BODHIVRUKSHA JOURNAL OF DIVERSE DISCIPLINE
E-ISSN : 3139-1486
An Open Access, Peer-Reviewed, Multidisciplinary Scholarly Journal
Bi-monthly | Multilingual (English, Hindi, Marathi) | Academic Research

@2026 Volume 2, Issue 3 (May-June) www.bjddjournal.org ( E-ISSN : 3139-1486)

# PERSONALIZED ENGLISH VOCABULARY BOT USING CLAUDE AI FOR STUDENTS

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**Abstract**

This paper explores the design and educational value of a personalized English vocabulary bot using Claude AI for students. It examines how an AI-driven conversational tool can support vocabulary acquisition through contextual explanations, example sentences, collocations, and adaptive practice based on learner level and academic need. Using a theoretical study approach, the paper also situates the proposed bot within the broader development of digital communication and reviews its potential impact on mental health and learner well-being. The discussion highlights both the benefits of AI-supported language learning, such as instant feedback, learner autonomy, and reduced language anxiety, and the concerns associated with digital communication, including overload, distraction, and mental fatigue. The paper concludes that Claude AI can serve as an effective educational companion when used responsibly and pedagogically, offering a balanced model for personalized vocabulary learning in digital contexts.

**Keywords:** Personalized vocabulary learning; Claude AI; digital communication; English language teaching; student well-being

Type : Research Article
Language: English

Received: 4 June 2026
Revised: 6 June 2026
Accepted: 8 June 2026
Published: 10 June 2026

Cite this article:
Dr. C. PRIYA (2026). PERSONALIZED ENGLISH VOCABULARY BOT USING CLAUDE AI FOR STUDENTS.
BODHIVRUKSHA JOURNAL OF DIVERSE DISCIPLINE (BJDD),
Vol. 02, Issue 03, pp. 65-72.
E-ISSN: 3139-1486.

## INTRODUCTION

Digital learning has transformed how students acquire vocabulary, revise language, and practice communication. A personalized English vocabulary bot using Claude AI can support learners by offering immediate, level-based, and context-aware help, making vocabulary learning more interactive and less mechanical (Anthropic, “Introducing Claude for Education”). Anthropic’s education-focused release describes Claude as a tool built to support teaching, learning, and administration in responsible ways, which strengthens its suitability for academic use (Anthropic, “Introducing Claude for Education”).

A vocabulary bot can do much more than provide dictionary meanings. It can generate synonyms, antonyms, collocations, sample sentences, word families, and revision prompts tailored to the learner’s proficiency and purpose (Anthropic, “Introducing Claude for Education”). For English learners, especially

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in higher education, this kind of support encourages active vocabulary development rather than simple memorization (Meier and Reinecke).

## OBJECTIVES

- To design a student-friendly vocabulary bot that uses Claude AI to give personalized English vocabulary support (Anthropic, "Claude for Education").
- To improve students' vocabulary through meanings, examples, collocations, and contextual practice (Meier and Reinecke).
- To support differentiated learning by adapting output to learner level, subject area, and academic need (Anthropic, "Introducing Claude for Education").
- To promote independent learning through guided questioning and reasoning rather than direct answer dumping (Campus Technology).
- To examine the educational value and possible limitations of AI-assisted vocabulary learning in digital spaces (SSM - Mental Health; Frontiers in Psychiatry).

## Methodology

This article adopts a theoretical study method based on secondary sources, recent reviews, and policy-oriented publications on digital communication, mental health, and AI in education. The study uses conceptual analysis of Claude for Education, recent literature on digital mental health, and contemporary discussions of communication tools to build a framework for an AI-based vocabulary bot (Anthropic, "Introducing Claude for Education"; "Exploring the Societal Implications of Digital Mental Health Technologies"). The work is interpretive rather than experimental and is intended to guide further classroom or prototype development.

## Definition: Digital Communication

Digital communication means the exchange of information through electronic devices and internet-based platforms such as email, messaging apps, video conferencing, and learning management systems (Sage Knowledge). It may happen synchronously or asynchronously and has become central to education, workplaces, and everyday life (OurPeople). In academic settings, digital communication supports instruction, feedback, collaboration, and student engagement (Google Workspace Marketplace).

