

Teaching Made Easy - Review II

Pragya Awasthi (20BCI0246)
School of Computer Science and
Engineering (SCOPE)
Vellore Institute of Technology,
Vellore
Vellore, India
pragya.awasthi2020@vitstudent.ac.in

Ayan Samanta (20BCE2313)
School of Computer Science and
Engineering (SCOPE)
Vellore Institute of Technology,
Vellore
Vellore, India
ayan.samanta2020@vitstudent.ac.in

Clifford Christopher (20BCE2352)
School of Computer Science and
Engineering (SCOPE)
Vellore Institute of Technology,
Vellore
Vellore, India
clifford.christopher2020@vitstudent.ac.in

Abstract — Pandemic has affected almost every person irrespective of their occupation. Even though the medium of education has shifted from Offline to Online, and work from home is encouraged for everyone, yet during these tough times, teachers' lives have become tougher. As many of our teachers have children, who too have online classes from home, it becomes really hard for our teachers to manage their time in evaluating assignments and tests especially when now they have to do corrections virtually on a computer screen. In addition, keeping an eye on every student is also a challenge during online classes. From students' point of view, students of the primary school also struggle as many of them don't have knowledge of operating computers, and parents have to sit with them throughout the class to assist them in doing so. Keeping in mind that many parents are working, online classes fail to be interactive, comfortable, and productive for many students.

INTRODUCTION

Despite the fact that e-learning is not a new instructional method, its popularity has risen as a result of the COVID-19 pandemic. Educational institutions that have not resorted to temporary closure have turned to online teaching-learning platforms and applications, which are regarded safe classroom alternatives for learners' continuing learning. Rosell (2020) also emphasizes the flexibility that e-learning provides. Educators and students have thus adapted to the use of technology in a new learning environment.

In today's online classrooms, teachers have either no or little expertise with online learning. As a result, their teaching abilities and competencies are restricted to their classroom experiences (Ragan & Schroeder, 2013). Four hierarchical criteria influence teachers' ability to study and apply e-learning: ease of use, psychologically secure setting, e-learning self-efficacy, and competency (Woodcock et al. 2015). As a result, the abrupt change to e-learning necessitates a deft use of technology to aid learning and engagement among students.

The learners have also faced a variety of difficulties in attending their online classes, such as experiencing network overload and network error. Accessing content is frequently hampered as a result of these technical challenges. Other disadvantages of online classes include distraction from the environment, adaptability, time management, additional budget, and resource-sharing issues.

LITERATURE REVIEW

Online Education

(Larreamendy-Joerns and Leinhardt, 2006) Through the lenses of democratization, liberal education, and quality education, Larreamendy-Joerns and Leinhardt describe the distance with online learning. The rise of distance learning has altered the perception of formal education. Instead of offering a new arena for scholarly work for mainstream academics, online education may fall short of our expectations if it becomes a second-class form of education. By allowing visibility to teach and making it a joint activity, online education plays a critical role in the development of teaching scholarship in higher education. It also differs from being alone or working as a mediator between teachers and students through blended or hybrid instruction, such as face-to-face interactions or technology-mediated communications such as E-Mails. However, it varies depending on the audience. Some courses are designed for individual users, while others are designed for an anonymous public. The presentational view, performance-tutoring view, and epistemic engagement view are the three educational visions on stand-alone online communications. These views are not mutually exclusive, though they are frequently organized in opposition to traditional scholarly learning in pedagogical discussions.

(Kim and Bonk, 2006) According to a survey conducted by Kim and Bonk on online learning, more than 90% of respondents believe that online education is vital for teaching and as a research tool for students. The number of people enrolling in online classes is continuously rising. Another important aspect of quality online learning is faculty training and support. The use of multimedia and interactive simulations in online learning is increasing because to several advancements in internet technology. Most students and learners were satisfied with blended education, which will have a stronger impact and relevance in the coming years. Higher education institutions should prepare themselves to meet the demands and needs of the growing learners in the coming years. With increased bandwidth, internet technologies and their capacities will improve, allowing next-generation students to engage in more authentic and realistic learning, gaming, and simulation.

