Hybrid Harbors: Immersive Learning Spaces for Unsafe Regions

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***Abstract*—This paper focuses on hybrid classes as immersive learning spaces for unsafe regions. This study explores the technological and anthropocentric challenges and solutions associated with hybrid-format learning in an unsafe region (Ukraine). The paper is based on the experiences gained during hybrid seminars on Teaching English as a Foreign Language (2022/2023) for student teachers from Germany's Julius-Maximilians-Universität Würzburg and Ukraine's National University "Zaporizhzhia Polytechnic". Technological limitations, solutions at-hand, and perspectives for further development of "hybrid harbors" based on the Activity-Centered Analysis and Design are considered.**

Keywords-hybrid; physical, epistemic, and social aspects of learning; tech pods; empathy and resilience.

I. INTRODUCTION

In the evolving landscape of education, Hybrid-Format Learning (HFL) emerges as a postdigital learning space, blending digital and physical environments. This study explores the technological and anthropocentric challenges, as well as solutions associated with HFL in an unsafe region. Participants of HFL seminars on Teaching English as a Foreign Language (TEFL) (2022/2023) future EFL student teachers from Germany's Julius-Maximilians-Universität Würzburg and Ukraine's National University "Zaporizhzhia Polytechnic". The Ukrainian University is situated close to the front line and periodically suffers from shelling that damages its buildings and makes classroom learning impossible. Some students and teachers have fled the region or the country to find safer living conditions. Those who stayed are constantly experiencing electricity disruptions due to ongoing military conflict actions in the country. The only way to continue education and maintain a high level of students' engagement in the current situation is to have online classes.

The necessity of a safe digital learning environment during crises, such as the ongoing war in Ukraine, is indisputable. Working together in an HFL environment, which was urgently designed with the elementary technologies available (laptops and a projector), German and Ukrainian students had the possibility to foster their professional competencies, emotional intelligence, empathy, and resilience. To avoid "a feeling of loneliness in a hybrid-format environment that can be harmful as smoking one box of cigarettes a day" [1], their teachers fostered trust and safety by bringing all voices into the room through a network of interrelated topics and dialogues.

The rest of the paper is structured as follows. In Section II, we present the background of this study. In Section III, we focus on the chosen methodology. In Section IV, we present the main findings and discussion. Finally, we conclude in Section V and provide some future perspectives.

II. BACKGROUND OF THE STUDY

Despite technological limitations, such as overloaded learning management systems, software constraints, student frustration with technology, sound failures, memory availability issues, and unstable internet connections, especially in an unsafe region [2] - [6], solutions at-hand were implemented. At this point, Miro whiteboard and/or Etherpad were used on a continuous basis. Additionally, despite the use of a single camera in the onsite classroom and the individual cameras of students in their cell phones, laptops, and other gadgets, missed discussions, visual cues, interactions, audio interruptions, and microphone issues hindered effective communication between online and face-to-face students. However, the students were provided with constant access to learning materials, group work, and discussion output was offered before and after HFL seminars.

To address these challenges, the study recommends comprehensive training in technology and course management [7], strategies to enhance the learner experience and technology design [8] - [10]. Solutions include equipping classrooms with multiple cameras and high-quality microphones to capture all interactions and voices, thus fostering a more inclusive and dynamic learning environment. Ergonomic limitations also pose significant challenges, as lecturers often find themselves tethered to computers, reducing their mobility and engagement with students. The study suggests that both teachers and students should have the flexibility to move freely within the classroom to facilitate group work and engage in a more interactive learning process. However, technologies and equipment should be modified and settled accordingly, for example, to "catch" teacher's movements in the classroom or capture the faces and voices of the onsite session participants. The inclusive, friendly, and flexible learning environment should host and nurture both students and teachers. For example, some teachers, invited speakers, and students have experienced either forced or voluntary displacement in their lives, and finding themselves together within a "hybrid harbor" helped them to tie themselves closer to each other rather than experience a feeling of alienation.

III. METHODOLOGY

A. Activity-Centered Analysis and Design

The implementation of the Activity-Centered Analysis and Design (ACAD) framework fostered the physical, epistemic, and social aspects of learning [11]. It was chosen as a practical guideline to solve challenging learning situations, namely "…Activity-Centered Analysis and Design (ACAD) is a meta-theoretical framework for understanding and improving local, complex, learning situations" [11].

