

# Virtual exchange for graduate and adult learners: A literature review

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## Abstract

Little is known about characteristics and learning outcomes of virtual exchanges (VEs) designed for graduate and adult learners. VEs can offer novel experiences that disrupt, test, and refine learner understanding and practice of their profession (Kolb & Kolb, 2017). In contrast to younger students, adults typically hold more established understandings of their world and self, have focused learning goals, and often juggle multiple responsibilities that limit in-person international learning (e.g., Bergman, 2021; Jarvis, 2010; Merriam et al., 2007). Systematic literature procedures were used to examine four questions: What are the characteristics of VEs designed for graduate students? What are the learning goals, structures, and activities? What student outcomes are reported? And what insights about adult learner experiences in VE are identified? The review suggests there is a strong emphasis on professional preparation in graduate-level VE with particular attention to culture and collaboration. Limited information about students as adult learners was examined (e.g., their perspectives, preferences, and challenges). This article points to the need for more research, models, and instructional and curricular supports to realize the potential of VE for graduate and adult learners.

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**Keywords:** virtual exchange, graduate education, postgraduate education, adult learner, experiential learning

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## 1. Introduction

Despite rapid growth at the undergraduate level and a growing research base, relatively little attention has focused on virtual exchange (VE) for graduate<sup>2</sup> and adult learners (e.g., [Stevens Initiative, 2020](#)). This is unfortunate. In theory, VE offers exciting possibilities for embedding an international learning experience into advanced professional preparation. VEs may expose graduate learners to new perspectives on their chosen profession. For those with extensive work experience, VEs may create opportunities for learners to reflect on professional knowledge in new ways by engaging with peers from different parts of the world. VEs also may expand access to international experiences by removing many of the logistical and financial barriers of in-person travel facing adult learners with competing personal and professional responsibilities.

This article contributes new insights for the VE field about the nature of VEs and learning experiences designed for graduate and adult learners. Peer-reviewed accounts of graduate and adult VEs were analyzed to take stock of available evidence irrespective of academic field or discipline. While the initial impetus for this literature review was the author's search for models appropriate for a mid-career doctoral program in the United States, the findings hold design implications for graduate and adult learners across fields and disciplines. The literature review was guided by four questions:

- What are the characteristics of VEs designed for graduate students?
- What are the learning goals, structures, and activities?
- What student outcomes are reported?
- What insights about adult learner experiences in VE are identified?

The article begins with an overview of graduate education and characteristics of adult learners that are relevant to international learning experiences generally – and VE in particular. Then, the article explores the current landscape for VE in order to situate graduate-level exchanges in this broader field. Next, the literature review procedures and results are presented. The final section discusses what this analysis reveals about VE for graduate education and adult learners, and identifies implications for future research and practice.

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2. This article uses the term “graduate” to describe master’s, doctoral, and post-baccalaureate professional certificate education. These may be described as “post-graduate” in many countries.

## 2. Literature review

### 2.1. Graduate education and adult learners

Graduate enrollment accounts for a significant portion of tertiary education participation. Across OECD countries, on average 22% of tertiary students were enrolled in master's programs and another 4% were enrolled in doctoral programs (OECD, 2022). Among European Union (EU) tertiary education students, approximately one third were studying for a master's or doctoral degree (Eurostat, 2022). In the United States, over 3.1 million students were enrolled in graduate programs in 2020-2021 (National Center for Education Statistics, 2022a). Graduate education is also expanding in other parts of the world (e.g., UNESCO, 2015; Woldegiyorgis, 2020).

Adult learners, defined as 25 years or older, account for a sizable portion of students enrolled in tertiary education generally, and graduate education in particular (OECD, 2022). In the United States, adult learners accounted for approximately one third of postsecondary enrollment in 2019 (National Center for Education Statistics, 2022b). The OECD 2022 report found master's student enrollment age was typically from the early to mid-twenties and doctoral enrollment age was mid- to late-twenties.

Adult learners tend to be self-directed, possess a more fully developed sense of self, and draw on their life experiences to inform current learning (e.g., Jarvis, 2010; Knowles et al., 2005; Merriam et al., 2007). According to these adult learning theorists, adult learners seek relevance in their learning and exercise greater autonomy. They may walk away when the learning does not meet their goals and priorities. Graduate students who are adult learners may have spent years engaged in training and work in their field. Their knowledge, skills, and worldview are formulated by the work they have done day in and day out (Kolb & Kolb, 2017).

