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Exploring the Proficiency of Virtual Learning Technologies for Language Learning

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Abstract: The COVID'19 Pandemic created a major shift in the education delivery system, from the traditional classroom to E-learning for schools and universities. From the many subjects, language learning has been pursued by students and individuals as recreation. People have adopted various online mediums for learning their preferred languages. Educational institutes have embraced applications like Microsoft Teams and Zoom to maintain an effective learning environment for the students. With the development of distance learning technologies, examining the effectiveness of these resources used for teaching has sparked an interest in researchers and educators. This present study seeks to (a) Understand student's perception towards e-learning languages via video conferencing platforms and (b) Identify pros and cons of distance learning technology for teaching dialects. For the purpose of this research, a mixed method research design was employed through an online questionnaire designed for school and university students. This study also carefully reviews existing literature on various aspects of language and distance learning. This research aims to establish concrete evidence to support online learning of languages as a new teaching approach. As a solution, this paper encompasses a conceptual framework that is an AI-based prototype, an extension for video conferencing platforms and learning management systems. Future researchers should explore solutions for resolving challenges shared through this paper.

Keywords: Online learning, Languages, Distance learning, Videoconferencing, Effectiveness

Introduction

During the pandemic era, the world has been technologically driven. Friends and family interacting over the internet, people attending meetings virtually and students continuing learning through video conferencing. The advancements in technology over the years has helped schools and universities create open, interactive, and flexible environment for students for e-learning (Baber, 2020). The shift from traditional classroom settings was initiated through use of different video conferencing platforms, online material and dependence on virtual resources. This sudden shift has increased the usage of video conferencing platforms in every household and organization. The common applications include zoom, Microsoft teams, blackboard, google meet amongst the many others (Kumar et al., 2020).

Over 6 million students around the world are currently enrolled in online courses and learning as part of their higher education as reported by the education ministry in 2020. The digitization of the education sector allows students to online entirely while being able to watch lectures, socialize with friends and participate in specialized discussions (Li et al., 2020). Research suggests 85% of students recommend online learning as being

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better than traditional learning methods. The virtual sphere of education offers students the opportunity to learn through various resources (e-books, videos, journals) and learn through their preferred learning style (Abrami et al., 2011).

Middle East and India Online Education & E-learning Market (2017-2023)

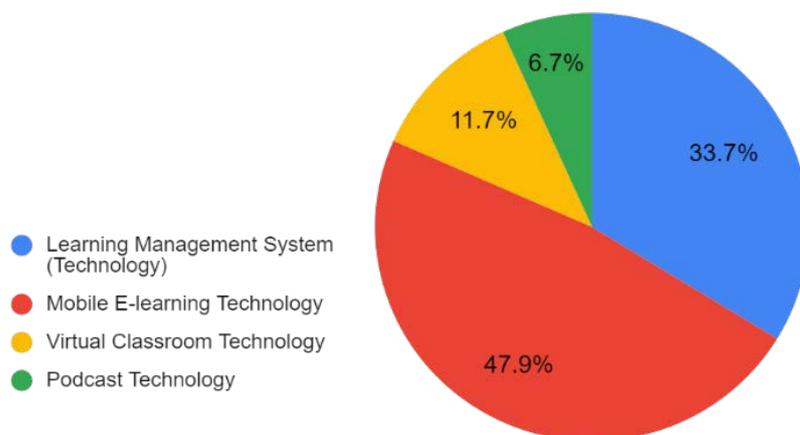


Figure 1. E-learning market in Middle East and India trends

In the entire repertoire of the education system, learning of languages has a crucial hold. From being the mode of communication and interaction, language learning has taken over as new skills and hobbies to be developed. Various languages being learnt are French, German, Arabic, Spanish and many more. Fluent communication in English is definitely what organizations are looking for. Yet, the ever-evolving world of advancements now values the knowledge of different languages beyond English and the local languages. For example, job requirements posts contain the need for certain languages. Hence, the learning of languages is only increasing with value and need (Hogan-Brun, 2017).

Additionally, the pandemic has not posed as a roadblock for those interested in learning languages. People continued to strive for the same using various video conferencing platforms. Faculties and instructors are using different methods to teach their students in the best possible way (White, 2017). Use of videos, blackboard and whiteboard, online quizzes etc. are incorporated to train and test students, continuing the education of languages. This is not to say that language learning is new to the online medium of video conferencing platforms. The same has been adopted before the pandemic by sites like Duolingo, Coursera etc. However, during the year, the use of online mediums has seen an efficient increase (Motzo & Proudfoot, 2017).

