

ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION: TRANSFORMING INTERNATIONALIZATION AT HOME

Batuhan SELVI

Department of English Language Teaching, Faculty of Education, Firat University, Turkey

ORCID ID: 0000-0002-4755-3361

1. Introduction

Internationalization at Home (IaH) is a strategic approach that integrates global, intercultural, and international dimensions into higher education curricula and campus life without requiring physical mobility. It addresses the inequities of traditional study-abroad programs, ensuring that all students, particularly non-mobile ones, gain global competence (Beelen & Jones, 2015). By embedding international perspectives into academic content - such as through multilingual education, global case studies, and Collaborative Online International Learning (COIL) projects (O'Dowd & Lewis, 2018) - IaH democratizes access to global engagement. Beyond academics, IaH fosters intercultural understanding through cultural festivals, guest lectures, and workshops that build empathy and adaptability (Leask, 2015). Digital innovations, including AI tools like ChatGPT and virtual reality platforms, further enhance these intercultural experiences, making global engagement more accessible and immersive (Shirazi et al., 2024). However, despite its transformative potential, IaH faces challenges. Resource constraints, cultural biases, and difficulties in measuring its impact often limit its effectiveness (Knight, 2012). To overcome these barriers and maximize the impact of IaH, artificial intelligence (AI) offers innovative solutions. AI provides new pathways to enhance accessibility, foster personalized learning, and facilitate meaningful cross-cultural interactions, all of which are critical for achieving the goals of IaH.

AI makes cross border interaction easy by removing the traditionally existing barriers, for instance, the distance and cost. Instruments such as Google Translate and DeepL help in overcoming language obstacles and enable access to scholarly material and intercultural interaction (Cotoman et al., 2022). In the same way, global online platforms that are powered by AI offer access to live cultural experiences such as cultural visits or international guest speakers (O'Dowd & Lewis, 2018). AAI is also very good at creating individualized education experiences. While adaptive learning technologies enable active engagement for the students by evaluating the learners' progression to offer appropriate content. For instance, language educators such as Duolingo and ChapGPT help in customizing one's language based competence along with culture oriented tasks (Batunan et al., 2023). These instruments increase global learning outcomes significantly. Furthermore, AI promotes genuine intercultural dialogues. Global educational and civil engagement initiatives such as the COIL project enhance students and teachers' cooperation in collective research efforts or academic activities, resolving various issues and, as a result, developing global citizenship (Ataş Akdemir & Akdemir, 2019; Leask, 2015). Constructive (AI) AR/VR applications cover the shortcomings of textbooks and other teaching tools by allowing students to be present in

foreign settings and participate in real-time interactive cross-cultural experiences (Qasim, 2024).

As the world is actually turning into a global village, the requirement for global competencies such as adaptation, intercultural, and technological skills is on the rise. AI, therefore, supports IaH initiatives because it matches the requirements with it, such that internationalization strategies are efficient and cost-effective. As it is through AI that students get equipped with necessary skills to excel in a globalized society through enabling gaps in accessibility and promoting students with potential global democracy (Deardorff, 2009).

The primary objective of this chapter is to highlight the major contributions of AI as a new technology in achieving objectives set out in the process of IaH. It investigates the ways in which AI compromises on the issues of accessibility, personalization, and cross-cultural interaction but still manages to remove boundaries that are traditional to internationalization. By bringing theoretical explanations and practical examples together, the chapter explains how if tools that are powered by AI are embraced, the goals of IaH can be advanced in a much accessible manner. It further, looks at AI as a tool then examines the ethics of cultural bias, data privacy with AI and finally provides some helpful suggestions for educators, administrators and even policy shapers. The chapter finally sees AI as a driver of internationalization in higher education that is effective and inclusive.

2. The Concept of Internationalization at Home (IaH)

The idea of Internationalization at Home is coined during early 90s as an approach to resolve grievances caused by internationalization ideologies based on student and staff's outward mobility. Initially, it was defined as "any internationally related activity excluding the mobility of students and staff outwards" (Crowther et al., 2001 as cited in Almeida et al., 2018). This definition signified the change in emphasis from outward mobility to the inclusion of international and intercultural aspects within the domestic context for pedagogical processes. This model was meant to balance the scales of international education by ensuring that the majority of the student body who are non-mobile have opportunities for global engagement (Beelen & Jones, 2015; Robson et al., 2018).