Online Education in India

(Dhir et al., 2017) E-learning, according to Dhir et al., is a method of teaching and learning that uses electronic media and equipment. In this century, the incorporation of online learning into India's medical education is a must. The student must continue to learn new abilities and keep up with the

newest developments. Technical support, a lack of face-to-face interaction, hardware and software issues, a shortage of faculty and support staff, psychological issues, language barriers, network connectivity, security and privacy of personal information, and financial issues are all barriers to online medical education in India. E-learning is not time-limited and may be accessed at any time and from any location. Institutions, administrators, and medical professors in India should be prepared with the necessary resources, such as time, people, and money, to implement this in India, as future generations eagerly await.

(Tayade and Kulkarni, 2011) Tayade and Kulkarni look into the use of technology in medical education because it plays an important role in providing international links, online publications, e-learning, and other resources that allow medical professionals and students to stay up to date on the latest treatment strategies and trends. In India, the use of technology in medical education is becoming more common. In India, academic institutes and educational institutions should focus on building WiFi and internet services that will benefit students. Furthermore, medical technology and health-care sector developments play a critical part in healing patients' disorders rather than managing them with students' expertise. This is a step-by-step preventative plan for diseases such as communicable diseases, hereditary disorders, and lifestyle-related illnesses. The influence of these technological applications will have a significant impact on India's education system in the next years, affecting students at all stages of their lives.

Online Education during Pandemic or Covid 19

(Avgerinou and Moros, n.d.) Avgerinou and Moros offer a five-phase virtual learning system that allows teachers to effortlessly communicate with students. This method entails both synchronous and asynchronous sessions, and it aids in the analysis of students' performance through evaluations and grading, as well as gathering input from students through surveys to investigate students' activities for future forecasts. It has aided the community in remaining focused on their academic goals, especially in the face of adversity.

(Basilaia and Kvavadze, 2020) Due to COVID-19, Basilaia and Kvavadze investigated the effective transfer of Georgia's education system from traditional classroom education to an online platform. Despite the fact that more than half of rural families do not own a computer, the best alternative is to use a cloud-based online portal and mobile application that is adequate for regular education and also allows parents to participate in their children's educational activities. This technique can be adopted for students with additional instruction after the pandemic.

(Wang et al., 2020) Wang et al. described the children's physical and emotional health as a result of the prolonged lockdown. To address this issue, the Chinese government and other countries have taken steps to implement cutting-edge programs aimed at improving children's behavior and giving them the opportunity to raise their voices in support of their requests.

(Jandric, 2020) Jandric is a firm believer in the importance of knowledge and solidarity in this community's success, and he

urges post-digital scholars to examine and contribute to all parts of technology and social experimentation.

(Singh and colleagues, 2020) Singh et al. looked into many options for online lectures and decided on G-suite for medical education. They also used a balanced blend of academic and practical talks to limit student data usage. During the running sessions, a questionnaire was distributed to students and validated to determine their needs. This will provide real-time feedback, motivating pupils to improve their performance. After observing students' input, an intriguing paradox has emerged. The e-learning platform is well-liked by about half of the pupils. However, over half of the students still believe that the actual classroom is superior to the virtual classroom. The true causes of this perception, however, could not be assessed or measured. The study included a small group of students who volunteered to provide crucial feedback on the popularity and utility of the e-learning system in an anonymous manner. Second, due to the rapid covid19 epidemic, the entire e-learning system was implemented hastily. This allows us to put in place a well-structured training program for faculty and students in a relatively short amount of time. This was mitigated to some extent by the platform's ease of use and self-explanatory character, which was aided by a brief instructional film and different technical support services at lecture venues. Furthermore, following a few lessons on how to use the e-learning system, the majority of faculty members were able to adjust to this forum. The smooth initiative in implementing this program on a wide scale, both for staff members and students, appears to be a fresh method. We feel that our early experience can be used as a model for educational institutes seeking to provide continuing medical education in situations where regular teaching is disrupted. We need to execute it on a big scale in India because millions of students still do not have access to a free and continuous internet connection, as well as cellphones, tablets, or laptops with which to work.

