Campus Care: An AI-Powered Students Wellness and Campus Management Platform

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***Abstract*— Student mental health is a problem in universities. Around 30 to 50 percent of students at universities have anxiety or depression that's serious enough to need help but less than 25 percent of them actually go to see a professional. This shows that there is an issue that needs to be fixed. Most universities only do something when a problem arises they do not have systems in place to help students when they need it.**

This paper is about Campus Care, a platform that uses artificial intelligence to help students with their mental health and to manage the university campus. Campus Care has features, including a way for students to track their mood write in a journal talk to someone using a computer program play games and connect with other students. It also has features for teachers and administrators to use. Campus Care was made using React, Supabase and OpenAI GPT. It has areas for students, teachers and administrators and it is very secure.

The results of testing Campus Care are very good. We tested it 242 times. It worked correctly 99.2 percent of the time. We also looked at how people felt about using it. It was accurate 91.5 percent of the time. People who used it said it was very easy to use giving it a score of 86.1 out of 100 which is excellent. Campus Care shows that if universities use intelligence and prioritize privacy they can really help students, with their mental health and provide them with the support they need. Campus Care is an example of how student mental health can be improved with the right tools and support.

Index Terms — Artificial Intelligence, Student Wellness, Mental Health, Gamification, Role-Based Access Control, Sentiment Analysis, OpenAI GPT, Supabase, React

I. INTRODUCTION

The mental health crisis among university students is getting worse. University students face challenges like pressure, financial stress, social isolation and identity issues, which all contribute to a lot of psychological distress. Most universities only help students when they ask for it. Students have to recognize they need help and then make an appointment to see a counselor. The problem is, there aren't counselors to go around. This approach doesn't catch problems on.

There are tools that try to help with wellness. They focus on one thing at a time like a meditation app or a simple chatbot. These tools don't work with teachers or the university as a whole. This means students are struggling and nobody knows about it. Teachers don't have the information they need to help and people in charge can't see how well the wellness programs are working.

Campus Care is a website that tries to fix this problem. It's a system that uses intelligence to track how students are feeling. Students can also write in a journal. Talk to their peers. The website has games to keep students engaged and a way for students to talk to someone if they need help. Teachers have a dashboard to see how their students are doing. People in charge have a special panel to see how the wellness programs are working.

Here are some of the things Campus Care does:

- It keeps track of how studentsre feeling all the time using artificial intelligence to understand their emotions.
- It has a chat system that uses OpenAI GPT to talk to students and remember what they said. It can even detect if a student is in crisis.
- It has a system of games. Rewards to keep students engaged and motivated.
- It has a dashboard for teachers that shows them how their students are doing. The dashboard uses intelligence to summarize whats going on.
- It has a security system to keep all of the information safe using things, like JWT and special database policies.

II. RELATED WORK

A. Many people feel more comfortable talking to AI and chatbots about their health than to counselors at first. They are not scared of being judged by AI and chatbots. Some chatbots that use GPT are good at helping people with their wellness. These chatbots can understand how someone is feeling. It matches what doctors say about their depression. The problem is that most of these tools are separate from the systems hospitals and other places use.

B. Games can help people take care of themselves. There are three things that make people want to do things: making their choices being good at something and feeling connected to others. If you make a game out of doing something every day people are more likely to keep doing it. This is called a streak. You can give people badges when they reach goals. This helps them make habits. The people who made Campus Care thought about all of this when designing their program.

C. In education it's helpful to have views for students, teachers and parents. This means that each person should see information thats relevant to them. Teachers like to see how their students are doing. They don't need to see all the details. They just need to know whats going on in a way. Most teachers are very busy. Don't have time to look at complicated charts and graphs.

D. Mental health platforms need to keep peoples information private. There are rules like GDPR that say they must be transparent about what they're doing with peoples information. They can only collect the information they need. They must make sure that only the right people can see it. They also need to make it easy for people to delete their information if they want to. One way to keep information is to use Row-Level Security. This is better, than using the application to keep things. Mental health research like this has to follow these rules.