Following works on ACAD, we realize that in order to achieve better learning outcomes, teachers need to carefully plan not only the content and forms of assessment but also take into consideration the learning environment. Therefore, we further consider "*activity*" as any engagement of students in the learning process (mental, physical, or emotional). The "*learning situation*" also comprises three abovementioned components, as during hybrid seminars they were placed in different locations (onsite/online; in groups/individually; mixed locations). The "*complex*" nature of analyzed hybrid seminars, following the developed scenario based on ACAD framework, is further interpreted from both experienced and future views. Within the scenario, the "complexity" of the studied learning situation was solved within five main conceptual blocks: building understanding and connection, emotional support and resilience, enhancing empathy in peers, educational engagement, cultural awareness, and sensitivity. The offered scenario highlights psychological, emotional, and communicative aspects of HFL, tending to provide a holistic learning environment.

The following table (Table 1) represents the average number of hybrid session participants.

TABLE I. AVERAGE NUMBER OF HYBRID SESSION PARTICIPANTS

Participants (average number per session)	**Onsite**	**Online**
6 hybrid Sessions (2022/23)		
Students	13	17
Teachers	1	1
Guest Speakers	2	4

Following the ACAD framework, the paper represents a specific scenario for the hybrid classroom with the main focus on an unsafe region. The scenario includes epistemic, set, and social design. The epistemic design refers to the assignment the students received before the seminars and the activities they were supposed to be involved in during the hybrid session. At this stage, the topics for the seminars were carefully selected so that they would not raise negative emotions, but would encourage students to discuss sensitive topics and find solace or solutions in the suggestions provided.

The set design includes materials and platforms for interaction, presentation, sharing and visualizing ideas, multimedia, etc.

The social design presupposes the planning of the ways students interact during the hybrid session. Ukrainian students from frontline cities have been living in conditions of social distancing for five years already. The feeling of alienation is exacerbated by disrupted relationships due to displacement, uncertain prospects for the future, and worries about their relatives' lives.

Hybrid seminars aimed not only to share knowledge on teaching English as a foreign language but also to establish networks and improve Ukrainian students' emotional state through peer collaboration in virtual settings. An opportunity to communicate with German students made Ukrainians feel that they were not outsiders struggling with their problems unsupported and that they belonged to a community that shared their values and had similar viewpoints.

Creating a learning design considering all pedagogic properties can be facilitated through visualization. For such a purpose, the tool "Learning Designer" was used [12]. Each step of the hybrid sessions was specified in terms of learners' activities, teachers' involvement, duration, and resources to be used. The pie chart in Figure 1, which is generated from the information provided, illustrates the different types of learning and student interaction, allowing the teachers to analyze the effectiveness and patterns of students' participation and make adjustments before the seminars.

B. Scenario of the Activity-Centered Analysis and Design (ACAD) Framework for Hybrid Classroom in Unsafe Region

1) Background scanning

Focus on Context: safety issues in the region were identified (e.g. due to electricity and Internet disruptions, the seminars could be rescheduled, and all necessary digital materials were available);

Needs of Students and Teachers: social concerns and the emotional condition of the target audience, which can influence the class were considered (e.g. preparatory virtual phase for teachers – advanced meeting for planning the session; a constant channel for communication, such as Messengers, scanning the psychoemotional conditions, potential preventing factors of students and reporting about that to a colleague teacher).