Origins and Early Development

Many advances in concepts and approaches to internationalize higher education have moved the field forward but at the same time forget previous important paradigms. In this case higher education becomes deeply structured rooted in the socio-political contexts, structures, and cultures generated in it. Beelen and Jones (2015) argue that others have mentioned that overseas trips should not be a pre-requisite to be a successful student. The new definition made the concept of IaH all inclusive; this redefinition was a radical change from the ever mobility prevailing models of internationalization. Moreover, according to the European Commission's European Higher Education in the World strategy (2013), that higher education expansion strategy, the IaH became institutionalized promoting its use as a tool to achieve equality, to help who compete in the labor market better and to increase themselves in global competition (Almeida et al., 2018).

This means that the content of a course could be constructed in such a way that students will grapple with ideas from all over the world without leaving the campus. The IaH program was directed to the creation of enabling conditions to ensure that these content features are integrated into the teaching/learning processes. This included the use of international case studies, cultural engagements in the form of campus-based programs and introduction of global themes in certain modules. These entrepreneurship processes were intended to increase threats to technology domination and dependence in global entrepreneurship.

Technological Advancements and the Expansion of IaH

With the emergence of software and platforms, the scope and effectiveness of IaH have been broadened. Applications like Collaborative Online International Learning (COIL) have become the primary tools used for making online international exchanges possible. Such exchanges enable students in various countries to work together on joint academic activities with a view to developing understanding and communication across cultures (Voelker et al., 2024; Mittelmeier et al., 2021).

Moreover, the integration of artificial intelligence (AI) and virtual reality (VR) has made possible even more participatory and active forms of intercultural engagement. AI applications, like ChatGPT for instance, can aid in languages instruction and international dialogue by pretending situational contexts. Likewise, VR technologies, whereby students get to experience simulated embodiment within other cultures, further contribute to the development of students' flexibility and international mindedness (Wu et al., 2023; Lv et al., 2024). Such resources do not only eliminate the access restrictions of geography and finance to the conventional moving abroad opportunities but also assure an efficient delivery of the global experiences to the students from their respective institutions.

Core Goals of IaH

The provision of IaH services facilitates a wider set of goals. The goals which are structural, namely developing intercultural skills, global participation, and giving proper international exposure to students are three pivotal goals that IAH is all about. The implementation of IAH is also collective in meeting the demands of a globalized society for cultural orientation, sociological ethics and universality.

The world today is interdependent and the ability to communicate and work with persons from other countries is referred to as intercultural competence. This competence, IaH promotes thorough good curricula development, utilization of technology and other practical experiences. According to Németh and Csongor (2018), universities aim to develop cognitive, emotional and behavioral competences in students through the incorporation of global and intercultural aspects into course materials. For example, Collaborative Online International Learning (COIL) projects expose learners to intercultural academic engagement, which broadens their horizon (Grover et al., 2024; Voelker et al., 2024). Highly developed technologies widen intercultural experiential learning (Efe et al., 2011).

Klimova and Chen (2024) and Chan et al. (2024) maintain that both IA and its tools, like virtual reality simulations help bolster one's global competence and flexibility by creating an experience that is closer to reality. Research submitted by Heng and Yeh (2024) indicates the usefulness of such tools for effective communication amongst cultures, suggests that telecollaboration enhances digital competence, intercultural literacy as well as cultural appreciation. Chan et al. (2024) also marked noteworthy changes in the participants' cultural competence through the use of CoI guided interventions, which proves the applicability of the theoretical IA frameworks.

Furthermore, students are encouraged to take on global issues which helps instill in them an ethical perspective, global citizenship and a sense of social responsibility which in turn gears them up for assuming leadership positions in different settings. Cultural integration initiatives have been shown to help enhance compassion and teamwork by pairing local and foreign students in order to tackle global issues like social injustice and climate change (Dong et al., 2024; Beelen & Jones, 2015). Encouraging such beliefs as respecting world order and appreciation of interconnectedness ends up instilling in students a paradigm that broadens the expectations of interdependence if respect for ethics and other cultures is part of the topic that is taught. Such as the Heffernan and crew pointed out, there indeed is need to factor such young leaders to comprehend and knit solutions for complex contemporary problems in varying environments. The core of IA is a principle of inclusivity which states that online students of any socioeconomic background and students located in remote areas should be able to take advantage of international education.