III. SYSTEM ARCHITECTURE

A. Architecture Overview

Campus Care is organized into five layers:

1. Presentation Layer — React + Tailwind CSS; three role-specific dashboards
2. Authentication & Security Layer — Supabase Auth, JWT tokens, 30+ RLS policies
3. Application Logic Layer — Supabase Edge Functions (serverless, Deno runtime)
4. Data Layer — PostgreSQL with 23 relational tables, real-time subscriptions
5. AI Intelligence Layer — OpenAI GPT via Edge Functions (API key never exposed client-side)

All layers operate within a security perimeter: JWT at the application boundary, RLS at the database boundary.

B. Technology Stack

Layer	Technology	Purpose
Frontend	React 18 + Tailwind CSS	Responsive, role-based UI
Backend	Supabase (PostgreSQL 15)	DB, Auth, Real-time, Edge Functions
AI	OpenAI GPT-4o	Chat, Sentiment, Reports
Auth	Supabase Auth + JWT	Session management
Security	Row-Level Security (RLS)	Database-level access control
Schema Mgmt	Supabase CLI	Version-controlled migrations

C. Database Design

The schema comprises 23 PostgreSQL tables including mood_logs, journal_entries, chat_sessions (JSONB conversation history), challenge_completions, user_achievements, community_posts, weekly_reports, interventions, campaigns, and audit_log.

All of these tables use UUID as their keys. They also have two timestamp columns: created_at and updated_at.

The JSONB data type is used for some content, such, as chat history and weekly reports. This is because the output format of this content can change over time. Even though the format can change we can still query this content using PostgreSQL.

Fig. 1 — System Architecture Diagram

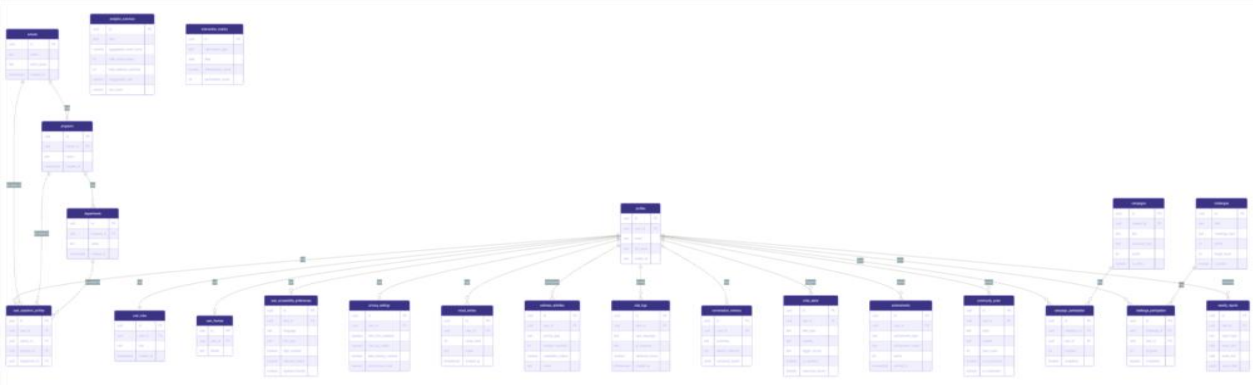

Fig. 2 — Database ERD

D. Security Architecture

Three-role access model enforced at the database level:

Role	Data Scope	Dashboard
Student	Own records only	Student Dashboard
Teacher	Anonymized aggregates only	Teacher Analytics
Admin	Full system access	Admin Panel

JWT flow: credentials → Supabase Auth → signed JWT with role claim → Bearer token on all API requests → RLS validates before any DB operation. Unauthenticated requests are rejected at the infrastructure level before reaching the database.

IV. KEY FEATURE AND IMPLEMENTATION

A. Student Wellness Module

The Student Dashboard is a tool that has seven features to help students with their wellness. The Mood Tracker is a feature that lets students log how they are feeling every day on a scale of 1 to 5. They can also add some notes if they want to. Each time they log their mood the Edge Function uses GPT to score how they are feeling on a scale of 0 to 1. These scores are then shared with teachers. They do not show who said what. The Reflective Journal is like a diary where students can write much or as little as they want. They can choose who can see each entry and even add tags to show how they are feeling. The Calm Space has sounds and breathing exercises to help students relax. There are exercises like Box Breathing, 4-7-8 and Deep Calm. The dashboard also keeps track of how many sessions students do. The AI Support Chat is like a helper that's available 24 hours a day and 7 days a week. It uses GPT to talk to students and answer their questions. The Gamified Challenge System has challenges that last for 7 days. These challenges get harder as students go through them. Students can earn points and badges. See how they are doing compared to others. The Peer Community is a place where students can talk to each other about topics.