Adult learners often face practical constraints. American adult learners are likely to have multiple work, family, and other social responsibilities in addition to their education (e.g., Bergman, 2021). Furthermore, adult learners may be enrolled part-time – whether as undergraduate or graduate students. Among American adult learners in graduate programs, over half were enrolled part-time (National Center for Education Statistics, 2022b). Part-time enrollment in tertiary education is common (OECD, 2022). For part-time students, non-education responsibilities can consume significant time and resources (Sabzalieva et al., 2022). These competing demands can restrict opportunities to participate in in-person international learning experiences but allow possibilities for VE.

## 2.2. Prevalence of international learning experiences in graduate education

Access to international learning experiences for higher education students is a longstanding concern. A relatively small number of students participate in physical mobility defined as “students crossing borders in pursuit of an activity related to higher education” (Sabzalieva et al., 2022, p. 8). Learners who do cross borders to study are more likely to have the resources and motivation to do so.

VE is frequently viewed as a strategy to expand access to international learning because it removes many of the barriers to in-person travel. This is particularly compelling for learners with competing responsibilities for whom physical mobility is more difficult (e.g., Sabzalieva et al., 2022). Yet surveys of VE participation suggest graduate-level and adult participation are less common (Stevens Initiative, 2021a, 2022).

## 2.3. Experiential learning

Experiential learning provides a lens through which to understand how VE can support graduate and adult learners (Kolb & Kolb, 2017). Experiential learning is premised on the expectation that deep learning occurs through actively and directly participating in experiences and engaging in reflection on those experiences. In its simplest terms, the learner has an experience, reflects on that experience, formulates ideas about the experience, and then tests these ideas in the real world.

The value of deep experiential learning for adults lies in the capacity to disrupt one’s current understanding by encountering a problem, practice, unanticipated event, or outcome that spurs new insights. Often adult professionals enrolled in graduate programs have been socialized through their specialized training, career, and current role in ways that shape their learning (Kolb & Kolb, 2017). VEs may offer a type of disruption and re-examination as adult learners engage with peers from other parts of the world.

## 2.4. The VE landscape from research

This article uses ‘VE’ as an umbrella to capture a range of terms – including telecollaboration, teletandem, e-tandem, collaborative online international learning (COIL), global virtual teams (GVT), and online intercultural exchange (e.g., Helm & Guth, 2022; Lewis & O’Dowd, 2016; Stevens Initiative, 2021b; Zak, 2021). Despite differences, these terms share the premise that technology is used to facilitate interaction, exchange ideas, and foster collaboration between students and faculty in different countries. Structural arrangements for VEs vary. For example, in many instances two or

more separate courses located in different countries are paired for the exchange. In other cases, the VE may occur in a course shared by faculty and institutions located in multiple countries.

The VE field in higher education is rapidly evolving and the accompanying research base is still relatively young. It is challenging to fully capture VE activity across the globe and from reports of these exchanges published in many languages (Rubin, 2022; Stevens Initiative, 2022). To understand similarities and differences of graduate-level VE patterns with the broader field, this article draws on several English-language sources, recognizing that the picture presented here is incomplete.

The prevalence of VEs appears substantially lower in graduate programs. However, how much is not clear. For example, the Stevens Initiative's 2022 field report found few providers served graduate students, while the 2021 report found 29% of providers served graduate students. Zak's 2021 literature review included accounts of programs serving undergraduate and graduate students, but the review did not distinguish between these education levels.

Reports of country representation in VE vary but some regions and countries emerge frequently in the literature – including the United States and Europe, with Germany making a frequent appearance (e.g., Lewis & O'Dowd, 2016; Stevens Initiative, 2021a, 2022; Zak, 2021). Other regions reported to be active include the Middle East (Stevens Initiative, 2022). China, Colombia, France, Japan, India, and Mexico were among the top countries represented in the most recent Stevens Initiative field reports (2021a, 2022). Rubin and his colleagues (2022) identified higher education institutions frequently offering COIL courses in the United Kingdom, United States, Mexico, Brazil, and Netherlands in 2019. Alami and colleagues (2022) identified regional patterns in educator and administrator decisions to undertake VE that may help explain different participation levels around the world.

As noted above, many terms fall under the VE umbrella and there are a variety of classification systems (e.g., Helm & Guth, 2022; Lewis & O'Dowd, 2016; Stevens Initiative, 2021b). The two approaches consistently present in the literature are COIL and the foreign language learning models – telecollaboration, teletandem, and e-tandem. These have a relatively long tradition in a young field (e.g., Lewis & O'Dowd, 2016; Rubin, 2022). The Stevens Initiative (2021a; 2022) field reports found that COIL accounted for 36-43% of VE activity. In Zak's (2021) review COIL, telecollaboration, and e-tandem accounted for close to one third of the models examined. While these are the most frequently identified models, there is a wide variety of terms used.