Effectiveness of Online Classes

(Benbunan-Fich and Hiltz, 2003) Benbunan-Fich and Hiltz told that In the communication process, teaching is essential. To enhance course delivery and other educational purposes, a computer-mediated communication system is deployed. The practice of conveying content in the most straightforward manner is one of the most important aspects of teaching, and it must be collaborative rather than solitary learning. Knowledge is not provided to students in collaborative learning; rather, it arises from active dialogue and group activity among students.

(Nguyen, 2015) Nguyen said as part and impact of today's environment, online learning is replacing traditional and physical "brick and mortar" classrooms. Because of the emergence of the internet and the World Wide Web, these tremendous changes have occurred. On the whole, the physical class created a good environment for students because the online class is not advised for children to work on-screen continuously for hours, and the online class also loses good friendship and interactive sessions to students, which is an important part of their personal growth.

Technical Difficulties in Online Classes

(Al-Faki and Khamis, 2014) Al-Faki and Khamis investigate the challenges that educators confront as a result of the introduction of ICT in education technology, as well as expanded support for teachers using a smartboard with an inclusive pedagogical framework. It also encourages school administrators to assess the need for technical assistance and hands-on experiences for teachers. With students becoming more technologically adept, it has become essential to meet to their level of expertise.

(Ellis et al., 2005) Ellis et al. says that the majority of students are ignorant of the ways that can be employed in online education to improve case-based and blended learning. If the issues of coherence and cohesiveness between formal and online education are not properly addressed, blended learning will be jeopardized, as case-based experiences effectively deliver more benefits such as problem-solving, real situations, active learning, and reflection.

Difficulties faced by Learners during Online Classes

(Murphy and Coleman, 2004) Murphy and Coleman discuss the issues and obstacles that have arisen as a result of student behavior, web communication, a lack of awareness about the online forum, and technical issues. Burge discovered similar problems and concerns around a decade ago, and the researchers discovered similar issues and challenges. Though the study focused on web-based learning rather than online debates, the researchers warn that face-to-face engagement may not always be available, and that these issues must be addressed on a larger scale. To address these obstacles, some key advancements have been discovered. These intricate and delicate dynamics of online teaching must be understood by teachers. The impact on learning and behavior should be closely examined. Another option is to provide rich lessons on the usage of technology so that youngsters do not have the same challenges at school with understanding or asking questions.

(Chen et al., 2008) Chen et al. showed how Berry's acculturation idea may be used to shape online learning and looked at the effects of globalizing education marketplaces. Chinese students are unable to adapt to online learning at an Australian university since they are accustomed to their traditional and formal learning methods. These students believe that information is more than merely the transmission of facts; it must be chosen, recontextualized, and refined by a reputable body. Despite being in two separate online classes, the students experienced similar concerns such as less input from the faculty, lack of eye to eye interactions and proper bonding between the students and the lecturers, and a lack of learning community.

(Thompson and Lee, 2012) Though according to Thompson and Lee, the passage of time and the move to digital technologies necessitate new metrics and analysis. Students in virtual classes frequently mix what is said in comments with how to rethink the structure of their writing. The video feedback system, as studied by the authors, elucidates how the system supplements written feedback through the incorporation of technology in educational settings. In

addition, feedback (video feedback) is largely pleasant and upbeat, despite the fact that it takes time.