This is done in a way that keeps everyones identity. There are also people who help make sure everything stays on track. Every week the dashboard sends students a report that shows how they are doing. This report is made by a tool that looks at their mood how much they are engaging with the challenges and how they are progressing. The Student Dashboard and its features like the Mood Tracker help students stay on top of their wellness.

The features, including the Reflective Journal and AI Support Chat are designed to support students. The Gamified Challenge System and Peer Community are also parts of the Student Dashboard. The Weekly Wellness Reports are a part of the Student Dashboard. They are generated every seven days. The Student Dashboard is a tool that helps students, with their wellness and the features including the Reflective Journal and the AI Support Chat are very helpful. The Student Dashboard is a tool that has many features, including the Mood Tracker, the Reflective Journal, the AI Support Chat, the Gamified Challenge System, the Peer Community and the Weekly Wellness Reports.

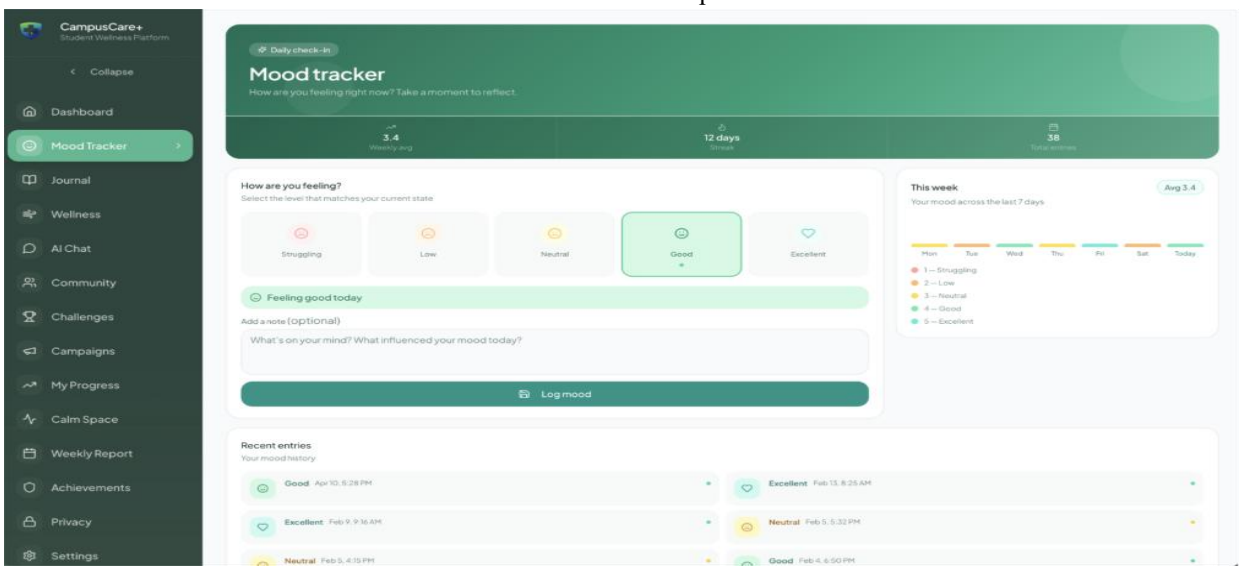

Fig. 3 — Mood Tracker UI Screenshot

B. Teacher Analytics Module

The Teacher Dashboard gives us information about how everyone is doing on campus but it does not say who the people are. This information is grouped together so we cannot see names. The Teacher Dashboard has some things that help teachers. It shows how stressed people are over time and sends a warning if people are more stressed than usual. It shows how much people are using each feature and if that is going up or down. The Teacher Dashboard has something called Storytelling Analytics. This takes a lot of data and turns it into simple stories that teachers can understand. It also helps teachers see what happens when they try to help people feel better. The Teacher Dashboard looks at how people feel before and after the teachers try to help them. All of the information on the Teacher Dashboard is private. This means that the Teacher Dashboard does not know who the people are. The information is private, from the beginning so the Teacher Dashboard never knows who the people are.