## Definition: Mental Health

Mental health refers to emotional, psychological, and social well-being that enables a person to cope with stress, work productively, and participate in daily life. Recent studies show that digital habits, online interaction, and platform use can influence mental well-being in both positive and negative ways (FAU; Frontiers in Psychiatry). Because of this, digital mental health has become an important area of research in the age of constant connectivity (C4TBH; SSM - Mental Health).

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**Digital Communication: Origin**

Digital communication began with early telecommunication systems and computer networks that made information transfer faster than physical methods. Over time, email, text messaging, online forums, and chat systems replaced many older modes of exchange in academic and professional settings (Sage Knowledge; PubMed).

As internet access expanded, digital communication evolved from basic text exchange into multimedia interaction involving voice, video, cloud storage, and collaboration platforms. This shift made communication more immediate and flexible, especially for students and teachers working across distance or hybrid learning spaces (OurPeople; Google Workspace Marketplace). Claude-based learning tools belong to this newer stage of communication because they merge interaction, guidance, and academic support in one system (Anthropic, "Claude for Education").

**The Development of Digital Communication**

The first stage in digital communication development was the rise of email and basic online messaging. These tools allowed users to send written information quickly, store records, and communicate formally across institutions and workplaces (OurPeople; Google Workspace Marketplace). In education, email became a standard channel for notices, assignments, and academic correspondence.

The second stage involved chat rooms, discussion boards, and learning management systems. These systems made communication more participatory and collaborative, giving students more opportunities to ask questions, exchange ideas, and receive feedback outside classroom hours (Sage Knowledge; PubMed). This helped language learners practice reading and writing in meaningful digital contexts.

The third stage came with mobile communication and smartphones. Messaging apps and social media made digital communication continuous and highly accessible, but they also increased pressure to remain constantly available (SSM - Mental Health; Frontiers in Psychiatry). For adolescents, this stage created both opportunities for connection and risks related to comparison, distraction, and emotional overload (Frontiers in Psychiatry; PMC).

The fourth stage emphasized video conferencing, cloud sharing, and integrated workplace platforms. These tools supported remote learning and hybrid teaching by combining meetings, file sharing, and collaboration in one environment (OurPeople; Slack). Educational institutions increasingly relied on digital systems for routine instruction and administration during this period (Anthropic, "Introducing Claude for Education").

The fifth stage is the AI-assisted phase of communication. Claude for Education reflects this stage because it can support student reasoning, guide learning processes, and assist teaching and administration in one ecosystem (Anthropic, "Introducing Claude for Education"; Campus Technology). A personalized vocabulary bot is especially relevant here because it can adapt to learner needs in real time and offer interactive language support.

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**Tools of Digital Communication**

1. Email
2. WhatsApp
3. Google Meet
4. Zoom
5. Microsoft Teams
6. Slack
7. Telegram
8. Discord
9. Google Classroom
10. Moodle

**Purposes of Tools**

| Tool | Purpose |
|---|---|
| **Email** | Formal communication, notices, and document sharing (Google Workspace Marketplace). |
| **WhatsApp** | Instant messaging, group updates, and quick media exchange. |
| **Google Meet** | Online classes, meetings, and consultations (Google Workspace Marketplace). |
| **Zoom** | Video conferencing, webinars, and virtual lessons (OurPeople). |
| **Microsoft Teams** | Team collaboration, meetings, and file sharing (OurPeople). |
| **Slack** | Channel-based workplace communication and project coordination (Slack). |
| **Telegram** | Group messaging, channel broadcasting, and file sharing. |
| **Discord** | Community interaction, voice communication, and group discussion. |
| **Google Classroom** | Class management, assignments, feedback, and communication. |
| **Moodle** | Course delivery, quizzes, academic tracking, and LMS communication. |

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**Digital Communication: Boon or Bane for Mental Health Wellbeing?**

Digital communication can be a boon when it keeps students connected, informed, and supported. Reviews of digital mental health interventions show that well-designed technologies can improve access to support and reduce barriers to learning or help-seeking (C4TBH; JMIR Mental Health). For students, an AI vocabulary bot can reduce anxiety by offering private, judgment-free language practice and instant clarification (Anthropic, "Claude for Education").

At the same time, digital communication can become a bane when it creates overload, sleep problems, social comparison, or cyberbullying. Recent research highlights concerns about excessive screen time, privacy risks, and the mental burden caused by constant online availability (Frontiers in Psychiatry; PMC). Teenagers are especially vulnerable because online interaction can affect identity formation, emotional regulation, and self-esteem (Frontiers in Psychiatry; PMC).