(Krishnan et al., 2020) During the spread of the Corona Virus, Krishnan et al. discovered that physically challenged people, particularly those with hearing impairment, inhibited their socializing behavior. They also had trouble using their hearing aids during online learning, which caused them to lose track of what they were learning. Every higher education institution should appoint specialized people to assist students with hearing impairments in identifying their specific potential needs and developing specific rules and regulations for instructors involved in online learning, tasks, mid-term tests, recorded lectures, and undertakings. In addition, there should be some flexibility for people who are unable to participate in online learning for various reasons. Furthermore, institutes must monitor students' mental health by providing safety and health policies, as well as treating anxiety that may arise as a result of maintaining social distance. If necessary, the university's counseling centers should be able to provide online assistance to students. Exam centers and administrative departments can also be designed with features that allow hearing impaired students to register for new courses and view their results online.

Advantages and Disadvantages of Online Classes

(Alexander et al., 2012) Alexander et al. documented the as part and impact of today's environment, online learning is replacing traditional and physical "brick and mortar" classrooms. Because of the emergence of the internet and the World Wide Web, these tremendous changes have occurred. On the whole, the physical class created a good atmosphere for learners because the online class is not advised for children to work on-screen continuously for hours, and the online class also loses good friendship and interactive sessions to students, which is an important part of their personal growth.

(Dumford and Miller, 2018) Dumford and Miller investigate that the National Survey of Student Engagement provided information on students' commitment to online learning. Students who took more online classes were more likely to participate in quantitative aptitude tests, as well as having less interactions and less exposure to good teaching approaches. Compared to the traditional technique, online learning has drastically reduced combined learning and student-faculty interaction. The main goal of this learning is to reach out to a broad range of people in order to enhance students' achievement and learning.

Tools used for online classes

(Francesa-Alfaro et al., 2016) Francesa-Alfaro et al. present the creation of a user-friendly Instructional Design (ID) Tool, which will require the collaboration of an interdisciplinary team as well as supervisors. He also discusses the ID matrix and the integration of ID tools with Tecnológico de Costa Rica (TEC) Digital modules, which are necessary for instructors to have simple access to and an integrated learning management system.

(Wang, 2011) Wang states that in order to properly deploy web-based training, educators must first grasp the important interaction challenges that can arise due to group size, other

participants' understanding, and their prior learning experience. Students in graduate web-based courses were encouraged to connect and collaborate using synchronous and asynchronous communication tools. Furthermore, effective communication and interaction were critical to the success of online courses, and the use of various communication tools allowed for a flexible learning environment.

User Friendly Tools for Online Classes

(Mandernach, 2006) Mandernach says in the case of online learning, critical thinking is required of the educators. Educators can use online technologies to move the training of basic ideas outside of class so that students are prepared to fully participate in a variety of activities. Instead of focusing on the technology itself, the major goal of promoting students' critical understanding and analysis of course information should be to focus on the careful selection of appropriate online teaching methodologies to meet course content and process goals.

(Athanaselis et al., 2014) Athanaselis et al. propose a new platform that not only allows access to reading material and improves speech recognition performance, but also encourages the development of learning abilities by modifying and acclimating in the context of feedback systems in order to increase the user's reading efficiency. Automatic speech recognition (ASR), which employs automatic user modeling and progress tracking, was utilized to help people overcome dyslexia. Because the Agent-DYSL system is readily expandable, the researcher demonstrated the Greek version of the system as well as its evaluation results for student performance.