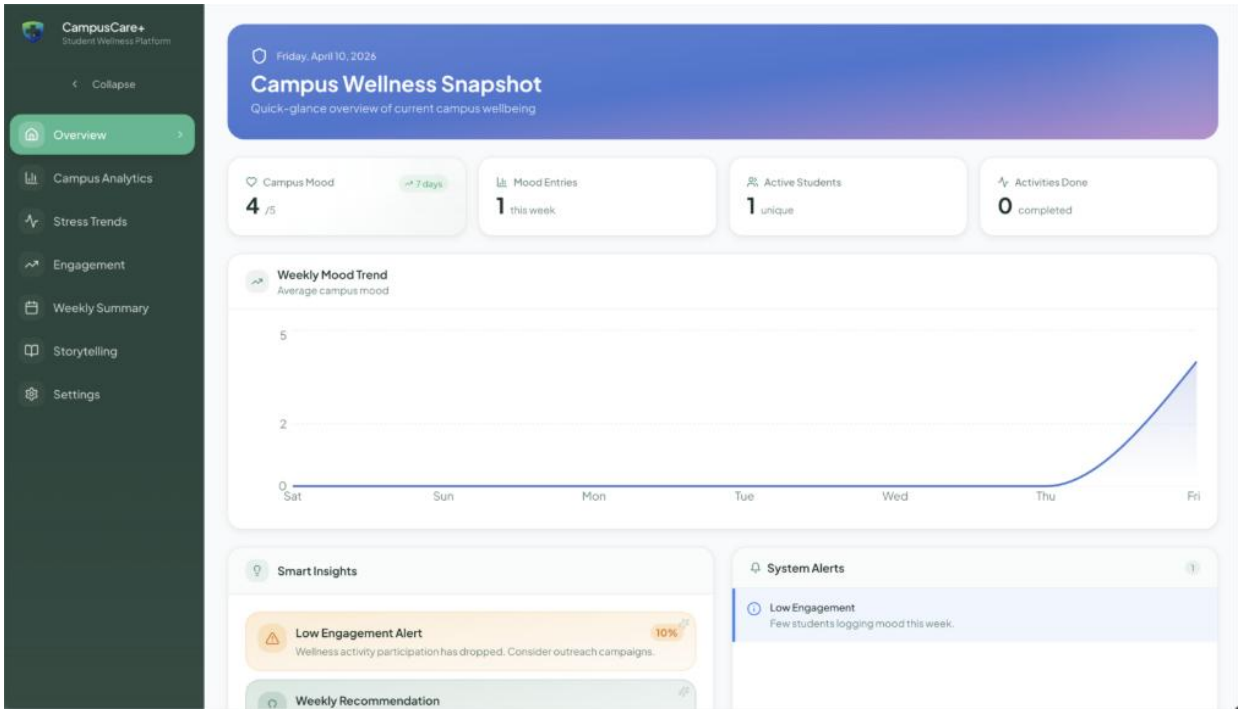

Fig. 4 — Teacher Dashboard Screenshot

C. Admin Panel

The Admin Panel gives us control over the institution. We can manage users. This includes creating, reading, updating and deleting information for all the different roles. The Admin Panel also provides system analytics. We can look at this information for a date range.

We can. Track wellness campaigns. We can also set up self-registration workflows that need to be approved. The Admin Panel lets us export data as a CSV file. We can choose how much of this data is anonymous. The Storytelling Dashboard is also part of the Admin Panel. This dashboard extends the stories that teachers tell us. It also lets us compare information across departments. The Admin Panel is very useful, for the institution. The Admin Panel helps us with user management and the Admin Panel provides system analytics.

V. AI INTEGRATION

All AI operations are executed through Supabase Edge Functions, ensuring OpenAI API keys are never exposed client-side.

A. AI Support Chat The conversation history is kept in a format called JSONB. It stores the 50 messages. When we need to understand what the user is saying we send these 50 messages to the GPT API. The system is set up to be kind and understanding like a friend. It does not try to be a doctor. We have a set of words that we look for in each message. If we find any of these words we send an alert to the teachers dashboard. This happens when the message seems to be about something. The answer, to the users message is sent quickly to the frontend. This means the user gets a response away.