Each year, less than 0.5% of Hungarian medical students go abroad for these reasons: take part in mobility programs, which explains why underprivileged students often do not participate in traditional study abroad programs (Németh & Csongor, 2018). Heffernan and co-authors also make sense in respect of these inequalities as they seek to bring inclusion in international engagement within domestic institutions. Smart digital technologies such as VR platforms, or AI-based translator apps (for example, Deep L), enhance the interactivity of learning and make it more accessible. Students who do not engage in mobility can still receive quality international education by interacting with students who are already in the foreign country (Lv et al., 2024; Robson et al., 2018). These institutions should agree to implement effective practices of IA in order for it to make sense. Policies need to coordinate their integration of IA within the wider context of other policies, to meet educational objectives. (Robson et al., 2018). Training modality focuses on, first, faculty a depth in IA methodology and second, the practical application of the digital tools, allows teachers to add an international and intercultural dimension easily (Grover et al., 2024; Dong et al., 2024). Moreover, investment in good digital infrastructure helps guarantee that all accounts enable students and faculty to engage in global activities (Heng & Yeh, 2024).

Challenges in IA

Despite its transformative potential, IA faces significant challenges, including resource limitations, engagement issues, and cultural and linguistic barriers. First of all, implementing IA requires substantial investment in financial, technological, and human

resources. Many institutions, particularly those in underserved regions, lack the funding to integrate advanced technologies like VR and AI tools (Robson et al., 2018; Németh & Csongor, 2018). Budgetary limitations also hinder curriculum development and faculty training, preventing institutions from fully implementing IaH strategies (Heffernan et al., 2018; Almeida et al., 2018). Second, student motivation is a key challenge, as non-mobile students often perceive IaH as less valuable than traditional mobility programs (Akdemir, 2019; Lv et al., 2024; Voelker et al., 2024). Faculty participation is also limited due to competing priorities and a lack of institutional incentives (Grover et al., 2024; Robson et al., 2018). These issues are compounded by inconsistent support and communication from institutions, leading to disengagement (Heng & Yeh, 2024). Last but not least, language proficiency is a major obstacle in virtual exchanges and COIL projects, particularly for non-native English speakers (Akdemir, 2017; Voelker et al., 2024; Sun, 2024). Cultural differences in teaching styles and biases can further hinder collaboration, creating tensions that undermine the goals of IaH (Kaya & Akdemir, 2016; Beelen & Jones, 2015; Chan et al., 2024). In order to address these challenges, institutions can address these challenges through targeted interventions, including increased funding for advanced technologies and faculty training (Lv et al., 2024; Grover et al., 2024). Promoting inclusive environments through workshops and addressing biases fosters intercultural dialogue and awareness (Chan et al., 2024; Almeida et al., 2018). Establishing clear objectives and offering continuous support ensures sustained engagement among students and faculty (Heng & Yeh, 2024).

In sum, IaH offers a transformative approach to global education, but its success depends on overcoming significant challenges. Strategic planning and institutional commitment are essential to ensure equitable access, effective engagement, and meaningful intercultural interactions. By leveraging digital technologies and addressing barriers, IaH can fulfill its potential as an inclusive and impactful strategy for international education.

3. AI and Its Applications in Education

Education is shifting paradigms with the introduction of various tools that can facilitate the process and outcomes of learning. Considering Internationalization at Home (IaH), AI tools like Natural Language Processing (NLP), Machine Learning (ML), Virtual and Augmented Reality (VR/AR), and Speech Recognition and Generating technologies remove major obstacles in international education. These tools provide flexible, engaging, and tailored learning experiences for students, preparing them for the challenges of a globalized society.

Natural Language Processing (NLP)

Natural Language Processing (NLP) is a subfield of AI that allows machines to comprehend, understand, and produce human language, thus enabling cross-language communication while deepening the understanding of written text. Services such as Google Translate and DeepL allow instantaneous translations to occur, thus making working with people across the globe during international online projects such as COIL even easier (Lv et al., 2024; Huang et al., 2023). It would be easier for these individuals to communicate or

work together using these programs because the language barrier that usually prevented them from achieving this is gone (Klimova & Chen, 2024). AI-enabled chatbots utilize NLP technology to converse with people, permitting real-time replies to questions as well as assisting the individual in learning a new language. One example ChatGPT: it produces dialogues that are culturally appropriate, thereby increasing a person's fluency as well as their knowledge of social etiquette (Baskara, 2023). Grammarly and Turnitin are similar programs that assist college students in correcting and editing their papers by providing instant suggestions concerning grammar, syntax, or stylistics. Plagiarism detection may also be used in order to promote ethical writing practices, so students may learn how to enhance their writing skills without degradation of academic standards (Bauer et al., 2023).