2) Hybrid Classroom Design and Implementation Steps

Flexible and adaptable: discuss possible adaptations in case safety background conditions are violated (e.g. sharing video recordings and students' self-presentations on Flipgrid; recording voice messages and creating groups on Messengers for Session participants for instant communication);

Accessible and reliable: provide relevant technologies (open sources, free, and easy to use; e.g. create guest accounts for Miroboard, use Zotero as an open and free accessible digital library for sharing learning materials and enabling students to upload the materials themselves; an important option of offline access and asynchronous use of provided resources);

3) Hybrid Classroom Learning Process Design

Blended Learning: provide an option to learn both synchronously (live classes) and asynchronously (recorded lectures, online assignments);

Collaborating Learning Tools: interactive whiteboards, collaborating tools, such as Wooclap, Wordcloud, Mentimeter, etc. to facilitate students' interaction with an option of post-session access;

4) Technologies Used

Flowing Communication: despite the breakages and blackouts, students have access to supporting communication technologies (e.g. use of power banks to charge their gadgets), accessible asynchronous learning materials;

Secured and certain: beware of cybersecurity issues and be ready to withstand the online threats (e.g. online support and instant messaging with volunteering IT specialists and/or IT competent students was at hand).

5) Sustainable and Resilient Learning Environment

Mental Well-being: offering workshops and activities, that enabled students to withstand their emotional strain (e.g. implementation of a slow-looking method, integration of artful and pedagogical practices; addressing empathy and resilience with at-hand experiences; reflecting on students and teachers' own experiences);

Build Up the Community: interaction of students during collaborative projects, communication during and after the seminars, and extracurricular communicative activities (e.g., participation in the evening's Multilingual Speaking Club).

6) Evaluation and Feedback

Sustaining Improvements: regular meetings between teachers before and after the seminars, communication via emails and/or Messengers, feeling supported and providing support to each other enable continuous modifications of the hybrid format seminars based on regular feedback from all parties involved (students, teachers, guest speakers);

Survey and Data Collection: short questionnaires during pre- and post-seminar phases with a flexible deadline were provided to all parties involved. Open questions option enabled students to reflect on their own experiences, feelings, and concerns, interests, ideas, and changing the role from the recipient of knowledge to the initiator and disseminator of self-authored seminar activities, learning materials, and scenarios.

IV. MAIN FINDINGS AND DISCUSSION

A. "Hybrid Habors" as versatile collaborative spaces

According to post-session survey data: "TEFL: Inter/transcultural learning and global education", the participants reflected on the commonality of their thematical foci, confirming creation within "hybrid harbors" of "a *collaborative learning environment* that encourages active participation, using hands-on activities and projects that promote authentic language use" (anonym. Session participant) and their ability to "demonstrate qualities like cultural awareness, empathy, and a willingness to engage in issues that transcend national borders" (anonym. Session participant). The hybrid classroom enabled students from Ukraine to be closer not only to the students but also to the invited speakers from different countries. For example, the speaker from Ukraine (internally displaced) took part in the Session on *Multiperspective Representation of Cultures via Various Texts and Media*. The Session on *Skills, competencies, and strategies in TEFL* with an intercultural focus featured a speaker from Spain. The seminar on *Arts and Pedagogy*, specifically the slow looking method in TEFL classes, was led by a speaker from the Czech Republic. The speaker from Canada was invited to the Session on *Materials and Introducing data-driven EFL*. A professor from India was invited to the Session on TEFL basics, focusing on *transnational insights and interdisciplinary ties*.

Such a versatile palette of speakers enabled the students to collaborate beyond the borders of cultures and realities, as their interactions were released through synchronous discussions and interactions with the invited international speakers using an interactive whiteboard, as well as they had access to it during a post-phase of the sessions. Thus, despite their locations (either internally displaced in Ukraine or abroad), the students could rely on the provided and constantly available learning materials and the safe, collaborative digital environment to which they could refer.

B. Technological Challenges and Solutions

Despite the scarce availability of required technologies for more effective and efficient hybrid learning, the students from an unsafe region (Ukraine) together with their teacher found the following solutions:

- A laptop "one for two"- students connected to the hybrid classroom using one laptop;
- A gadget as an additional asset- a personal cell phone or a digital planchet was used to use a camera or access a collaborative online space.

At the same time, students who were present in class (in Germany) used their individual laptops, being in the classroom in their presence. In such a way, they could experience both synchronous written communication with their peers from Ukraine, teachers, and guest speakers, but also be present onsite and communicate with each other and their teacher, who was present in the classroom.

According to a recent study, "emotional intelligence of students, their psychological condition, and social performance are highly vulnerable" [13]. The communicative gap was widening during discussed HFL classes and the teachers found solutions in adding more interactions, offering synchronous activities and movement. Teachers from both Germany and Ukraine found a great need for *a height-adjustable, movable, and regulated small table* to interact with students more proactively and give instant feedback.