Analyzing current trends in education and studies conducted in the past show a substantial gap in language learning and delivery through online methods. This research has highlighted the objectives to be achieved: (a) Understand student's perception towards e-learning languages via video conferencing platforms and (b) Identify pros and cons of distance learning technology for teaching dialects. The pandemic has caused a major shift in the teaching pedagogy for students around the world at different levels, making it crucial to understand the effectiveness of the online teaching method (Pokhrel & Chhetri, 2021). Considering the limitations of previous research, the following study has collected and analyzed ample of data through review of literature and a reliable survey with a substantial sample of university and school students from India and Middle East.

Literature Review

From the start of our education system, schools and universities have followed the traditional method of teaching students, in a classroom with direct instructions given by the teacher. Through this method, the teachers are responsible for providing adequate resources and clear instructions to the students. However, in the past few years a new method of teaching has gained popularity known as online or virtual mode. Studies suggest the virtual mode has provided a strong alternate to the traditional instructions provided in educational sectors. Virtual learning is conducted through video conferencing platforms and online resources shared by the facilitator (Broadbent, 2017).

Research analysing current trends of online learning highlighted that various synchronous and asynchronous modes both can be successfully used to provide information to students, facilitate interaction with the teacher and peers for a better learning experience (Faulconer et al., 2018). Another study explained, synchronous methods like instant messaging or Skype with and without voice or video for e-learning significantly enhanced student's skill acquisition and achievement in the given subject. Virtual learning has found to be provided through video conferencing platforms like, teams, zoom etc; online open courses; live videos and tutorials (Kalpana R & Mahajan, 2018).

A comparative study was conducted for students in an introductory physics course and discovered that students taking online learning had a significantly lower failure rate compared to students in face-to-face classrooms and online students also had a lower withdrawal rate compared to other modes (Perez-Navarro et al., 2021). Research studying the effectiveness of 3 courses delivered online versus face-to-face reported that students developed a better understanding of the course, were engaged and satisfied more with their interaction and had significantly higher final grades through the online courses (Soffer & Nachmias, 2018). Online courses for different subjects were found to be as effective as or more effective than face-to-face delivery.

This new, enhanced mode of education delivery was extremely beneficial for schools and universities during the pandemic, as communication shifted to video conferencing platforms, learning became easier. A 2021 study highlighted that students voiced their dissatisfaction with video-conferencing platforms due to lack of training of teachers, however their interaction with them and overall performance during online classes was enhanced (Mpungose, 2021). A paper analysing the effectiveness of remote learning and student's perceived satisfaction through a survey reported that many different factors like, engagement in classroom, distractions, interaction during live discussions and understanding of the materials impact the level of satisfaction of students (Muthuprasad et al., 2021).

Another study found that online learning environments promote student- content interaction and online learning self-efficacy which directly related with increased student satisfaction and positive learning outcomes (Alqurashi, 2019). A 2016 study highlighted key factors correlating to promote education and willingness of students to participate which includes, interaction with tutor, use of various resources and tools, assessments from different applications for a better learning experience (Bolliger, 2004).

Few researchers have identified how the online learning system benefits students as well as teachers by highlighting their experiences and suggesting improvements. A recent study suggested providing distance education is a technology-oriented process, the quality and interaction in online classes were perceived to be important determinants of learning success by teachers. Majority of the instructors recommended better ICT training for them in the future for virtual learning and 87% of respondents consider online education as an efficient alternative in situations like the pandemic (Lee et al., 2021).

Establishing the high use of online mediums for education, we now move on to understand the implications of the same for language learning. A study that analysed the effectiveness of online language learning states that students preferred being tutored by an instructor rather than an individual online class. In other words, they prefer traditional classroom settings over online language learning. Moreover, the study also investigated the mediums preferred for online language learning and found reference books in digital formats to be the most useful, followed by videos, emails and online discussion boards (Akyildiz, 2020). Video conferencing platforms were not preferable as they are usually used for asynchronous learning. Partaking in synchronous mode of education, the digital books, emails and discussion boards not only assisted with learning but also established a connection between their tutors and peers (Mishra et al., 2020).