Machine Learning (ML)

Machine learning (ML), a subdivision of AI, factors/makes use of algorithms in data evaluation in addition to developing logical methodologies and forecasting. They are not programmed passively. Instead, ML systems enhance their profitability with time as vast information gets processed. Platforms that utilize ML such as Duolingo make sure learners have effective and unique experiences by changing the content depending on the learner's skill and advancement (Heng & Yeh, 2024). A student who finds it difficult to understand some grammars for instance, may be given more tasks which are more amenable to their understanding. ML-based adaptive feedback systems offer students targeted help at the right moment by enabling them to spot their shortcomings such as weaknesses. They are significant in an intercultural environment since the feedback can be tailored to suit the learning type which is more important to the student (Lv et al., 2024).

Virtual and Augmented Reality (VR/AR)

Virtual Reality (VR) encompasses the creation of three-dimensional environments in which users can interact with an entirely different reality whereas Augmented Reality (AR) focuses on developing virtual components on tangential parts of the real world thereby changing how users interact with their real environments. VR tools allow the learners to virtually visit cultural places like world heritage sites and international events enhancing their understanding and empathy of interculturality as well (Simoni, 2023). These tools assist students in attaining knowledge about the customs and practices of different cultures that exist about the world. With the help of AR applications, a role-playing game can be played on interactive materials by providing contextual data in real-time. Augmented reality tools can be used for international business or for any international collaboration so that students are well-trained for a multicultural workplace (Lv et al., 2024).

Speech Recognition and Generation

Speech recognition transforms spoken words to written text, while speech generation makes it possible to convert written text to spoken language. These AI focused tools enable users to converse in languages of their choice. Google Speech to Text for instance, helps people transcribe what is said in various languages in real time. Such inclusive features assist

in diversity promotion, for example, during a webinar with participants from other countries. A common complaint associated with voice electrodes is their tendency to discriminate against hearing-impaired students (Voelker et al., 2024). In the same vein, Microsoft Azure Speech Service and other text-to-speech programs facilitate school practice by enabling students to do conversational practice with realistic speech and voice dialogues. Tools such as these also prepare students to better handle challenges that occur in a real-world language setting, by simulation based on authentic conversations, boosting their confidence in being able to use a language (Grover et al., 2024).

In summary, NLP, ML, VR/AR, and Speech Recognition and Generation specifically voice generation have achieved and continue to achieve considerable changes in education by eliminating cultural and language barriers. Furthermore, the educators are empowered through such tools as they shape Andrgin lectures for a more intercultural globalized world through personalized, engaging and applying approaches to education above all with Internationalization at Home strategies. In the increasing interconnected and multicultural society, where students are prepared to be successful, the educators get transformed experiences by applying AI.

4. Applications of AI in Internationalization at Home

AI have disrupted Internationalization at Home so that there are now AI tools that localize the curricula to add global experience, estimate intercultural and ai skills accurately in ways never seen before, and most importantly there are now tools to help facilitate culture transfer. Most people including policy makers designers and students support this because AIH has the vision of providing international education opportunities which is now made even better through the use of AI tools what highlights the importance of inclusiveness and personalization.

AI-Powered Platforms for Cultural Exchange

A vast use of multinational virtual social interactions can be assisted by AI platforms. Those AI technologies also do away with the necessity to translate content which facilitates effective integration. As pointed out by Voelker et al., (2024) and Bruhn (2020), AI has made great developments in COIL platforms, such as real time translation, scheduling, and communication applications. Consequently, this automatizes first order functions and improves collaboration on a global scale. Chan et al., (2024) and Godwin-Jones (2021) confirm that AI can be successfully incorporated into speech understanding and cross language communication as practiced by the Soliya and ImmerseMe platforms which depend on intercultural communication. As described by Ghantous & Belkhiria (2024) AI based chatbots are cultural envoys and enable students to have inter-cultural discussions with language practice and role playing scenarios of ChatGPT that provide context. In line with this, Lv et al. (2024) argue that AI programs strive to assess digital interactions by means of conversation analysis that seeks to determine group interaction and appropriateness for the culture. In the end, VR / AR tools such as participation in cross -cultural events and festivals

help foster empathy and develop intercultural competences (Bruhn, 2020; Godwin-Jones, 2021).