The target group of students experienced communicative difficulties even deeper, as one part of the students came

from an unsafe region, and for their peers from Germany, this experience of taking a hybrid class was also quite new, eye-opening, and unusual.

C. Anthropocentric Challenges and Solutions

To build communicative bridges and bridge the gap, teachers tied both live and online learners together through the following communicative bonds:

- *Topic-to-go*- the students were provided with relevant and innovative topics for the seminars, having received learning materials in advance and providing them in various formats (podcasts, texts for reading, short videos). Moreover, students were able to choose a topic which is more interesting for them before the Session.
- *Collaborating tools*- such collaborating tools as Mentimeter, Wooclap were used for synchronous polls, diagnostics of students' knowledge, and bringing them together;
- *Digital dialogues*- group discussions, individual reflections, and a free choice of an answer option were available for students. For example, for some of them it was easier to comment on a Chat or participate in activities released on a whiteboard.
- *Q&A*- teachers motivated students to communicate with each other and initiated discussions among them. For example, the students offered short videos, related to the topic of the seminar, demonstrated it via screen sharing, and then initiated group discussions.
- *Synergized communities*-finding common points during discussions, as well as communicating during the post-phase (asynchronously on a digital whiteboard), working together on joint presentations or talks for the coming seminars.

D. ACAD and Tech pods

Social design elements, such as small group work, can increase students' sense of presence and belonging. For example, tech pods will be efficient in reducing the vulnerability of students' emotional intelligence, as well as their psychological condition and social performance. If to rephrase a well-known proverb, "The path to hybrid harbors passes through a techpod" (rephrased from *The path to Heaven passes through a teapot*). Following the CHARM Model of Hybrid Classroom [14], the implementation of *tech pods as group workstations* would facilitate students' active participation and enhance their self-performance, thus fostering emergent activities as an intersectional component of the ACAD model. To avoid the feeling of frustration and loss, the students would be able to engage in both physical and virtual collaboration. Having arranged a controlled environment, another benefit is to reduce distractions and continue with focused group work.

According to the hybrid session participants, a supportive and reliable environment is desirable for students to make them feel more secure and feel their emotional well-being. The consistency and continuity of developing students' *emotional intelligence* through facilitating their feelings and emotions via collaborative experiences established through tech pods is another advantage of this "socially constructing" technology.

Social performance released during the collaborative activities also fostered teamwork spirit and communication skills. Having a balance between individual and group work, the students could "tailor" their individual learning scenarios.

Further implementation of ACAD Framework to boost the efficiency of tech pods is offered as a consequential pathway to improving complex and challenging learning situations and designing learning-enhanced solutions. In terms of the enhancement of tech pods workstations to develop students' emotional, psychological, and social needs, with a focus on both "design time" and "learn-time" directions, ACAD frameworks serve as a creative environment to promote learning and collaboration.

Hybrid classes equipped with tech pods are uniquely designed to enhance students' emotional intelligence, psychological condition, and social performance. Following the principles of the ACAD framework, this study aims to provide a structured approach to designing these environments, ensuring they meet the diverse needs of students and promote holistic development.

V. CONCLUSIONS AND PERSPECTIVES

In this paper, we have predetermined possible technological and anthropocentric solutions, which will foster more effective implementation of hybrid classrooms as safe immersive learning spaces to improve both teachers and students' physical and psychological conditions:

- classrooms, which refer to the Toolkit on Accessibility from UNICEF (e.g. spacious, accessible for people, including those, who are on wheelchairs; appropriate light and sound conditions, etc. refer to [15]);
- height-adjustable, "movable", and regulated small table for teacher (e.g. mobile pneumatic rolling desk);
- node classroom seating and mobile tablet armchairs to allow students to move freely in the classroom onsite and join the group work more effectively;
- tech pods for students (e.g. following CHARM-EU Hybrid Classroom Model with multiple microphones and cameras to provide uninterrupted video and sound);
- training for teachers in the HFL Classroom technology implementation and classroom management (e.g., open and friendly classes with flexible modes of learning both online and on-site).