Another research analysed the main tools that are effective for online language learning. The terminology of 'tutoring call' refers to grammar exercises that are done mechanically via technology. The study shows how students appreciated an individually oriented tutorial call over web applications like wikis and blogs. Websites like Quia and Hot potatoes help create and customize language exercises for a better learning experience. Other programs like Tell Me More from Aura log aids in learning pronunciations as well as exercises (Blake, 2008).

The current trends of the education system have seen a high increase of online mediums, adopted by almost every educational institution due to the covid pandemic 2019. Social distancing and lockdowns have brought learning to online mediums and made it compulsory. A study that involved university students undertook a focus group discussion found learning to be sans interaction and communication, additional load of assignments in place of examinations and adding on to the existing psychological concerns of anxiety and depression. However, it did come with its sets of pros like flexibility and online exams. The focus group discussion also

highlighted students' suggestions to make online learning a better experience. Those include changes in teachers' teaching style, their perspective as educators, and assessment patterns (Jabeen & Thomas, 2015). With similar findings, another study highlights the need for the curriculum to develop and adapt in a way that reflects the perceivable changes in content knowledge and learning experiences of students, to enable them to be problem solvers and critical thinkers and adjust well to the ever developing 21st century (Mishra et al., 2020). Language learning and bilingual skills are an important aspect for getting good job opportunities.

An interesting research investigated the effectiveness of online resources for e-learning of languages during the pandemic. Participants preferred the use of tools like PowerPoint presentations because of its familiarity during traditional classroom environments. On the flip side, the least preferred resource was individualized feedback as it was usually delayed and ineffective (Maican & Cocorada, 2021). Another study highlights the effectiveness of video conferencing platforms that allows for more efficient communication instead of asynchronous learning. Aspects of microphone, video camera and chatting gave way for proper interaction and contributions. Although few concerns that arose are poor Wi-Fi connectivity, unavailable microphone and camera and lack of experience and knowledge of using technology. For post-pandemic scenarios, most participants preferred a blended setup (Mukhtar et al., 2020).

In terms of the psychological well-being of students while partaking in online language learning, the students of the study reported feeling positive, negative and mixed emotions. Negative emotions arose due to lack of interaction with peers and mentors along with the feeling that their developing language skills could be hampered. Feelings like shame and concern were reported because of poor performance and progress. Issues like stress, migraines and attention concerns were also found. Positive emotions include enjoyment in online learning. However, a typical emotional stand was feeling mixed emotions (Mukhtar et al., 2020).

While the shift from traditional to online technological education is prominent in its need and urgency for change, they pose a set of advantages and disadvantages for students and teachers. The most common plus-points are flexibility, accessibility and remote learning, an easy way for students and teachers to interact in the comforts of their home. Additionally, as opposed to traditional learning which resorts to spoon-feeding of information, online education encourages students-centred learning (Charan, 2019).

Specific to the advantages of online language learning, the afore-mentioned studies have mentioned the same in a dissection. To name a few, 'tutoring call' made the learning process not only helpful and easy but was also fun and enjoyable. Moreover, online lessons can be replayed for revision and repetition for clearing doubts and better understanding. For those who prefer individual learning and are self-motivated, this autonomy will assist in developing those language skills. Also, from digital reads and files to websites and applications, technology enables learning via various methods that targets reading, listening, writing and speaking domains of language learning (Bakhmat et al., 2021).

Reports suggested some drawbacks of using e-learning platforms for education, however most studied offered applicable solutions for the difficulties faced by students and teachers as well. A study completed with lecturers in Ukraine highlighted that teacher's most common problems were technical and linked with network connections, hardware for video and audio and lack of knowledge about proper technology use (Baber, 2020). A cross-country study between Korea and India reported student's perception for online education, for which drawbacks were lack of academic motivation, lack of time and attention with teacher and social isolation from peers (Gilbert, 2015).

Methodology

A qualitative research design was implemented in this study through an online survey developed with semi-structured questions for students. The questionnaire was titled 'Language Learning and Video Conferencing Platforms' and gathered data on student's perception of online learning during the pandemic using open-ended questions and fixed option questions. The simple random sampling method was deployed for the purpose of data collection. A total sample of 405 students from High School and University in India and Middle East completed the questionnaire. The inclusion criteria were students who have learnt any language during the last few months through video conferencing platforms. Informed consent was obtained from the sample and data was kept confidential. Data was analyzed and presented as graphical illustrations.