Tools for Integrating Global Content into Local Curricula

The use of AI technologies facilitates the embedding of global dimensions into local content in a way that students are not deprived of culture appropriate education. AI tools, Lv et al. (2024) & Huang et al. (2023) & Alqahtani and Wafula (2023) all observe, study the local educational requirements in order to modify the international aspects. Such translation tools enhance the global scope of the educational material by making it personal and engaging for the learners. Godwin-Jones (2021) points out that language translation services, especially DeepL, help overcome language barriers in education. Ghantous and Belkhiria (2024) And Garcia Ramos and Wilson-Kennedy (2024) assert that these IR modules develop students' analysis and interactions standards through focusing on global issues like climate change and social justice. As automated services such as TextInspector examine the curriculum's content, they measure the imbalance of global and intercultural aspects and provide resource material recommendations that fulfill the desired goals of IaH (Tomar & Verma, 2020; Bruhn, 2020).

AI-Driven Assessments to Measure Intercultural Competence

AI-powered systems provide a less complicated method to measure intercultural competence which is at the center of IaH. The AI model's assessment which is scenario based tests students on empathy, modification and decision making in a multicultural context (Godwin-Jones, 2021; Voelker et al., 2024). Sentiment analysis tools such as IBM Watson Tone Analyzer analyze conversations or written dialogues quantitatively to show an improvement in cultural awareness and empathy and thus, ideas for teachers are provided (Chan et al., 2024). As a result, AI tools provide visual and interactive dashboards that combine data from virtual exchanges and tasks bringing together the information on ICC and how it has changed in students and this assists in improving the IaH approaches (Lv et al., 2024).

Case Studies and Best Practices

A significant change is being brought into freedom of being and working in an intercultural environment due to technology. There is a collection of tools and methodology available that can help to encourage students to develop intercultural competence through use of AI. Within the framework of the Intercultural Experience Project, AI tools like chatbots and sentiment analysis were deployed to assist with supervised international communication. Reflective tasks and role-playing enhanced empathy, communication and social interaction (Ghantous & Belkhiria, 2024). While Soliya and ImmerseMe still bring the internationalization aspect virtually, they also support the students with multilingual practices but in an immersive setting. This helped them in problem-solving on a global scale and enhanced their understanding of culture and active engagement (Bruhn, 2020). Among the AI Supported COIL Projects, DeepL and ChatGPT for various communications were used.

These issues along with the vast and complex nature of the problems helped in the cultural diversity understanding for students (Voelker et al., 2024). Environmental issues, human rights and a combination of various such challenges were dealt with through the GIMs by making use of AI powered software models and virtual field visits. These modules guided the development of the content from which issues were generated that birthed local context, cross cultural thinking, and teamwork (Garcia Ramos & Wilson-Kennedy, 2024). Curriculum adjustment projects in the Faculty Development Programs had support from AI programs such as TextInspector in ensuring that the integration of the curriculum met the aspirations of the IaH model. Teachers were trained to produce contextually appropriate modules and interact with learners in chatbot activities that simulated intercultural scenarios, so that they were prepared to spearhead the initiatives for the implementation of IaH principles did work (Tomar & Verma, 2020). Such methods highlight the potential of AI to improve the educational experience by making it relevant, suitable and context appropriate thus removing the impediment of language and culture to improving education on a global scale.

To sum up, even though there seems to be a gap, the integration of Ai in IaH to a reasonable extent is overshadowed by such difficulties as the cultural bias in the algorithms, the digital divide, and the data privacy concerns (Lv et al., 2024; Garcia Ramos & Wilson-Kennedy, 2024). These matters need tuition in the form of infrastructure, trainer of the trainers, and ethical AI. The development in the future should be directed toward meeting the needs of the users and customization in order to make AI a powerful tool for changing the global education for the better that is fair and accessible to all.

5. AI in Supporting Intercultural Competence Development

AI technologies play a pivotal role in developing intercultural competence (IC), providing immersive and interactive tools that prepare students for a globalized world. Virtual reality (VR) simulations and conversational AI (chatbots) offer environments for practicing and refining intercultural skills.

Computer-generated environments have been enriched by simulations for cultural scenarios through the use of virtual reality. Google Expeditions is an example of a platform that allows students to immerse in almost any cultural circumstance, be it the Great Wall of China or a Japanese tea ceremony, hence cultivating understanding and flexibility in them (Godwin-Jones, 2021; Bruhn, 2020). Unimersiv and EngageVR are other platforms that allow students to participate in role playing scenarios and experience multicultural dilemmas, allowing the students to learn real-life problem-solving in real time (Lv et al., 2024; Ghantous & Belkhiria, 2024). Such experiences help students broaden their interactive reasoning and provide them the understanding of cross cultural differences by incorporating VR gamification elements such as challenges set in a different cultural context (Bruhn, 2020).

