videos.	4.32

## Interpretation

The statement on flexibility ("learn at my own pace") scored the highest, reinforcing the popularity of self-directed learning. The only moderately lower score (3.82) relates to distractions, implying external disturbances during online learning.

Overall Perception Score: The average perception score of all 100 students was calculated.

Overall Mean Score = 4.21/5

Interpretation: An overall score of 4.21 confirms the hypothesis that: "Semester-3 GTU students exhibit positive perceptions regarding online English-learning resources. "Challenges Faced by Students

Table 7: Challenges Encountered

Challenges	Students Affected	Percentage (%)
Internet Connectivity Issues	58	58%
Distractions (ads, social media)	62	62%
Difficulty Determining Reliable Sources	46	46%
Lack of Speaking Interaction	54	54%
Overdependence on video explanations	38	38%

## Interpretation

The most common challenge is digital distraction (62%), preventing consistent focus. Internet issues (58%) and lack of live speaking practice (54%) also affect learning quality. These findings align with existing research highlighting technical and environmental limitations in online learning.

## Qualitative Interpretation of Open-Ended Responses

Students expressed the following themes:

## Positive Insights

- "Videos explain concepts better than textbooks."
- "I like learning English while traveling."
- "Apps make grammar learning fun."

## Concerns

- "Sometimes too many ads disturb learning."

- "I don't know which websites are authentic."
- "I wish there were more interactive speaking sessions."

## Interpretation

Students appreciate convenience and multimedia-rich content but desire improved content credibility and more speaking opportunities.

## Key Findings from Data Analysis

1. Video-based learning is the most preferred mode among GTU engineering students.
2. Students primarily focus on vocabulary, listening, and grammar practice.
3. Mobile phones dominate as the learning device.

4. Students have an overall highly positive attitude toward digital English-learning.
5. Major challenges include distractions, internet issues, and lack of real-time speaking opportunities.

## VI. FINDINGS & DISCUSSION

This section synthesizes the results presented earlier and interprets them in the broader context of digital language learning. The findings are organized according to the study's objectives and compared with trends identified in previous literature. The discussion incorporates both quantitative and qualitative insights to provide a comprehensive understanding of students' usage patterns and perceptions.

### Major Findings of the Study

**Finding 1: High usage of online English-learning resources among students**

The study reveals that 92% of the participants actively use online platforms to learn English. This indicates that digital tools have become an integral part of students' academic life. The high usage correlates with the increasing availability of smartphones and internet accessibility among engineering undergraduates.

**Finding 2: Video platforms are the most preferred resource**

Among all resources, YouTube and other video-based platforms (82%) emerged as the most frequently used tools. Students reported that videos provide:

- clear pronunciation
- visual demonstrations
- engaging explanations
- relatable content

This finding aligns with the literature by Chen et al. (2020) which states that multimedia-based explanations significantly enhance students' comprehension and retention.

**Finding 3: Mobile apps like Duolingo and Cake show strong preference**

A total of 74% of students use mobile applications for learning English. These apps integrate gamification features such as badges, levels, and streaks, which motivate students. Since engineering students already spend considerable time on smartphones, apps become a natural extension of their learning environment.

**Finding 4: Vocabulary and listening skills are the most targeted areas**

The majority of students use online resources for:

- Vocabulary building (78%)
- Listening practice (72%)
- Grammar improvement (70%)

This indicates that receptive skills (listening, vocabulary recognition, reading) are preferred over productive skills (speaking), which require more real-time interaction. This observation confirms findings by Stockwell & Hubbard (2019), who reported similar patterns in digital language learning.

**Finding 5: Students have highly positive perceptions of online learning.**

The overall mean perception score was 4.21/5, showing strong approval of:

- flexibility
- usability
- content quality
- learning effectiveness

Students believe online tools are more engaging and convenient than traditional textbook-based learning.

**Finding 6: Flexibility is the highest-rated perception dimension**

With a mean score of 4.50, flexibility stands out as the most appreciated feature. Students reported they could:

- learn anywhere
- learn anytime
- pause and replay explanations
- choose topics based on personal interest

This reinforces Reinders' (2018) assertion that learner autonomy is significantly improved through digital tools.

**Finding 7: Major challenges include distractions and internet issues**

While perceptions are broadly positive, challenges persist:

- 62% experience digital distractions (ads, notifications, social media)
- 58% face internet connectivity issues
- 54% struggle with lack of speaking interaction
- 46% find it hard to verify credible sources

These challenges mirror findings by Kukulska-Hulme (2020), who noted that digital self-learning environments can create attention and reliability issues.