Results and Discussion

A questionnaire titled ‘Language Learning through Video Conferencing Platforms’ was circulated in schools and universities via google form and data was collected for this study. The survey was conducted to achieve the first objective of this research ‘Understanding student's perception towards e-learning languages via video conferencing platforms.’ Four Hundred and Five students at high school (43.5%) and university (54.5%) in India and United Arab Emirates responded to the survey.

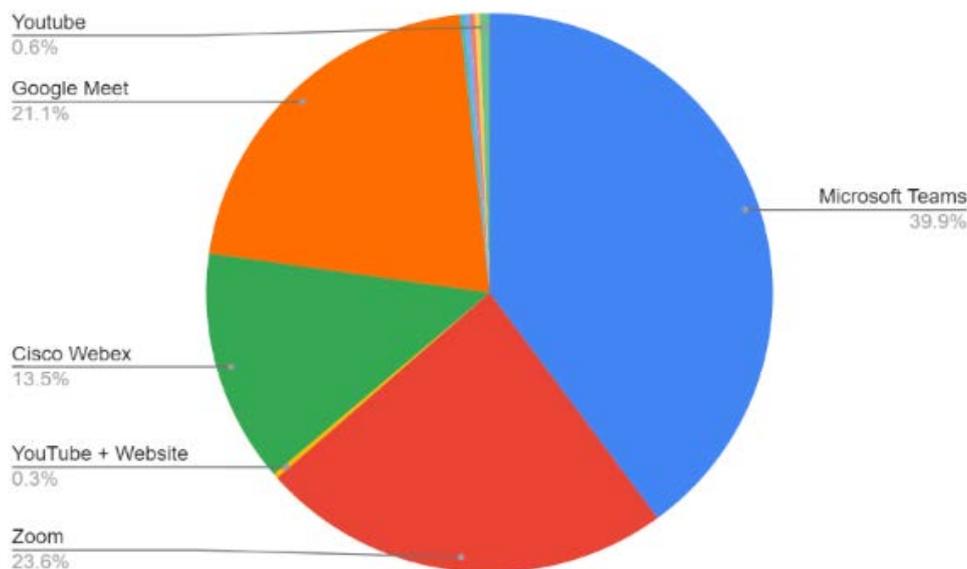


Chart 1. Which video conferencing platform have you used for distance learning during the pandemic?

Chart 1 shows the usage of different video conferencing platforms by school and university students for continuation of their education during the pandemic. The most selected application is Microsoft Teams (39.9%), followed by Zoom (23.6%) and Google Meet (21.1%).