AI Chatbots, powered by natural language processing (NLP), simulate real-world dialogues, providing conversational practice and cultural sensitivity training. With ChatGPT and similar tools advancing to a further extent, such integration aids in filling foreign language or etiquette gaps that might arise during foreign interactions. Platforms such as Duolingo, for example, enable the users to interact with a language bot to simulate a cultural

experience such as ordering food at a Parisian café (Huang et al., 2023; Baskara, 2023). Such advanced technologies are the perfect way to supplement events such as multicultural gatherings, allowing for greater fluency and ease of communication. Moreover, these bots can also assist in providing the correct social etiquette alongside the correct manner of hand gestures with the aim of reducing cultural faux pas (Chan et al., 2024). Instead, AI chatbots offer precise modifications to an account for the user's use of language and cultural behavior, fostering improvement through difficulty (Garcia Ramos & Wilson-Kennedy, 2024; Lv et al., 2024).

Case Studies: AI Tools Fostering Intercultural Dialogue

As a text mining and cultural tools, the AI Together platform employs natural language processing for multilingual translation, sentiment analysis and cultural recommendations. It has been established that the use of technology outside the classroom strengthens students' confidence in interacting with people from different cultures (Sun, 2023; Garcia Ramos & Wilson-Kennedy, 2024). Google Expeditions encourages cultural appreciation through the use of advanced technologies, as well as addressing the intricate challenge of cross-cultural engagement by showcasing 3D immersive tours and experiences encompassing international structures such as the Egyptian pyramids (Godwin-Jones, 2021; Bruhn, 2020). In COIL Programs augmented with AI tools such as translation in synch real time and AI sentiment assessment, students from different countries are assisted in breaking through language and cultural barriers, accomplishing various tasks that enhance international collaboration (Ghantous & Belkhiria, 2024; Lv et al., 2024). Adaptable problem-based AI simulations in stem education, where different scenarios are given based on how they answer, develop one's responsiveness to situations, as well as their decision-making skills (Huang et al., 2023; Garcia Ramos & Wilson-Kennedy, 2024). Bard, Duolingo, and Babbel address the gaps for the seamless integration of blended learning experiences by personalizing tasks along the cultural aspects that come with language alongside language itself (Lv et al., 2024; Bozorova, 2024). Human speech mastery simulation and recognition applications like google speech to text compliment students on new aspects of pronunciation in real time so that speech fluency can be mastered much quicker (Godwin-Jones, 2021; Ghantous & Belkhiria, 2024). Students are provided the opportunity to practice and evaluate their abilities to function in a multicultural environment through ChatGPT, which creates boundaries in intercultural settings like verbal exchanges at a market (Garcia Ramos & Wilson-Kennedy, 2024). There are real-time translation services like DeepL which help in translation by first transcending the cultural complexities of the languages across which the speakers have a communication barrier that makes an effective interaction more difficult (Bruhn, 2020; Ghantous & Belkhiria, 2024).

To conclude, AI tools including VR simulations, chatbots and language platforms transform the process of developing intercultural competence, by allowing the learners to engage in a myriad of cultural scenarios and enhance their communication skills. Such technologies show the ability to overcome social barriers and thus equip the students for active participation in a globalized society

6. AI-Powered Virtual Exchange and Collaboration

The application of AI in virtual exchange platforms enhances cross-country learning and that is becoming essential in augmenting global education. These platforms assist those students who do not possess the necessary financial means or those who cannot travel overseas for educational purposes as they are cheap and interesting. AI technologies employ a conjunction of virtual exchanges enabling learners to participate in cross-national education and develop appropriate cross-cultural skills.

Collaborative Online International Learning (COIL) enables the interaction of staff and students across various institutions globally, and uses this interaction to form groups to tackle specified projects. The use of AI tools aims to improve COIL by minimizing difficult tasks, encouraging custom-made interactions and removing language and cultural gaps.