VEs, typically conducted over several weeks, focus on a particular topic that has relevance for the partner courses or programs. VEs can be multidisciplinary with partner courses or programs from

different fields of study. The [Stevens Initiative \(2021a; 2022\)](#) reported that the most frequent VE topics centered on intercultural dialogue and peacebuilding, followed by science, technology, engineering, and mathematics (STEM) and global or international affairs in 2021 and entrepreneurship in 2022.

Reported student learning outcomes in VE have centered on themes that are global, disciplinary, and intercultural ([Helm & Guth, 2022](#); [Stevens Initiative, 2020](#); [Zak, 2021](#)). [Zak \(2021\)](#) identified “language learning, peacebuilding, and international cultural competency development” (p. 70) as learning outcomes. The [Stevens Initiative \(2019\)](#) toolkit identified common outcomes as global competencies (e.g., cross-cultural communication, collaboration, perspective-taking, problem solving), discipline or field-specific learning, and behavior changes such as civic participation. [Helm and Guth’s \(2022\)](#) review of recent large-scale studies found learning outcomes focused on intercultural/global learning, knowledge and content, and attitudes.

Leaders in the field have identified the need for additional and more rigorous evidence of learning (e.g., [Deardorff & van Gaalen, 2022](#); [Helm & Guth, 2022](#); [Stevens Initiative, 2020](#); [Zak, 2021](#)). Evidence has relied heavily on self-report. [Zak \(2021\)](#) noted the prevalence of qualitative accounts and case studies. Based on their analysis, [Helm and Guth \(2022\)](#) advocated for the key role of intentional design to align with and support learning objectives for VE.

### **3. Methods: Literature review procedures**

Similar to [Zak’s \(2021\)](#) account, the literature review for this article was a complicated undertaking. The initial impetus for the literature review was the researcher’s interest in identifying VE models appropriate for adult learners in a U.S.-based mid-career doctoral program. To become familiar with the field, the researcher read and searched widely, at first not limiting the search to one education level or peer-reviewed sources. The researcher developed a database of over 475 sources that address some form of VE.

For this article, systematic literature review procedures with some modifications were used to identify graduate-level VE in peer-reviewed sources. [Alexander \(2020\)](#) defined the systematic literature review process as an “orchestrated search of literature intended to address a particular question or issue of importance to the field” (p. 8). The literature identified is “analyzed and synthesized in a manner that is methodical, logical, and transparent” (p. 8). The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) provided guidance for conducting and reporting

the results and development of the flow diagram represented in [Figure 1 \(Page et al., 2020\)](#). The inclusion and exclusion criteria were applied in two stages ([Table 1](#)).