PROPOSED METHODOLOGY

a) Description

In order to solve the above problems, we have come up with our project: Teaching Made Easy - Your assistant in Online Education. We have created an Assignment Checker using NLP. The checker will take the questions and their model answers/ ideal answers as input from the teacher. The students will submit their answers through a form, from which data will be fetched and fed into our Deep Learning Model of NLP following which the grade will be displayed on our web-page interface for the teacher as well as student. The web page interface allows options to create assignments, as well as show students' performance and class performance. For keeping an eye on every student during the online sessions hosted on any platform, we have created a python program using OpenCV library, which will take the video feed of live class as input and give tags to everything it identifies as human. The tags will be - attentive, not attentive, confused, and speaking. Keeping in mind the struggles faced by students in primary schools, like in muting or unmuting themselves during online classes. Also, many students get unnoticed during classes as they don't know about the feature of raising their hands and many don't know how to raise their hands virtually. We

have created another deep learning model, which will also take the live feed of online classes as input. It will try to identify hand gestures of students, and will classify them as "raising hand", "mute" and "unmute". We also intend on building a database which will contain information relevant to all the topics and chapters included in a particular grade's syllabus. Therefore, it'll be a concise collection of study material which can be referred to, by the students.

b).Flow Diagram

FACIAL EMOTION RECOGNITION (FER) SYSTEM

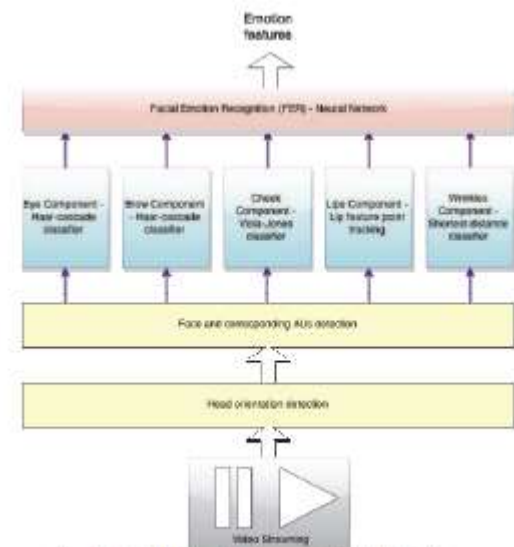


Fig. 1. Facial Emotion Recognition (FER) System

GESTURE EMOTION RECOGNITION (GER) SYSTEM

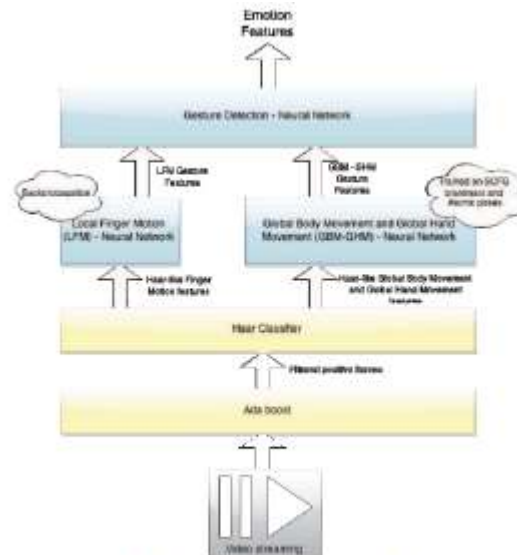
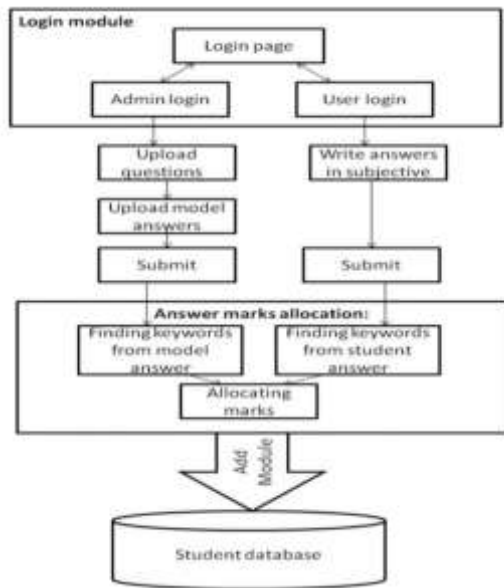


Fig. 2. Gesture Emotion Recognition (GER) System

FLOW DIAGRAM FOR ONLINE EVALUATOR



c).Mathematical Model

METHOD VIOLA-JONES

This method is the first object detection framework to provide competitive object detection in real time proposed in 2001 by Paul Viola and Michael Jones .