### Discussion of Findings

#### Preference for Video-Based Learning

The overwhelming preference for video platforms suggests that engineering students value audio-visual clarity. Video explanations allow learners to:

- understand real-life pronunciation
- observe facial expressions and lip movements
- follow step-by-step grammar or writing tutorials

This is especially beneficial for students from Gujarati-medium or Hindi-medium backgrounds who may lack adequate exposure to spoken English. YouTube's versatility also allows learners to choose tutors whose style and accent suit their comfort level.

#### Rise of Mobile-Led English Learning

The use of mobile phones by 92% of respondents emphasizes that English learning is shifting from formal classroom settings to portable personalized learning environments. Students rely on mobile learning because:

- it is always accessible
- apps provide bite-sized lessons
- mobile data is affordable
- mobile interfaces are user-friendly

This supports the conclusion that mobile-assisted language learning (MALL) is now mainstream among youth.

#### Students Prefer Receptive Skill Learning

The data shows that vocabulary and listening are the most practiced skills. Speaking practice remains relatively limited (59%) due to:

- absence of structured conversational partners
- fear of making mistakes
- lack of live instructor feedback

However, tools like YouTube and Duolingo provide repeated exposure to native accents, which improves listening comprehension and passive vocabulary acquisition. The focus on receptive skills is consistent with the early stages of language development in non-native learners.

#### Positive Perceptions Reinforce Self-Driven Learning

The perception scores clearly indicate students' trust in online English-learning tools. High usability scores (mean 4.34) show that students find digital platforms easy to navigate. Content quality (4.28) reflects the availability of high-quality learning resources online.

Students particularly enjoyed:

- simplicity of app-based learning
- short-duration lessons
- immediate corrections
- personalized progress tracking

Positive perceptions have a significant psychological effect: students tend to use platforms more frequently when they feel confident about them.

#### Flexibility as a Major Motivator

The highest score (4.50) for flexibility suggests that time and place independence is the strongest motivator. Engineering schedules involve labs, tutorials, and project work; as such, traditional English practice sessions may be difficult for students to attend. Online learning fills this gap by offering:

- short lessons for busy schedules
- opportunities to learn while commuting
- freedom to skip or repeat content
- ability to choose areas of weakness

This flexibility promotes continuous learning, even without formal classroom sessions.

#### Challenges Impacting Learning Quality

Despite overall positivity, students struggle with:

- Digital distractions (advertisements, social media)
- Internet instability
- Overdependence on videos
- Difficulty identifying credible content

These issues limit learning depth. For example, watching multiple YouTube videos without practicing speaking may create passive understanding rather than productive ability.

Students also reported difficulty finding authentic grammar explanations due to mixed-quality content online. This indicates a need for teacher guidance on selecting credible platforms.

#### Comparison with Previous Studies

This study's findings align well with national and international studies:

##### Aligned Findings

- High preference for videos and mobile apps (Chen et al., 2020)
- Positive perception of flexibility (Naqvi et al., 2019)
- Challenges related to distraction, internet issues (Kukulska-Hulme, 2020)
- Low preference for speaking practice due to lack of interaction (Hrastinski, 2021)

##### Unique Contributions

- Focus on GTU Semester-3 engineering students, a group previously under-researched
- Detailed perception dimensions relevant to technical students
- Data-specific trends from a government engineering college setting

#### Summary of Discussion

In summary, the findings highlight that:

1. Online English-learning is heavily adopted by engineering undergraduates.
2. Students prefer fast, flexible, multimedia-based methods over traditional classroom grammar lessons.
3. Perceptions are strongly positive, increasing the likelihood of continued usage.
4. Limitations such as lack of interaction, unreliable content, and digital distractions must be addressed.
5. Institutional guidance and structured digital literacy programs are needed for effective utilization.

## VII. EDUCATIONAL IMPLICATIONS

The findings of this study hold several important implications for English language educators, curriculum designers, administrators, and policymakers within technical education, especially under Gujarat Technological University (GTU). As online English-learning resources emerge as a primary mode of self-directed learning among engineering students, it becomes essential to integrate these tools strategically into formal teaching–learning processes. The educational implications derived from the study are outlined below.

### Integration of Online Resources into the English Curriculum

The results indicate that students already use YouTube, mobile apps, and online dictionaries extensively. Instead of viewing these as informal or supplementary tools, educational institutions should integrate recommended digital platforms into the syllabus. For example:

- Including curated YouTube videos in weekly classroom modules
- Incorporating app-based tasks (Duolingo, Cake) into homework
- Encouraging students to use Grammarly for writing assignments
- Providing official links to credible grammar and vocabulary sites

This will align students' natural learning habits with academic goals and ensure they use reliable platforms rather than random online content.