Further research is needed to enhance socio-emotional interactions in HFL environments and to focus on teacher professional development in the field of socio-emotional learning, empathy, and resilience, underlying that specific

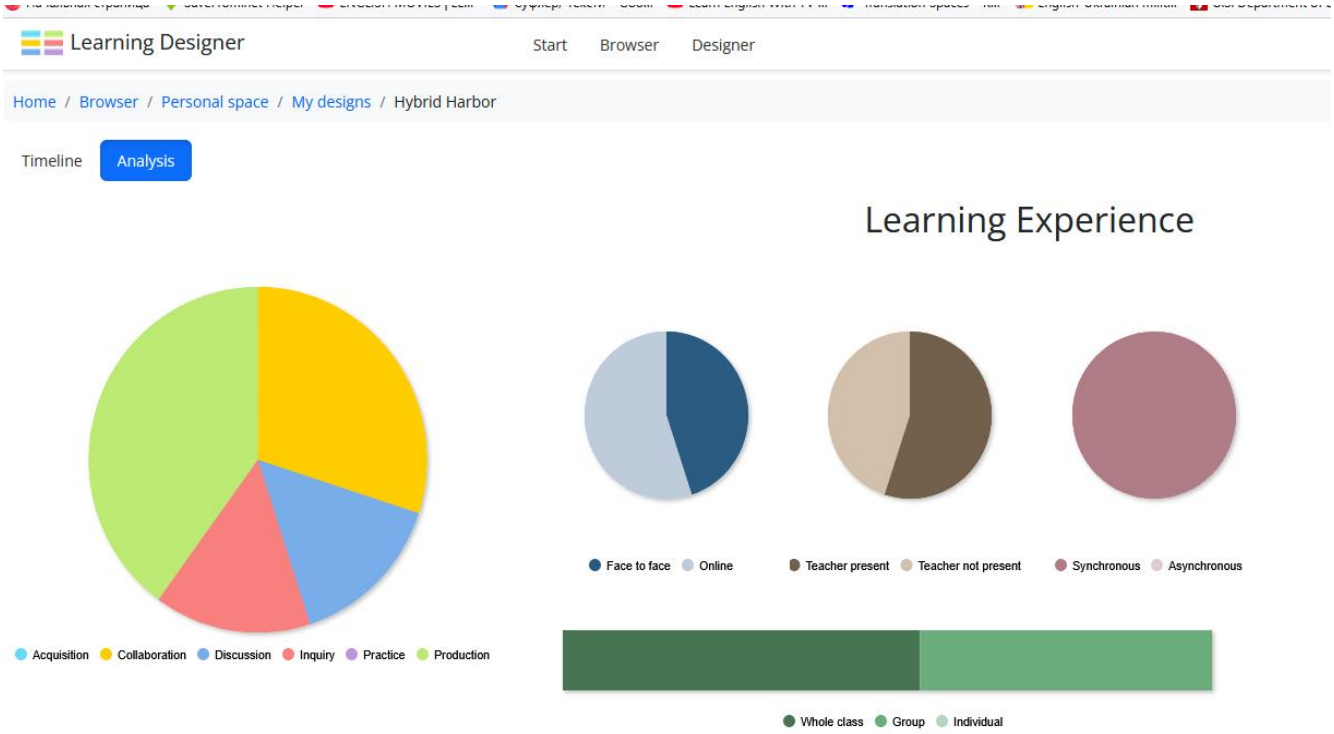

Figure 1. Visual representation of the learning design for hybrid sessions.

skills are needed to teach students from unsafe regions [16] - [18].

Currently, the research is expanding to include more transnational participants, sharing knowledge globally. In 2025, the course "Transcultural project-based learning. Multilingualism through the Arts", will be offered to the German and Ukrainian students in a hybrid format and focus on educational project management, intercultural communication, and interdisciplinarity. The course will involve participation in the eTwinning project BLABL.ART, partnering with institutions from Italy, France, Reunion, and the Czech Republic. Core principles include universality, interdisciplinarity, openness, flexibility, respect, and resilience, which will guide the course's implementation at Julius-Maximilians-Universität Würzburg and other partners.

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