A .INTERGRAL IMAGE

Using an intermediate form for the image known as the integral image, the intensity of the rectangular section of the image may be determined relatively quickly. Other approaches, such as Wavelet transform, Speed up robust feature (SURF), and Haar filtering, utilise this format. The size of the rectangle region has no bearing on the speed of computing the total of the pixels in this scenario.

A matrix with the same size as the original image is called an integral image. The sum of the original picture pixels above and to the left of pixel x,y inclusive is the value of each element of integral image at location x,y,;

$$I(x, y) = \sum_{x' \leq x, y' \leq y} i(x', y')$$

where $I(x,y)$ is the pixel intensity of the original image and $i(x', y')$ is the pixel value of the integral image. The sum of the original pixels from $i(0,0)$ to $i(x,y)$ equals each member of matrix $I(x,y)$ (x,y). The time it takes to compute an integral image matrix is proportional to the number of pixels in the original image. This formula can be used to calculate the value of each matrix element:

$$I(x, y) = i(x, y) - I(x - 1, y - 1) + I(x, y - 1) + I(x - 1, y)$$

B. HAAR-LIKE FEATURES

Haar-like features are a type of digital picture characteristic that can be used to recognize objects. Working with an alternate feature set based on Haar wavelets instead of the standard picture intensities was explored by Papageorgiou et al. [4]. Viola and Jones generated Haar-like characteristics by adapting the idea of employing Haar wavelets. A Haar-like feature evaluates neighboring rectangular sections in a detection window at a specified point, adds the pixel intensities in each region, and computes the difference between these sums.

In the Viola-Jones object detection framework's detection phase, a window of the target size is dragged over the input image, and the Haar-like feature is generated for each part of the image. After that, the difference is compared to a learnt threshold for distinguishing non-objects from objects. Because a single Haar-like feature is a poor learner or classifier (its detection quality is only slightly better than random guessing), a large number of Haar-like features are required to accurately describe an object.

C. LEARNING CLASSIFICATION USING ADAPTIVE BOOSTING

Boosting is a supervised learning meta-algorithm for machine learning. Boosting is based on Kearns's question: can a group of weak learners produce a single strong learner? A weak learner is a classifier that is only tangentially related to the true categorization (it can label examples better than random guessing). A strong learner, on the other hand, is a classification system that is arbitrarily well-correlated with the true classification.

In machine learning and statistics, Schapire's affirmative response to Kearns' question has had major repercussions, most notably in the invention of boosting.

The weak learner determines the appropriate threshold classification function for each feature, ensuring that the least number of examples are misclassified. A weak classifier $h_j(x)$ is made up of a feature f_j , a threshold θ_j , and a parity p_j that indicates the direction of the inequality sign: where z is a 24 X 24 pixel image sub-window.

$$h_j(z) = \begin{cases} 1, & \text{if } p_j f_j(z) < p_j \theta_j \\ 0, & \text{otherwise} \end{cases}$$

This approach was developed by creating a more ideal family of boosting algorithms - AdaBoost, short for Adaptive Boosting, is a machine learning algorithm created by Yoav Freund and Robert Schapire. It's a meta-algorithm that can be used to improve the performance of a variety of other learning algorithms. AdaBoost is adaptive in the sense that it

adjusts succeeding classifiers in favor of examples that were misclassified by earlier classifiers.

For integrating more complex classifiers in a "cascade" that allows the image's background areas to be swiftly dismissed while more computation is focused on promising object-like regions.