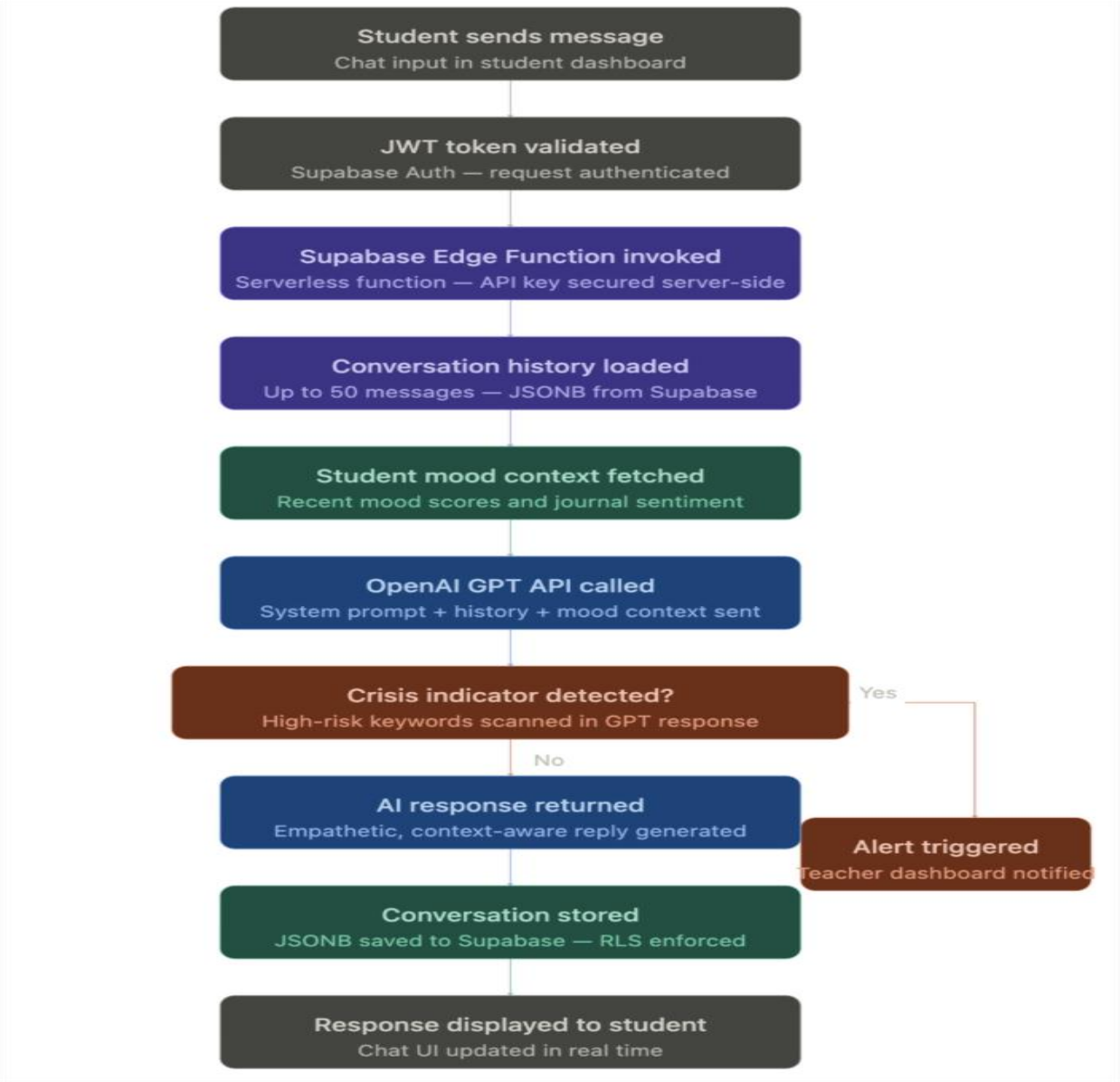

Fig. 5 — AI Chat Flow Diagram

B. Sentiment Analysis Pipeline When someone makes a mood log or journal entry it does something. It triggers a thing called an Edge Function. This Edge Function then calls something called GPT. It calls GPT with a kind of prompt that is set up in a certain way. The response from GPT is then used to get a things. It gets a score that's between 0 and 1 a tag that says what the main emotion is and a flag that says if there is a risk. All of these things are stored in a table called sentiment_scores. This table is connected to the record. The scores, from people are added up and used to make the Teacher Dashboard and the Smart Insight Engine work. This is done through views that make sure only the right people can see the information.