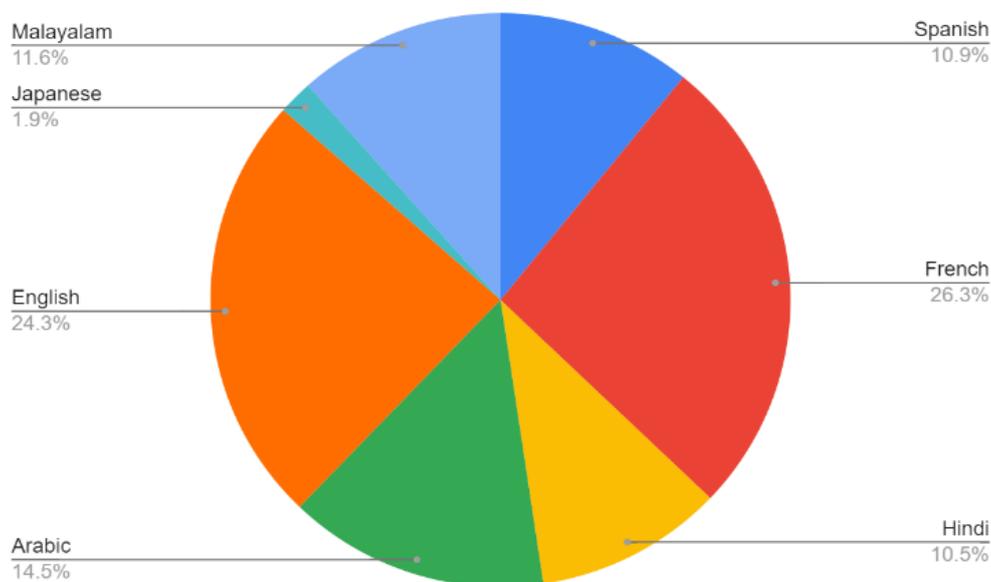
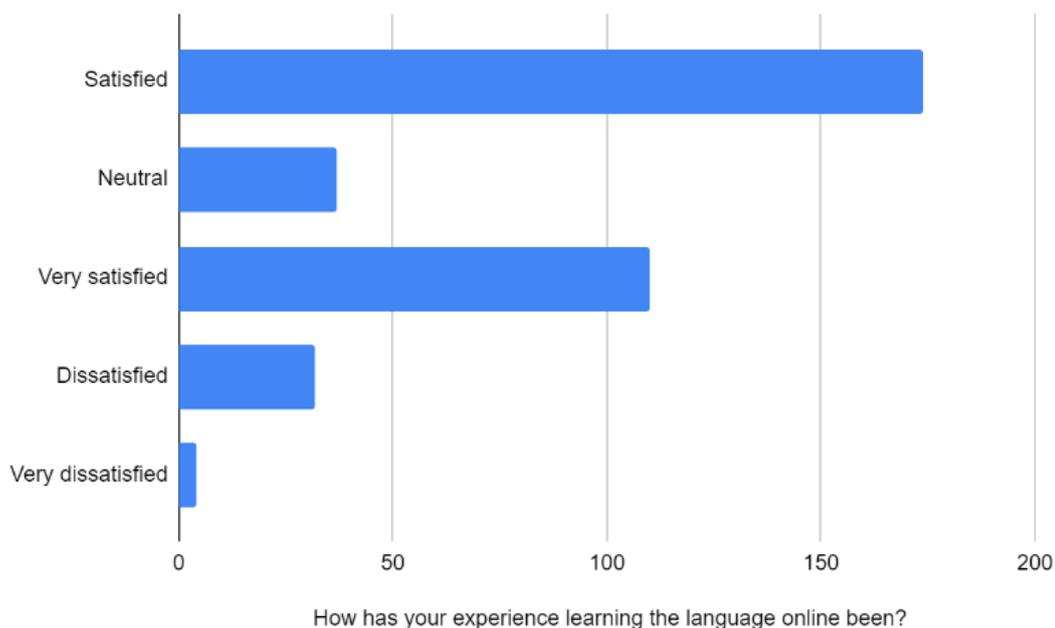


Chart 2. What languages have you learnt through e-learning?



Graph 1. How has your experience learning the language online been?

The above chart gives an insight into the most commonly learnt languages during the pandemic via online means. Majority of the participants learnt French (26.3%). Following that is English (24.3%) and Arabic (14.5%).

Students were asked to rate their experience with learning languages through online applications or video-conferencing platforms. Most participants felt 'satisfied' with their experience, as shown in graph 2.