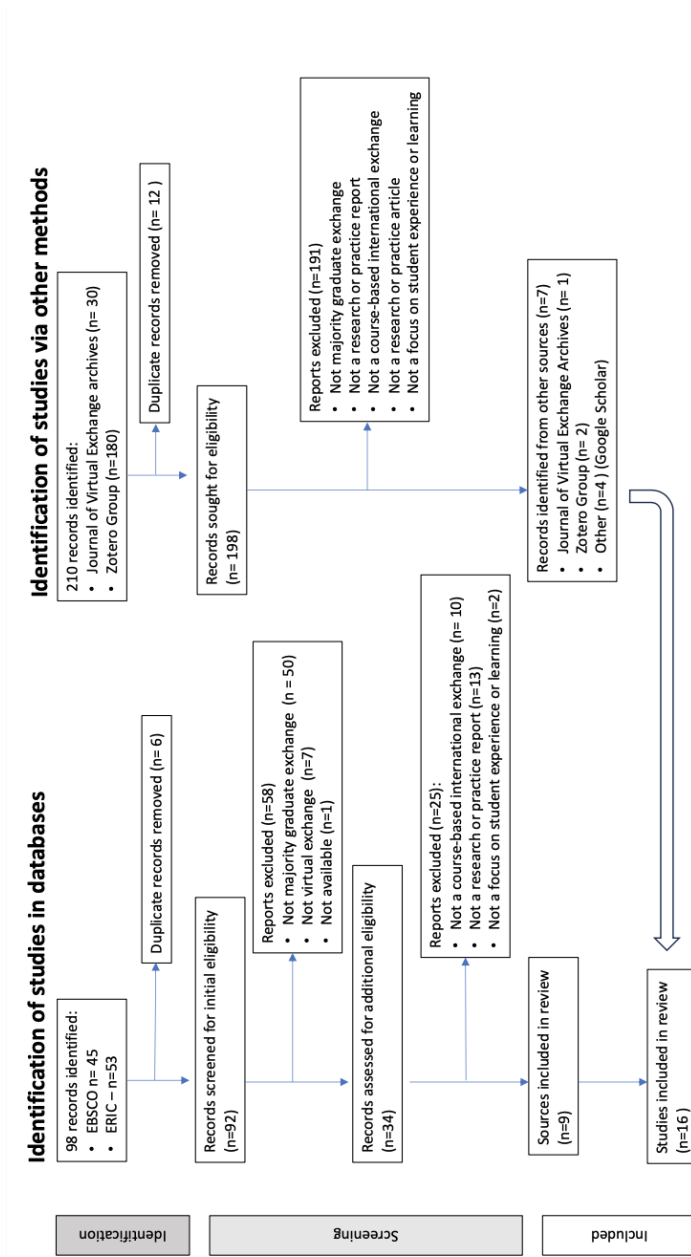
The researcher searched two academic databases – ERIC and EBSCO (specifically Academic Search Complete and Education Research Complete). The researcher also reviewed the *Journal of Virtual Exchange* archives, the [UNICollaboration's Virtual Exchange & Telecollaboration Zotero Group](#), and the researcher's database. To search ERIC and EBSCO, the researcher applied parameters including peer-review, date range, and English language. These searches combined virtual exchange terms (i.e., “virtual exchange,” “collaborative online international learning,” “telecollaboration,” “teletandem,” “e-tandem,” “global virtual teams,” “online international learning,” and “online intercultural learning”) and graduate level (i.e., EBSCO: “postgraduate,” “postgraduate students,” “graduate students or doctoral students or master’s students,” “graduate programs or doctoral programs,” “master’s programs” and “adult”; ERIC: “graduate,” “master’s,” “doctoral,” “doctorate,” and “adult”). With the inclusion and exclusion criteria as guidance, the researcher searched available *Journal of Virtual Exchange* archives (i.e., 2018-2021). To supplement these systematic searches, the researcher systematically reviewed the abstracts in the Zotero Group that met the preliminary inclusion parameters (date range, peer-review, English) but limited this search to reading the abstracts for the graduate and adult search terms. In addition, four sources were identified through Google Scholar (i.e., [Ingudóttir et al., 2018](#), [Kayumova & Sadykova, 2016](#); [Tjulin et al., 2021](#); [Vicente et al., 2021](#)) as part of the researcher's database from the broader search for VE sources.

**Table 1. Inclusion and exclusion criteria**

Inclusion Criteria	Exclusion Criteria
<b>Round 1</b>	
<ul style="list-style-type: none"> <li>• Published between 2011 and 2021</li> </ul>	<ul style="list-style-type: none"> <li>• Published before 2011 or after 2021</li> </ul>
<ul style="list-style-type: none"> <li>• English-language</li> </ul>	<ul style="list-style-type: none"> <li>• Not English</li> </ul>
<ul style="list-style-type: none"> <li>• Peer-reviewed (<i>journal articles, chapters in edited volumes</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Peer-review not specified</li> <li>• Conference proceedings</li> <li>• Reports</li> </ul>
<ul style="list-style-type: none"> <li>• Focus on VE</li> </ul>	<ul style="list-style-type: none"> <li>• Not a VE (<i>e.g., science, technology development</i>)</li> </ul>
<ul style="list-style-type: none"> <li>• Majority graduate</li> </ul>	<ul style="list-style-type: none"> <li>• Undergraduate only</li> <li>• Undergraduate + graduate</li> <li>• Unspecified education level</li> </ul>
<b>Round 2</b>	
<ul style="list-style-type: none"> <li>• A course-based international VE</li> </ul>	<ul style="list-style-type: none"> <li>• Exchanges involving students not affiliated with a course (<i>e.g., volunteers</i>)</li> </ul>
<ul style="list-style-type: none"> <li>• Focus on student experience or learning</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal focus on students outcomes (<i>e.g., focus on instructor experience; initiative development</i>)</li> </ul>
<ul style="list-style-type: none"> <li>• Research or practice report describing a specific exchange (<i>single and multiple iterations of the exchange</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Practitioner and general interest sources</li> <li>• Large scale study of many institutions, exchanges, and students</li> <li>• Literature syntheses</li> </ul>



Figure 1. Flow diagram of literature search



Sixteen sources were identified for inclusion (Table 2). The sources included 14 articles (from 12 journals) and two chapters in edited books. One involved a three-way exchange – two graduate and one undergraduate course. This article was included because at least two graduate-level courses were part of the exchange (Kayumova & Sadykova, 2016). Three other sources described the exchange but focused on one partner course (Chen, 2020/2021; Ko et al., 2015; Zemliansky, 2012). The sources were comprised of 14 research studies and two project descriptions (i.e., Tjulin et al., 2021; Vicente et al., 2021).