RESULTS OBTAINED

a) Discussion on Obtained Results

The present way of conducting online classes is not suitable for younger children as well as teachers as it lacks many features to make online-learning comfortable. Therefore, our aim is to build a working model that would provide the following features for helping students as well as teachers in online education:

1. An online evaluator that would evaluate answers and award marks on the basis of keywords included consequently displaying the marks of each student.
2. An extension which can be used to toggle teams features such as mute, unmute, raise hand and present screen by means of hand gestures (thumbs up/down, hand raise, etc. In addition the extension would give tags to students which would describe their attentiveness based on students' expression at that time and subsequently map it into an excel sheet for future reference by the teacher.
3. An FAQ section comprising of a database which will contain information relevant to all the topics and chapters included in a particular grade's syllabus. Therefore, it'll be a concise collection of study material which can be referred to, by the students

b) Comparison with Existing Systems

- 1) Unlike present similarity checkers, our project is based on semantic similarities using deep neural networks which is much more efficient and provide accurate results.
- 2) Also, we provide feedback to students, in the form of pointers on where their answer was lacking.
- 3) We solve a very crucial problem faced by teachers, that they can't monitor all the students altogether.
- 4) Also a very efficient solution to solve the lack of ability of the students of the primary section to use the online class' platform.

CONCLUSION

Pandemic has affected almost every person irrespective of their occupation. As many of our teachers have children, who too have online classes from home. It becomes really hard for our teachers to manage their time in evaluating

assignments and tests especially when now they have to do corrections virtually on a computer screen. Online education may fall short of our expectations if it becomes a second-class form of education. It differs from being alone or working as a mediator between teachers and students through face-to-face interactions or technology-mediated communications such as E-Mails.

Online education plays a critical role in the development of teaching scholarship in higher education. In this century, the incorporation of online learning into India's medical education is a must. E-learning is not time-limited and may be accessed at any time and from any location. In India, academic institutes and educational institutions should focus on building WiFi and internet services that will benefit students. People offer a five-phase virtual learning system that allows teachers to effortlessly communicate with students.

It has aided the community in remaining focused on their academic goals, especially in the face of adversity. The best alternative is to use a cloud-based online portal and mobile application that is adequate for regular education. The e-learning platform is well-liked by about half of the pupils. Half of the students still believe that the actual classroom is superior to the virtual classroom. The smooth initiative in implementing this program on a wide scale, both for staff members and students appears to be a fresh method.

As part and impact of today's environment, online learning is replacing traditional and physical "brick and mortar" classrooms. With students becoming more technologically adept, it has become essential to meet to their level of expertise. If issues of coherence and cohesiveness between formal and online education are not properly addressed, bended learning will be jeopardized. Students' behavior, web communication, lack of awareness about the online forum, and technical issues need to be addressed. Chinese students are unable to adapt to online learning at an Australian university since they are accustomed to their traditional and formal learning methods.

The impact on learning and behavior should be closely examined. Students in two different online classes experienced similar concerns such as less input from the faculty and a lack of eye-to-eye interactions. Higher education institutions should appoint specialized people to assist students with hearing impairments. Exam centers and administrative departments can also be designed with features that allow hearing impaired students to register for new courses. The National Survey of Student Engagement provided information on students' commitment to online learning.

Compared to the traditional technique, online learning has drastically reduced combined learning and student-faculty interaction. Educators can use online technologies to move the training of basic ideas outside of class so that students are prepared for a variety of activities. A new platform that allows access to reading material and improves speech recognition performance has been proposed. Unlike existing similarity checkers, our technology is focused on semantic

similarities and uses deep neural networks to offer reliable results. We also give students feedback in the form of signs pointing out areas where their answers are inadequate. We address a critical issue that teachers face: they are unable to monitor all of their kids simultaneously. A highly effective solution to the elementary students' inability to use the online class platform has been proposed.