To illustrate, AI-enabled translators, such as DeepL and Google Translate, make it possible for multilingual communication as participants can learn without language barriers (Godwin-Jones, 2021; Garcia Ramos & Wilson-Kennedy, 2024). Also, Zoom and Microsoft Teams include AI functionalities, such as live to transcribe and auto summarizing and recording of meetings, which make COIL teaching sessions more engaging and easier to understand (Bruhn, 2020). As the systems base themselves on student performance, they cover a broader range of students through assigning to them tailored and different resources and activities (Lv et al., 2024). Helping the instructor to assist when the group midlines become disconnected or started fighting - Social Sentiment Sentiment is a tool fostering collaboration and a good productive environment for learning (Ghantous & Belkhiria, 2024; Bauer et al., 2023). Besides, the use of virtual reality simulations in COIL missions allows students to immerse themselves in culture by exploring virtual international fairs or local shops, which capture and stimulate cross-cultural understanding (Godwin-Jones, 2021; Garcia Ramos & Wilson-Kennedy, 2024). Moreover, tools such as ChatGPT function as AI chatbots that enhance COIL by offering students intercultural exchanges in which they can enact different communication strategies within several cultural contexts, better preparing them for future global interactions (Chan et al., 2024).

Soliya is another AI-Supported virtual exchange (V.E) model that connects students worldwide while developing language skills and maintaining meaningful dialogue, ensuring a cultural divide is bridged while using AI tools to select the participants based on shared likes (Huang et al. as cited 2023). Arguably, virtual internationalisation strategies have also been successful; for instance, during the European sustainability projects, AI-based tools, including data visualization and automated feedback mechanisms, enhanced collaborative efforts to address environmental issues (Xia et al., 2024). Also, eTwinning, telecollaborative applications, adds inbuilt translation and tailored communication tools which aid in intercultural language exchange and learning of a target language (Bruhn, 2020).

AI supported virtual exchanges contribute greatly, such as enhancing integration, improving cooperation and increasing cultural understanding. By removing obstacles of conventional mobility schemes, these platforms guarantee that students around the world can partake in global education and learn the necessary tools to operate successfully in multicultural professional settings.

Examples of Successful Implementations

University alliances have successfully utilized AI powered platforms to enhance intercultural interactions. For instance, in the case of the State University of New York (SUNY), COIL is used to link students from different countries and allow them to work on projects related to climate change and global health issues (Hackett et al., 2024). These projects incorporate AI-infused technologies that aid in interaction and collaborative curriculum development for rich cross-cultural conversations. A similar example is where Stanford university organized a design-based research which enrolled students from Lebanon, Australia and Pakistan into the use of AI-powered tools to aid them with problem solving during the project. Participants maintained a decrease of existing stereotypes, better cultural learning, and the building of cooperative tools (Bowen, 2020). In Africa during the collaboration between South Africa and Canada students took advantage of AI technologies in chat rooms while working on these activities, they were able to apply Microsoft Teams and Google docs while brainstorming and working on the projects, while addressing global challenges. These were productive exchanges that were mediated by AI tools, that aided the improvement of interaction and professional problem solving among the participants (Msekelwa, 2023). There are various AI-tools like robots and sentiment analysis that remained useful in moderating multi-lingual debates. Role of these tools was to help gain equal participation and bring courage to that involved in the emotional dynamics of a conversation in real time (Helm, 2024; Roche & Szobonya, 2024)

AI technologies are (Viktor Kasyanov and Garick Shaieva, 2024) reinventing how students form international professional connections and cultivate key skills of collaboration. For instance, LinkedIn Learning employs AI to recommend contacts relevant to students' study and job-related goals, thus helping them participate in projects, internships or international events of their type of interest (Weaver et al., 2024). Miro and Slack, collaborative applications, foster students' international virtual exchanges by allowing them to engage in cooperative activities such as brainstorming, assigning tasks, monitoring progress on the projects set, which prepares them for global teamwork (Khreisat et al., 2024). Initiatives aimed at promoting global citizenship have also resorted to AI-students use AI tools to, for example, study the effects of climate change. These tools are best fitted to formulate solutions informed by data to issues that require the integration of global and local perspectives, enhancing reasoning and flexibility (Roche & Szobonya, 2024).

AI-based tools have revealed the ability of virtual exchanges to help students interact across cultures and continents and train them to be successful in a globalised society. They are both an enhancement of the standard of international education and assist in preparing the student for a wider and more cooperative workplace.

7. Ethical Considerations and Challenges

The integration of AI in education, particularly in fostering Internationalization at Home (IaH), raises significant ethical challenges. While AI enhances cultural exchange, collaboration, and learning, it introduces risks related to cultural bias, privacy, and

overreliance on automation. Addressing these challenges is essential to ensure equitable and responsible use of AI in educational contexts.