Procedures for analyzing the 16 sources involved reading and recording relevant data in spreadsheets for comparison. The information logged included: country, student age and experience, type of VE, discipline/field, length of exchange, single exchange or multiple iterations of the exchange, number of courses in the exchange, goals, structure, and activities, types of evidence reported, and student experience and learning outcomes. The researcher checked for accuracy by reviewing data logged and documenting with corresponding page numbers where the data was identified.

The researcher does not claim this literature search identified all published accounts of graduate-level exchanges in the past decade. The primary systematic search involved two academic databases widely used in the United States. Alexander (2020) observed that database selection can “differentially shape the outcome of systematic reviews” (p. 12). Non-English sources were not included. Graduate-level VEs from institutions in such active countries as Brazil, Colombia, and Mexico may not be fully represented in this review. Only sources that clearly specified a majority graduate-level exchange were included. Many sources either did not clearly specify an education level or described an exchange between students at two different education levels. The focus of the sources varied thus shaping the amount and types of descriptive details provided. The research reports examined in greater detail those dimensions of the exchange relevant to the research question(s).

## 4. Results

### 4.1. Characteristics of the graduate-level VEs

This section describes characteristics reported in the 16 sources including education level, type of VE, country representation, and field or discipline (Table 2). Nine sources did not specify the graduate level of the students for at least one partner. Four described a master’s only exchange. Three described a master’s and doctoral level exchange. None described doctoral-only exchanges.

**Table 2: VE characteristics**

Source	Education Level	VE Type	Countries Represented	Field Match	Field/Discipline
Chen (2020/2021)	Graduate	GVT	U.S. Not identified	Unknown	Education (U.S.)
Dorner (2018)	Master's + Doctoral	International Collaborative Seminar	Estonia Hungary U.S.	Mixed	Social sciences Humanities
Fuchs (2011)	Graduate Master's	Telecollaboration	Taiwan U.S.	Same	TEFL <sup>3</sup> TESOL <sup>4</sup>
Fuchs (2016)	Graduate	Telecollaboration	Turkey U.S.	Same	TESOL TEFL
Fuchs (2019)	Graduate	Telecollaboration	Germany Hong Kong	Similar	English TEFL
Hauck et al. (2020)	Master's	Telecollaboration	Germany Poland	Same	TESOL
Ingudóttir et al. (2018)	Graduate	COIL	Iceland U.S.	Same	Parent/Family Education
Kayumova & Sadykova (2016)	Graduate + 1 Undergraduate	COIL	Russia U.S. *Lithuania	Mixed	Education English *Media
Ko et al. (2015)	Graduate	Global Link	S. Korea U.S.	Same	Physical Education
Kurek et al. (2019)	Graduate	Virtual exchange	Germany Poland	Same	TEFL
Magnier-Watanabe et al. (2017)	Master's	GVT	France Japan	Same	Business
Müller-Hartmann (2016)	Master's	Online Intercultural Exchange	Germany Poland	Same	TESOL
Tanghe & Park (2016)	Master's + PhD	Telecollaboration	S. Korea U.S.	Same	TESOL
Tjulin et al. (2021)	Master's + PhD	Virtual internationalization	Canada Sweden	Mixed	Health Work

3. Teaching English as a Foreign Language (TEFL)

4. Teaching English to Speakers of Other Languages (TESOL)

Source	Education Level	VE Type	Countries Represented	Field Match	Field/Discipline
Vicente et al. (2021)	Graduate	COIL	Brazil Germany Kosovo Mozambique	Similar	Health-related
Zemliansky (2012)	Master's	Virtual Teams	Ukraine U.S.	Mixed	Tech/Science Communication Marketing

## 4.2 Country representation

Twenty countries were represented, with 12 located in Europe. The two most frequently represented countries were the United States and Germany. This prevalence is consistent with the broader field (Lewis & O'Dowd, 2016; Stevens Initiative, 2021a; 2022; Zak, 2021). Thirteen described exchanges between two partner universities; three described exchanges among students located in three or more countries.

## 4.3 VE types and terms

A variety of terms were used to describe the VE. Three were characterized as COILs and five as telecollaboration – consistent with other recent research (e.g., Stevens Initiative 2021a, 2022; Zak, 2021). Three used a team-related term (i.e., global virtual teams [GVT] or virtual teams). The remaining five described the VE using a variety of terms. This pattern is in line with the wide range of terms employed in the broader field (e.g., Helm & Guth, 2022; Lewis & O'Dowd, 2016; Zak, 2021).