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Code Implementation for the Evaluation Model:

```
import math
import re

import nav_test
import pyrebase
import requests
from fuzzywuzzy import fuzz

import cosine_similarity as keywordVal
import configurations

# TODO- Accuracy prediction library
'''
e = 1
vg = 2
g = 3
o = 4
p = 5
vp = 6

Grammar:
y = 1
n = 0
'''

def givVal(model_answer, keywords, answer, out_of):
    # KEYWORDS =>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    # TODO : Enhacnce this thing
    if (len(answer.split())) <= 5:
        return 0
    k = keywordVal.givKeywordsValue(model_answer, answer)
    # print("checkkkkkk", k)

    # GRAMMAR =>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

    req =
requests.get("https://api.textgears.com/check.php?text=" +
answer + "&key=JmcxHCCPZ7jfXLF6")
no_of_errors = len(req.json()['errors'])

if no_of_errors > 5 or k == 6:
    g = 0
else:
    g = 1
q = math.ceil(fuzz.token_set_ratio(model_answer, answer) *
6 / 100)
```



```

print("Keywords : ", k)
print("Grammar : ", g)
print("QST : ", q)

predicted = nav_test.predict(k, g, q)
result = predicted * out_of / 10
return result[0]

firebsevar =
pyrebase.initialize_app(config=configurations.config)
db = firebsevar.database()

model_answer1 =
db.child("model_answers").get().val()[1]['answer']
out_of1 = db.child("model_answers").get().val()[1]['out_of']
keywords1 =
db.child("model_answers").get().val()[1]['keywords']
keywords1 = re.findall(r"[a-zA-Z]+", keywords1)

model_answer2 =
db.child("model_answers").get().val()[2]['answer']
out_of2 = db.child("model_answers").get().val()[2]['out_of']
keywords2 =
db.child("model_answers").get().val()[2]['keywords']
keywords2 = re.findall(r"[a-zA-Z]+", keywords2)

model_answer3 =
db.child("model_answers").get().val()[3]['answer']
out_of3 = db.child("model_answers").get().val()[3]['out_of']
keywords3 =
db.child("model_answers").get().val()[3]['keywords']
keywords3 = re.findall(r"[a-zA-Z]+", keywords3)
all_answers = db.child("answers").get()

for each_users_answers in all_answers.each():
    # For the first answer ->
    print("\n\n" + each_users_answers.val()['email'])

    answer = each_users_answers.val()['a1']
    result = givVal(model_answer1, keywords1, answer, out_of1)
    print("Marks : " + str(result))

db.child("answers").child(each_users_answers.key()).update({"result1": result})

# For the Second answer ->
answer = each_users_answers.val()['a2']
result = givVal(model_answer2, keywords2, answer, out_of2)

```

```
print("Marks : " + str(result))

db.child("answers").child(each_users_answers.key()).update({"result2": result})

# For the third answer ->
answer = each_users_answers.val()['a3']
result = givVal(model_answer3, keywords3, answer, out_of3)
print("Marks : " + str(result))

db.child("answers").child(each_users_answers.key()).update({"result3": result})
```

Code Implementation for the fetching of data from frontend to the database for evaluation:

```
from flask import Flask, render_template, request
import configurations
import pyrebase

app = Flask(__name__)
email = "null"

firebsevar =
pyrebase.initialize_app(config=configurations.config)
db = firebsevar.database()

@app.route('/')
def Base_qstn_paper_set():
    return render_template('first.html')

@app.route('/foo', methods=['POST', 'GET'])
def foo():
    if request.method == 'POST':
        first = request.form['first']
        second = request.form['second']
        third = request.form['third']

        email = request.form['emailID']

        ans = {"a1": first, "a2": second, "a3": third,
"email": email}

        result = db.child("/answers").push(ans)

        return render_template('first.html')

if __name__ == '__main__':
    app.run()
```

Code files of the website of our project, ML model, flask code for fetching the data from the website to the database have been included in the github repository having the following link:

https://github.com/pragya2002/AI_project

Link of the website developed:

https://pragya2002.github.io/AI_project/