The impact of digital communication depends largely on the way it is used. Active, purposeful engagement is generally healthier than passive scrolling or compulsive checking (Meier and Reinecke). In this sense, a Claude-based vocabulary bot is helpful when it is designed for focused learning rather than endless engagement (Anthropic, "Introducing Claude for Education").

Therefore, digital communication should be treated as a useful but regulated educational resource. Schools and colleges need digital literacy, safe-use practices, and AI awareness to ensure that students gain academic benefits without unnecessary mental strain (FAU; SSM - Mental Health). The best outcome comes when communication tools support learning, not distraction.

**Common Challenges among Children, Teenagers, Adults and Aged People**

| Group | Common challenges |
|---|---|
| **Children** | Overexposure to screens, reduced attention, unsafe content, and device dependence (PMC). |
| **Teenagers** | Cyberbullying, comparison pressure, sleep problems, anxiety, and constant connectivity stress (Frontiers in Psychiatry; PMC). |
| **Adults** | Work overload, notification fatigue, multitasking stress, and blurred work-life boundaries (OurPeople; SSM - Mental Health). |
| **Aged People** | Digital exclusion, low digital literacy, isolation, and difficulty adapting to new platforms (Google Workspace Marketplace). |

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**Side Effects**

| Group | Personal | Social | Academic | National |
|---|---|---|---|---|
| **Children** | Sleep disturbance, overstimulation, and emotional dependence (PMC). | Less face-to-face play and weaker family interaction (PMC). | Lower concentration and reduced reading stamina (Meier and Reinecke). | Long-term digital dependency if unhealthy habits are normalized. |
| **Teenagers** | Anxiety, identity stress, and poor self-image (Frontiers in Psychiatry; PMC). | Peer pressure, cyberbullying, and conflict. | Distraction, shallow learning, and plagiarism risk (Anthropic, "Introducing Claude for Education"). | Greater need for youth mental-health support and digital safety policy (WHO). |
| **Adults** | Burnout, fatigue, and attention fragmentation (SSM - Mental Health). | Reduced meaningful communication and family time. | Productivity loss and reduced focus in professional learning (OurPeople). | Workplace efficiency gains or losses depending on digital governance. |
| **Aged People** | Frustration, confusion, and loneliness. | Lower participation in digital communities. | Limited access to online learning and services (Google Workspace Marketplace). | Greater need for inclusive digital infrastructure and training. |

**Findings**

The study suggests that a personalized English vocabulary bot using Claude AI can offer meaningful support for vocabulary development when it is aligned with learner level, context, and academic purpose (Anthropic, "Claude for Education"). Claude's learning-oriented design is useful because it can guide students through meanings, examples, and reflection instead of simply giving finished answers (Campus Technology; Anthropic, "Introducing Claude for Education").

The review also shows that digital communication is not inherently beneficial or harmful; its effect depends on purpose, intensity, and user habits (Meier and Reinecke; SSM - Mental Health). In educational settings, AI-supported communication can improve access and engagement, but only if privacy, moderation, and mental-health risks are handled carefully (FAU; Frontiers in Psychiatry).

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**Discussion**

A Claude AI vocabulary bot can become an effective learning companion when designed for short, meaningful, and level-appropriate interactions. It can provide definitions, examples, pronunciation support, word families, and revision quizzes, all of which help students strengthen vocabulary in context (Anthropic, "Claude for Education"; PMC). However, it should support teacher-led instruction rather than replace reading practice, classroom discussion, or human feedback (Campus Technology; SSM - Mental Health).

**Result**

This theoretical study produces a conceptual model for using Claude AI as a personalized English vocabulary bot for students. The model supports individualized language learning while also recognizing the importance of digital well-being, ethical usage, and guided communication in educational environments (Anthropic, "Introducing Claude for Education"; Frontiers in Psychiatry). It is therefore suitable for English teaching in schools and colleges.

**Conclusion**

Personalized vocabulary learning through Claude AI offers a promising way to make English study more interactive, flexible, and learner-centered (Anthropic, "Claude for Education"; Campus Technology). At the same time, digital communication and AI use must be balanced with mental-health awareness, ethical practice, and digital discipline so that students gain benefits without avoidable harm (FAU; SSM - Mental Health).

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