## 4.4 Field of study and disciplinary match

The majority of exchanges reviewed occurred in the same or closely related fields. Nine described single disciplinary exchanges.<sup>5</sup> Two more described exchanges in similar fields, i.e., English majors in a sociolinguistics course paired with TEFL students (Fuchs, 2019), and a health discipline-related exchange (Vicente et al., 2021). Four were multidisciplinary exchanges: master's and doctoral level students in several social sciences and humanities disciplines (Dorner, 2018); graduate students in

5. TEFL and TESOL are coded as the same field.

education and English (Kayumova & Sadykova, 2016); work and health (Tjulin et al., 2021); and technical/scientific communication and marketing (Zemliansky, 2012).

University-level VEs involving a language focus are common and have a long history in the VE field (Lewis & O'Dowd, 2016; Zak, 2021). In this review, the trend was evident. Eight of the 16 sources described exchanges that included an English language focus for at least one of the courses (Fuchs, 2011, 2016, 2019; Hauck et al., 2020; Kayumova & Sadykova, 2016; Kurek et al., 2019; Müller-Hartmann, 2016; Tanghe & Park, 2016). Seven of these exchanges included a course preparing teachers to teach English as a foreign (TEFL) or second language (TESOL).

Teacher preparation courses were also heavily represented. In addition to the TEFL/TESOL courses, three exchanges included at least one teacher education course (Chen, 2020/2021; Kayumova & Sadykova, 2016; Ko et al., 2015). In all, 12 sources included education courses.

#### **4.5. Adult learners**

With a few exceptions, adult learners and adult learning were not explicit foci in most sources. Five provided brief references to student age and/or professional experience (Fuchs, 2011, 2019; Hauck et al., 2020; Ko et al., 2015; Kurek et al., 2019). Ingudóttir and colleagues (2018) specifically described the students as adult learners, the majority of whom had a teaching license and/or ten or more years of professional experience in the field. These authors attributed observed shifts in intercultural knowledge in part to adult learners' maturity and experience. Of note, this VE was embedded in programs preparing graduate learners to work with adults (i.e., parents and families). Magnier-Watanabe et al. (2017) attributed divergent learning expectations to differences in professional experience. The Japanese working professionals attending school part-time expected to improve global teamwork skills in contrast to their younger, less experienced international partners who were focused on grades. These differences challenged the collaboration. Tanghe and Park (2016) explored how a team of older, experienced professionals in a TESOL exchange drew on professional and life experiences to navigate teamwork including re-examining preconceptions and identities to construct meaning. This was the only source that also referenced challenges of balancing work, family, and school. One student in this study reported participation was constrained by competing family responsibilities.

#### 4.6. VE learning goals

Typically, authors described multiple goals for the VE linked to preparation for professional roles. These goals were articulated to varying degrees. Often, goals were interconnected, with one goal facilitating the realization of a second goal. The goals most frequently referenced related to intercultural understanding and skills, collaboration and teamwork, and digital technology skills.

All sources stated that the VE contributed to preparing graduate students for their profession. For example, the collaborative seminars described by [Dorner \(2018\)](#) asked humanities and social science students to engage deeply in their interest area and with diverse and interdisciplinary perspectives. Several sources cited skill-building goals. For example, TEFL/TESOL exchanges emphasized providing students with opportunities to apply pedagogical knowledge and skills (e.g., [Fuchs, 2019](#); [Hauck et al., 2020](#); [Kurek et al., 2019](#)).

Cultural goals were explicitly discussed in most articles and reflected priorities of the profession. These goals were often referenced in the context of developing collaboration and teamwork skills. For the non-education exchanges, these goals centered on preparing graduates for global interdependent work environments ([Magnier-Watanabe et al., 2017](#); [Vicente et al., 2021](#); [Zemliansky, 2012](#)). The health-related exchange included “multicultural learning” (p. 2) and working “in a diverse team” (p. 2) as project objectives ([Vicente et al., 2021](#)). For the TEFL/TESOL exchanges, cultural goals were interwoven with pedagogical preparation. [Hauck and colleagues \(2020\)](#) referenced intercultural goals although the focus of the article was on changes in technology knowledge and practice. The other teacher education exchanges also focused on building student capacity to work in culturally diverse local environments ([Chen, 2020/2021](#); [Ingudóttir et al., 2018](#); [Ko et al., 2015](#)).