### Role of Teachers as Digital Mentors

The findings show students face challenges related to content credibility and distractions. Teachers must

therefore adopt the role of digital mentors, guiding students to identify:

- credible websites
- authentic tutorial channels
- structured online courses
- reliable dictionaries and grammar tools

Faculty may create short sessions demonstrating how to differentiate credible sources from misleading or unverified content. This guidance will significantly improve the quality of students' online learning experiences.

### Promoting Digital Literacy and Critical Media Evaluation

Nearly 46% of students reported difficulty in identifying reliable sources. This highlights the need for digital literacy training, including:

- recognizing credible authors
- evaluating website reputation
- distinguishing fact-based tutorials from opinion-based content
- understanding plagiarism in the digital age
- verifying grammar explanations and pronunciation videos

GTU institutions can introduce short certification programs or workshops focusing on digital media literacy, thereby empowering students to use online tools responsibly and effectively.

### Encouraging Active Learning through Interactive Tools

The analysis shows students rate flexibility and usability highly but express concerns about limited interactive engagement. To improve speaking and communication skills—areas often neglected in online learning—teachers can encourage:

- online speaking clubs
- peer-group video call discussions
- practice through language-exchange platforms
- use of AI-based speaking tools (SpeechAce, Elsa Speak)

Such interactive practices align with communicative language teaching principles and enhance students' productive skills.

### Utilizing Online Tools for Continuous Assessment

Online resources like quizzes, pronunciation tools, and vocabulary assessments offer instant feedback. Teachers can integrate these into formative assessments:

- Weekly online quizzes using apps

- Listening assignments from authentic video sources
- Spoken submissions analyzed through pronunciation tools
- Peer review using collaborative platforms like Google Classroom

This approach makes assessments more engaging, real-time, and practice-oriented.

#### Adopting a Blended Learning Model

The strong student preference for online tools supports the adoption of blended learning, combining traditional classroom teaching with digital resources.

This hybrid model can help:

- enhance learner autonomy
- provide multiple channels for concept reinforcement
- cater to different learning styles
- enable flexible learning
- make lessons more interactive and technology-driven

GTU colleges can adopt the flipped-classroom model, where students watch video lessons at home and practice activities in class.

#### Addressing Infrastructure Issues

Internet connectivity issues were reported by 58% of students. To overcome this:

- Institutions can expand Wi-Fi access across campus
- Digital labs can be upgraded with better bandwidth
- Offline downloadable English-learning materials can be shared

Improved infrastructure will ensure smoother digital engagement and reduce dependency on unstable personal internet connections.

#### Encouraging Use of MOOCs and Certification Courses

Only 38% of students use MOOC platforms such as Coursera or edX. Teachers can encourage MOOC participation by:

- linking specific MOOCs to English course outcomes
- offering bonus marks or certificates for course completion
- conducting orientation sessions on MOOC benefits
- forming MOOC-based learning groups

This will expose students to global learning environments and improve academic language proficiency.

#### Supporting Students with Low English Exposure

Students from Gujarati-medium or rural schooling backgrounds may rely heavily on online tutorials.

Educators should provide:

- beginner-friendly online resources
- bilingual support materials
- simple pronunciation guides
- short online grammar videos tailored for foundational learners

This ensures equity and prevents weaker students from feeling overwhelmed.

#### Institutional Policies for Effective Digital Integration

The study's findings reveal the need for institutional measures including:

- creation of an official "Recommended Digital Tools List"
- orientation programs for new students
- digital learning policy for English communication
- collaboration with EdTech platforms
- periodic evaluation of students' digital resource usage

Such structured policies will create a coherent digital learning ecosystem across GTU campuses.

#### Summary of Educational Implications

The study demonstrates that online English-learning tools have immense potential to support engineering students' communication skills. However, their effectiveness depends on proper guidance, structured integration, digital literacy, and improved infrastructure. With appropriate educational strategies, online resources can transform English learning into a flexible, engaging, and skill-oriented experience.

## VIII. LIMITATIONS & FUTURE SCOPE

### Limitations of the Study

While the study offers valuable insights, certain limitations need to be recognized:

#### 1. Limited Sample Size and Single Institution Focus

The sample consisted of 100 students from only one government engineering college (GEC, Surat). Therefore, the results may not fully represent all GTU colleges across Gujarat or engineering institutions in India.

#### 2. Self-Reported Data

Most of the data was collected through self-reported questionnaires. Responses may involve bias such as:

- overestimation of usage
- socially desirable answers
- inaccurate recall of platform usage

This may influence the accuracy of the findings.