C. Weekly Report Generation The Edge Function that is scheduled looks at how each student's doing over seven days. It takes into account the scores that show how they are feeling what they write in their journals if they finish the challenges they are given and how much they are taking part in things. This information is used to create a story that's easy to understand and it is stored in a special format called JSON. The story also says when the information is, from so we can look

at it later and see how things changed over time for each student. The Edge Function does this for every student. It helps us see how they are doing over the seven day period.

D. Smart Insight Engine The system checks how students are engaging. It sends out automatic alerts when a student does not participate as much as they should. This happens when a students participation drops below a level that the teacher can set. The Teacher Dashboard then shows signs that a student might be having trouble so teachers can help them on. The Teacher Dashboard is where teachers can see these warning signs, for the students.

VI. RESULTS AND EVALUATION

A. Functional Testing

We did a lot of testing. The testing covered 242 test cases. These test cases were, for all the modules. We looked at them on desktop and mobile viewports. We used Chrome, Firefox and Safari to do the testing of the test cases.

Module	Test Cases	Pass Rate
AI Mood Tracker	18	100%
Reflective Journal	14	100%
AI Support Chat	22	95.4%
Gamified Challenges	20	100%
Teacher Analytics	24	100%
JWT + RLS Security	46	100%
Total	242	99.2%

Two problems were fixed. One was with the AI Chat. It would time out when the internet was slow. This was fixed. The other problem was with Admin export. When there were than 500 records in a dataset the export would not work properly. This was also fixed. The fixes were for:

- AI Chat timeout handling in internet conditions
- Admin bulk export pagination, for datasets

B. AI Performance

We looked at how sentiment analysis worked by checking it against 200 examples that people labeled by hand. Two different people did this job to make sure the results were correct.

Category	AI Accuracy	Human Agreement
Positive (0.7–1.0)	94.2%	96.1%
Neutral (0.4–0.69)	88.6%	91.3%
Negative (0–0.39)	91.8%	93.7%
Overall	91.5%	93.7%

The AI Support Chat did really well. It got a score of 4.3 out of 5.0 for being empathetic. The AI Support Chat also got a score of 4.5 out of 5.0 for being relevant. The AI Support Chat even got a score of 5.0 out of 5.0 for safety. This is because the AI Support Chat was able to detect crises. The crisis detection part of the AI Support Chat identified all the risk test inputs.

C. Security Validation

All 30 RLS policies were tested. We simulated cross-role access attempts to see how they would work.

The result was good: 100 percent of requests were blocked at the database level. We found zero instances of information being disclosed. We also checked the OpenAI API key. It was not found in any frontend JavaScript bundles. We used analysis to confirm this.

D. Usability Evaluation

SUS evaluation conducted with 15 participants (10 students, 3 teachers, 2 administrators):

User Group	SUS Score	Rating
Students	87.5	Excellent
Teachers	84.2	Excellent
Administrators	82.0	Good–Excellent
Overall	86.1	Excellent

An SUS score above 80 is widely interpreted in HCI literature as indicating an excellent user experience [8].

VII. CONCLUSION AND FUTURE SCOPE

Campus Care is an example of a campus wellness system that uses Artificial Intelligence and really cares about privacy. The system had some results. It passed 99.2 percent of its tests. It understood peoples feelings 91.5 percent of the time. It kept all the security rules. It even got a score of 86.1 for being easy to use. Campus Care did everything it was supposed to do.

It showed that keeping peoples information private is very important for health platforms. Campus Care also showed that making the platform fun is necessary to keep people using it. Using Artificial Intelligence to summarize information really helps teachers use the tools more. Campus Care is a campus wellness system that uses Artificial Intelligence. It is very effective.

There are some things that Campus Care can do in the future. These include:

making apps for iPhone and Android devices using information about how people feel over time to predict if they might have problems giving counselors their role so they can see information with permission allowing many schools to use the Campus Care system connecting with wearable devices like fitness trackers making the Campus Care platform work, in many languages. Campus Care is a campus wellness system that uses Artificial Intelligence and it can do even more in the future.

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