Technology skills were cited as a primary goal and a support for other goals. [Fuchs \(2019\)](#) focused on modeling technology use and task design but tied this to a larger goal of internationalizing the teaching profession and global citizenship. Developing students’ digital competencies to prepare for future roles was a focus for four other TEFL/TESOL exchanges ([Fuchs, 2011, 2016](#); [Hauck et al., 2020](#); [Kurek et al., 2019](#)). For the U.S.-based education technology course, the exchange was an opportunity for students to utilize “technology to collaborate and design cross-cultural lessons for K-12 students” ([Chen, 2020/2021](#), p. 6).

#### 4.7. VE structure and activities

The exchanges included relationship-building activities, intercultural groups or teams of students, and activities to foster interaction, typically in the form of a collaborative task (or tasks). Most sources described student reflection components. All involved synchronous meetings and most included asynchronous activities and/or the expectation that additional student interactions would occur outside class time. The exchanges lasted between five and 13 weeks.

The TEFL/TESOL exchanges described relationship-building, teams, and collaborative tasks. Four referenced O'Dowd and Ware's 2009 typology (Fuchs, 2016, 2019; Hauck et al., 2020; Kurek et al., 2019). This structure begins with information exchange activities, then turns to comparing and analyzing cultural practices, and working on a collaborative project. The collaborative project for the Hong Kong-German exchange required global teams to share ideas in topical discussions, collaboratively write a literature review, and develop a website to make recommendations for practice (Fuchs, 2019). The 13-week Polish-German language teacher preparation exchange organized intercultural teams to evaluate online tasks for teaching and then design a task (Hauck et al., 2020). In one American-South Korean exchange, students in the same class first completed preliminary tasks. Then they collaborated in international teams to share their work, give feedback, and draw connections to theory and practice (Tanghe & Park, 2016).

The exchanges that did not have a TEFL/TESOL focus also shared these common elements. Dorner (2018) described exchanges in which master's and doctoral students examined theoretical texts, worked in groups on research projects, participated in weekly video conferences facilitated by instructors and asynchronous discussions, and completed writing tasks. Citing COIL principles, the One Health collaboration involving students from four countries (Brazil, Germany, Mozambique, and Kosovo) occurred in six modules beginning with an icebreaker, followed by modules focused on core concepts such as interprofessional practice, bioethics, and healthcare (Vicente et al., 2021). The exchange drew on project-based learning in global teams and regular synchronous sessions with the entire group. The Japanese-French exchange organized global teams to work on assignments such as analyses of global team case studies (Magnier-Watanabe et al., 2017). The exchange between American and South Korean physical education students placed less emphasis on teams and collaborative tasks (Ko et al., 2015). This exchange employed "individualized interactions" (p. 366) to discuss personal, cultural, and professional topics in physical education followed by two weeks of "group video conferencing" (p. 366).

## 4.8. Student outcomes

Details about student outcomes and supporting evidence varied based on the focus of the source. The two practice descriptions reported details on particular aspects of the project (Tjulin et al., 2021; Vicente et al., 2021). The 14 research studies reported details specific to research questions that may or may not have focused on student outcomes. Several research studies reported outcomes specific either to one international partner (Chen, 2020/2021; Ko et al., 2015; Zemliansky, 2012) or one intercultural team within an exchange (Fuchs, 2016; Müller-Hartmann, 2016; Tanghe & Park, 2016). Across all 16 sources, student outcomes – learning and perspectives on the experience – were generally positive with some nuances identified.

### 4.8.1. Evidence of student outcomes

Sources referenced a variety of evidence for learning and/or satisfaction with the experience (Table 3). Most reported multiple types of evidence to triangulate findings. The most frequently cited sources of evidence included student feedback (e.g., questionnaires, surveys, and interviews after the exchange), student activities (e.g., interim activities, collaboration artifacts, and final assignments), and student reflections.<sup>6</sup> Seven referenced evidence from instructor-generated artifacts including videotapes and notes. Three TEFL/TESOL sources and the physical education exchange described pre/post assessments of change. Another three described needs analyses prior to the exchange.

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6. Some student activities were reflections.