Artificial Intelligence systems are known to have cultural bias which they get from their training datasets. A good example is the use of Google Translate where the translation may include gendered pronouns based on the societal biases that come with it- for instance, females are gendered to be associated with “nurse” while males are gendered with “doctor” (Huang et al., 2023). Furthermore, facial recognition algorithms have proven to be less effective for non-Caucasian people due to datasets that are not diverse enough as well (Godwin-Jones, 2021). Garcia Ramos and Wilson-Kennedy (2024) argue that the educational systems may not only be biased too, attributing a Western bias and superiority when recommending content. According to Lu and Hu (2024), Roche and Szobonya (2024) and Kooli (2023), to be fair, there are necessary steps to avoid societal biases and cultural misinformation: hence these recommendations must greatly involve representing cultural diversity, continuously training, rechecking for biases, and changing the parameters of the IT systems.

The approach of AI systems emphasizes the collection of a variety of information, which by itself does not help when it comes to topics on privacy. Virtual tools for language learning as well as virtual exchange services tend to collect highly sensitive data such as genetic or behavioral data (Helm, 2024; Msekela, 2023). In the process of abuse or hacking, such data is especially dangerous. And the general lack of ‘big never’, and lack of clarity in contracts only differ from anonymity of users adds fuel to the fire, as users do not know how the data will be used (Msekela, 2023). Schools and other educational institutions can use diverse models ranging from GDPR compliance to contractual supervision that binds schools to inform users or students on how their data will be used and collected (Weaver et al., 2024; Garcia Ramos & Wilson-Kennedy, 2024; Williams, 2024).

As the use of chatbots and virtual assistants continues to replace instructors in the teaching field, much needed soft skills like emotion recognition, empathy and contextual comprehension in comparison to instructor prompts have also diminished, According to Helms (2024) AI is both challenging and beneficial but its implementation will help alleviate cultural nuances with an educator by assisting them automate most of their tasks together with fostering interaction. Students may be inclined to provide autogenerated work instead of building critical thinking and engaging with the material in detail, as noted by Garcia Ramos and Wilson-Kennedy - this reliance on AI prevents creativity and innovation in students. Tools like AI however integrated in a safe and teachable manner can build active engagement and digital literacy while ensuring responsible AI use and strong problem solving abilities (Msekela, 2023; Weaver et al., 2024).

For ethical concerns to be resolved around the cultural usage of AI in education and for AI to relatively occupy a space that promotes freedom, its potential must be harnessed while a structure is developed. This approach would allow educators to not only maintain the respect over the cultural undertones and depth of the information but would also ensure a reasonable governance over bias and privacy lurks.

8. Conclusion

The use of artificial intelligence (AI) within the framework of Internationalization at Home (IaH) has been noted to revolutionize the quest for global education. AI technologies are transforming the perspective of institutions towards international education by offering various cross/border technologies and opportunities, particularly for language learning, virtual exchanges, and even geographical and financial barriers (Ayık & Ataş, 2014). AI technologies play a vital role, from intercultural dialogue fostering platforms to adaptive learning systems personalized to meet the needs of learners, in making global education easier, broader, and deeper.

Nevertheless, AI within education may also have its challenges. A middle ground needs to be sought regarding how to integrate AI into education so that its aims may be achieved without destroying its existing norms and rules. AI integration should be viewed from an equity perspective meaning that all students, regardless of their social status, should be able to take advantage of the new opportunities. Ensuring that AI-empowered learning environments are, trustworthy and equitable requires the consideration of social concerns that include limiting cultural stereotypes, protecting privacy and personal data, and automating the processes while providing human contact. Also, the AI-powered resources must be supplemented with worthy resources to enhance students' engagement while AI can support many of those resources.

As we navigate this evolving landscape, the importance of continued research and innovation cannot be overstated. Advancements in AI technologies are imminent and new opportunities to scale up international education are available. The aim of the research should be to enhance AI systems to account for the socio-cultural dynamics of the learners, promote intercultural relations and measure the outcomes. The engagement of educators, technologists, policymakers and students will be vital in building AI solutions suitable for the processes of internationalization.

In terms of achieving the full impact of AI in IaH, it is a work in progress. By adopting a careful and broad-based perspective, educational establishments stand to harness the use of AI to break barriers, advance common humanity and empower the learners for the globalized society of tomorrow. It is noted as essential that AI in internationalization of education continues to develop with inclusion of AI, ethics and equity.

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