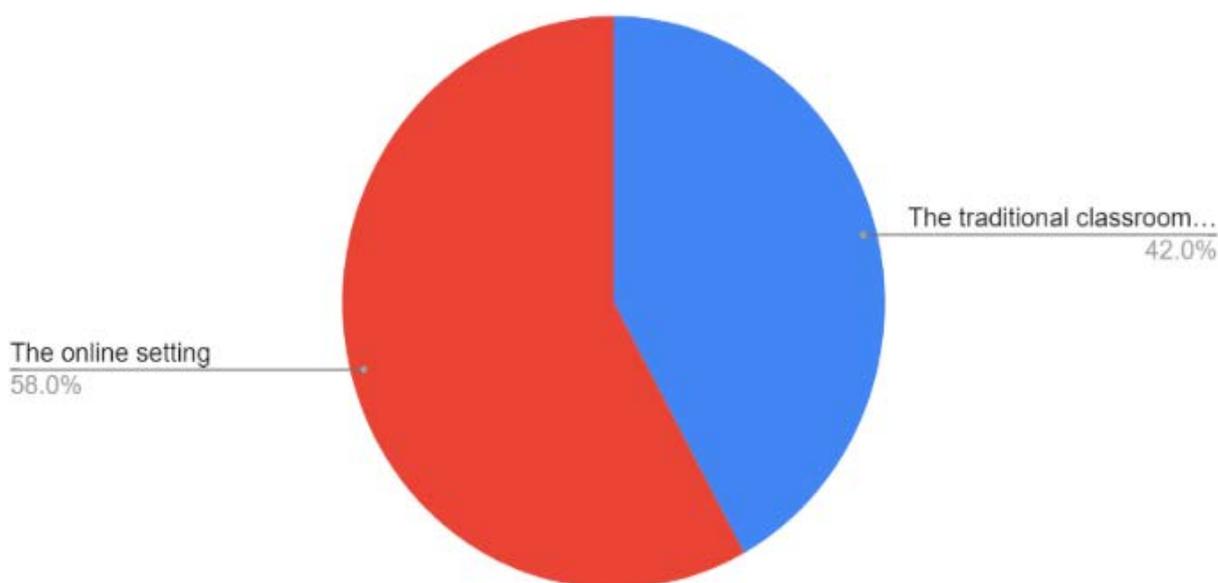
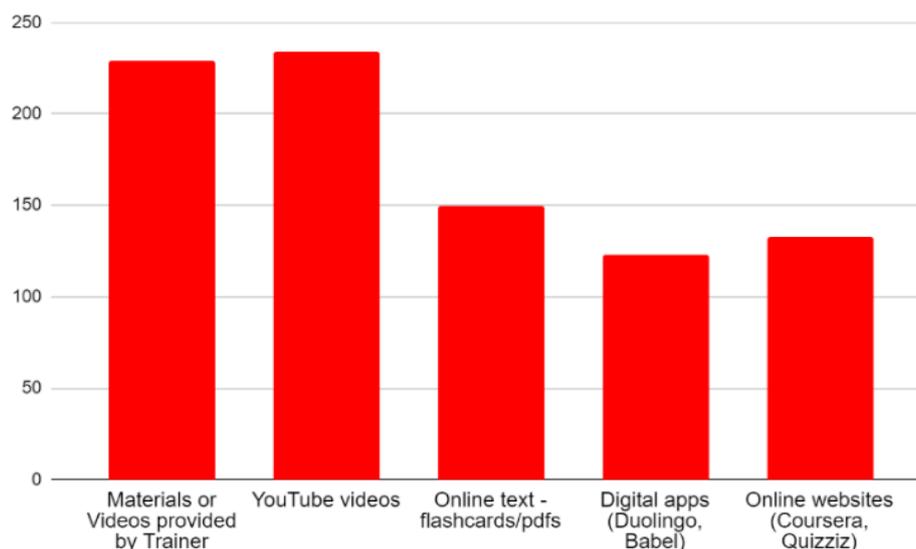


Chart 3. In a post-pandemic setting, what method would you prefer for language learning?

Although the shift from traditional to online education was sudden, research suggests the adaptation has been a smooth process for students and educators. Hence, as demonstrated in the above chart, 58% participants choose to continue with the online medium of language learning in a post-pandemic world.



Graph 2. What kind of tools or resources have you used as part of your language learning experience?

Educators have utilized various tools and resources to enhance student’s learning during the shift to virtual platforms. Individuals have also taken responsibility for improving the language learning process by using online applications and websites. To support their online language learning, additional tools were utilized by learners including YouTube videos and the materials provided by their instructors. The same is represented in the above chart.

Students were asked open ended question for the reasons why they prefer online learning via video conferencing platforms. The following diagram represents the major themes of the responses gives by the students. The opportunity to learn at their own pace, flexibility with time and option to view recordings later were found to be the most shared reasons.

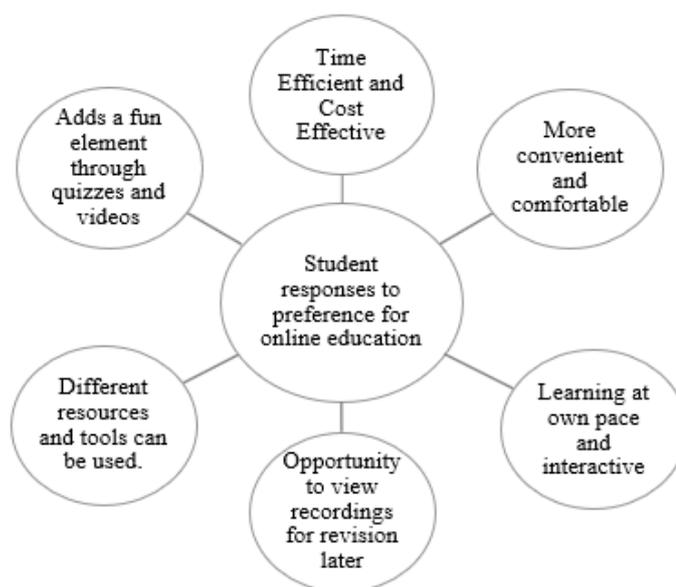


Figure 2. Representation of student’s response to their reason for preference of online education