### 3. No Longitudinal Observation

The study does not track students' progress over time. A longitudinal study could reveal how online English-learning habits evolve throughout semesters.

### 4. Focus on Quantitative Data

Although open-ended responses were analyzed qualitatively, the study relied mainly on quantitative analysis. More detailed interviews or focus group discussions could provide deeper insights into students' perceived challenges.

### 5. Limited Diversity of Learning Tools Considered

The questionnaire included major online resources but may not have captured emerging platforms such as AI-based English tutors or VR-based learning tools.

### 6. Absence of Performance Assessment

The study did not measure students' actual improvement in English proficiency. Instead, it focused on usage and perception. Future research should include pre-tests and post-tests for skill assessment.

## IX. FUTURE SCOPE OF THE STUDY

Future research can expand upon the present study in several meaningful ways:

### 1. Inclusion of Multiple Colleges and Larger Sample Sizes

Expanding the study to include several GTU-affiliated engineering colleges across Gujarat would offer more generalizable results. Comparative studies across urban and rural colleges, government and private colleges, or different engineering branches may reveal additional trends.

### 2. Longitudinal Studies to Track Language Improvement

A multi-semester or multi-year study could evaluate:

- sustained effectiveness of online tools
- changes in student preferences
- progress in communication skills

This would provide deeper insights into long-term online learning habits.

### 3. Use of Mixed-Method Research

Combining surveys with:

- focus group discussions
- interviews
- classroom observations would allow researchers to understand emotional, psychological, and behavioural aspects of digital learning.

### 4. Experimental Studies and Intervention Models

Future studies could experiment with:

- blended learning interventions
- flipped classroom models
- MOOC-integrated learning
- AI-based English-speaking assistants

This would help evaluate which digital methods lead to the highest learning gains.

### 5. Exploring the Role of AI and Emerging Technologies

With the rise of artificial intelligence platforms, future studies can explore:

- AI grammar correction tools
- AI chat-based English conversation partners
- speech recognition and feedback tools
- personalized learning algorithms

These technologies may revolutionize English education.

### 6. Comparative Studies Between Online and Offline Learning

Future researchers can compare:

- effectiveness of classroom instruction vs. online learning
- student engagement levels
- performance on speaking, writing, and vocabulary tests

Such comparisons would help determine whether traditional methods or digital methods provide better outcomes—or whether a blended approach is optimal.

### 7. Development of Standardized Digital Modules

Researchers can collaborate with GTU to create:

- standardized online learning toolkits
- recommended resource lists
- app-based learning modules
- official video-based tutorials

Testing these modules across colleges could validate their effectiveness.

## X. CONCLUSION

The present study examined the usage patterns, perceptions, and challenges associated with online English-learning resources among 100 Semester-3 engineering students at Government Engineering

College (GEC), Surat, affiliated with Gujarat Technological University (GTU). The findings clearly demonstrate that online platforms have become essential tools for language learning in the digital age, particularly for engineering students who benefit from the flexibility and accessibility these tools provide.

The data revealed that students extensively use video-based platforms such as YouTube, followed closely by mobile applications like Duolingo, Cake, and Hello English. Online dictionaries and grammar tools are also widely used, highlighting the growing trend of self-directed language improvement. Students primarily rely on online resources to improve vocabulary, listening skills, grammar accuracy, and pronunciation. The widespread preference for digital tools indicates that modern learners find online platforms more engaging and interactive than conventional classroom-based methods.

The perception analysis showed consistently high scores across all dimensions, with an overall mean perception score of 4.21 out of 5. These findings confirm that students perceive online English learning as beneficial, convenient, and enjoyable. Among the various dimensions evaluated, flexibility received the highest rating, emphasizing the importance students place on learning at their own pace and convenience. However, despite overwhelmingly positive attitudes, students reported challenges such as distractions, unreliable sources, lack of speaking practice, and internet connectivity issues. These challenges highlight gaps in digital learning environments that need to be addressed by educators and institutions. Without structured guidance, students may depend on low-quality or misleading content, which can create learning inconsistencies.

Overall, the study concludes that online English-learning resources play a significant and growing role in the learning ecosystem of GTU engineering students, and their effective integration into the curriculum can significantly enhance learning outcomes. With proper digital literacy, institutional support, and interactive learning opportunities, these platforms can transform English language education and equip students with the communication skills necessary for professional success.

The study concludes that online English-learning resources are widely used, highly appreciated, and increasingly essential in the academic lives of GTU engineering students. Despite certain limitations, the

findings offer valuable direction for educators, policymakers, and EdTech designers. Future research can build on this foundation to create more interactive, credible, and technologically advanced English-learning environments for engineering students.

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