To summarize, the responses shared by students highlight an overall positive experience with language learning online during the pandemic. A blended learning approach with inclusion of more virtual tools and resources needs to be implemented in the post-pandemic learning environment for other subjects and languages (Jones & Sharma, 2020). Overall, students have had a satisfactory encounter with the shift in learning platforms and adjusted to learning virtually.

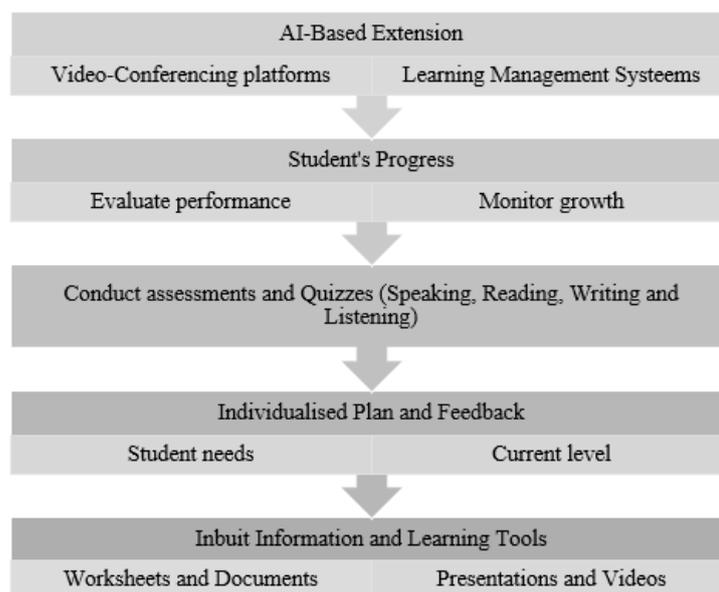


Figure 3. AI extension prototype for enhancing student's language e-learning experience.

From analyzing review and data collected through the survey, it was evident that student's faced certain challenges that limited their online language learning experience. As part of this study, we present a conceptual framework based on an AI enabled extension for learning management systems and video conferencing platforms used in educational institutions. This framework takes into consideration the concerns shared by students and can be further developed by AI developers and software engineers.

Conclusion

The aim of this research was to analyze the effectiveness of video conferencing platforms and other online mediums for the learning of languages. From the review of literature and the data collected via the survey conducted, results clearly demonstrate the proficiency of online language learning. This statement is supported by quite a strong finding from the survey conducted where 58% of participants would prefer the online mode for learning of languages in a post-pandemic world. Additionally, findings show the learners' experience to be 'satisfied' with language e-learning. Although there were challenges of lack of clarity and loss of motivation and interest along with the preference for continued e-learning, it indicates the positive outcomes of online language education. However, an all-in-one solution for a smooth process of language e-learning is not yet found, paving a path for the AI-based extension depicted in the form of a conceptual framework.

Future recommendations of this study would suggest educators to evaluate the advantages and drawbacks to improve the language learning environment for students at different levels. Researchers and software specialists should practically apply the ideas shared through the framework to create an expert application for education. The following study, however, does have certain limitations that need to be considered by researchers pursuing similar objectives in the future. The research utilized the questionnaire method to gather the required data and did not consider any qualitative approaches. Responses from the survey were limited to students from India and the UAE. Hence, future studies should consider samples from other regions and different methodologies. A longitudinal or comparative study can be conducted with similar objectives to understand the long-term impact of online learning student's performance and ability to apply the language. The education industry has seen a massive shift during the pandemic, the learning environment has changed for students, and it is crucial to take technical steps towards enhancing their experience in the future.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPSS journal belongs to the authors.

Acknowledgements or Notes

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