**Table 3. Evidence of student outcomes reported**

Source	Student Feedback	Student Activities	Student Reflections	Pre-Only Needs Assess	Pre/Post Change	Instructor Artifacts
Chen (2020/2021)		X	X			
Dorner (2018)	X					
Fuchs (2011)	X	X		X		
Fuchs (2016)		X	X	X		
Fuchs (2019)			X		X	
Hauck et al. (2020)	X	X	X		X	X
Ingudóttir et al. (2018)	X		X			
Kayumova & Sadykova, (2016)	X					
Ko et al. (2015)			X		X	
Kurek et al. (2019)		X	X		X	X
Magnier-Watanabe et al. (2017)		X	X	X		
Müller-Hartmann (2016)		X	X			X
Tanghe & Park (2016)	X	X	X			X
Tjulin et al. (2021)	X					X
Vicente et al. (2021)		X				
Zemliansky (2012)	X	X	X			X

Four sources used validated instruments. [Hauck et al. \(2020\)](#) employed subscales of the Technological Pedagogical Content Knowledge (TPACK) instrument as pre/post measures of change. [Ko et al. \(2015\)](#) used the Cultural Intelligence Scale (CQS) as a pre/post measure of change in “cognitive, affective, and behavioral aspects of intercultural effectiveness” (p. 371). [Magnier-Watanabe et al. \(2017\)](#) administered a cultural orientation tool specific to the management field (the International Institute for Management Development’s Cultural Perspectives Questionnaire) at the beginning of the exchange. [Ingudóttir and colleagues \(2018\)](#) used the 2009 American Association of Colleges and Universities (AAC&U) Intercultural Knowledge and Competence VALUE rubric to analyze intercultural learning in student transcripts.

The TEFL/TESOL sources provided detailed accounts using multiple methods to understand student outcomes. The German-Hong Kong exchange included a pre/post survey to assess teaching and technology experiences, technology proficiency, and – for the post-survey – perceptions about the experience and technology use ([Fuchs, 2019](#)). Similarly, [Kurek and colleagues \(2019\)](#) described a pre/

post survey, self-assessments of the intercultural communicative competence (ICC) task design, and a peer evaluation. As discussed in the previous paragraph, [Hauck and colleagues \(2020\)](#) employed multiple types of evidence including the TPACK scale to assess changes in technological, pedagogical, and content knowledge.

The other VEs cited evidence of student outcomes with varying levels of detail. [Vicente and co-authors \(2021\)](#) reported a formative evaluation of project development and a final presentation. [Dorner \(2018\)](#) briefly referenced a research project, primarily drawing on evidence from student interviews and open-ended questionnaire responses to understand perceptions of internationalized learning and differences in how learning was understood. [Magnier-Watanabe et al. \(2017\)](#) analyzed individual assignments and results from the CPQ scale. [Chen \(2020/2021\)](#) reported findings from student assignments, individual and group reflective activities, and artifacts – for example a concept map. [Tjulin and co-authors \(2021\)](#) focused on the technical challenges of shared assignments and grading with different cultural expectations, but did not share information about the assignments themselves.

#### *4.8.2. Reported student outcomes*

Two types of student outcomes were reported in the 16 sources: student experiences and learning. Most sources reported general student satisfaction with the experience. However, some research studies focused on a particular partner, group, or team rather than all students in the exchange. Reported learning outcomes centered on intercultural learning, digital skill development, and/or deeper understanding of the discipline or field.

Intercultural learning and skills were reported in the majority of sources. These included building intercultural awareness ([Ingudóttir et al., 2018](#)) and practicing skills associated with cross-cultural collaboration and working in intercultural teams ([Kayumova & Sadykova, 2016](#); [Vicente et al., 2021](#)). Several analyzed intercultural teamwork development and functioning to identify characteristics of effective teams (e.g., trust and leadership), instructional and curricular supports (e.g., progressively complex tasks and collaborative workspaces), and challenges (e.g., imbalances in workload, language, professional experience, cultural differences, and task divisions) ([Chen, 2020/2021](#); [Fuchs, 2016](#); [Magnier-Watanabe et al., 2017](#); [Müller-Hartmann, 2016](#); [Zemliansky, 2012](#)).

Some sources reported uneven student outcomes across partners as well as challenges in realizing more complex learning goals. The study that intentionally studied technological, pedagogical and content knowledge demonstrated gains in learner competence but variation by partner course ([Hauck et al., 2020](#)). The authors posited that context for preparing students to engage in design thinking contributed to the variation in TPACK scores. Similarly, [Kayumova and Sadykova \(2016\)](#)

reported students' perceived value of the exchange varied across the three partners. [Dorner's \(2018\)](#) VEs focused on providing opportunities for master's and doctoral students to gain deeper insight into their social science or humanities discipline. The author concluded it was difficult for students to make transitions to integrate belief orientations necessary for independent critical thinking; but also that digital technologies, facilitation, and structure created a virtual community that could support this deep conceptual learning.

## **5. Discussion and implications**

This literature review addressed four questions: What are the characteristics of VEs designed for graduate students? What are the learning goals, structures, and activities? What student outcomes are reported? And what insights about adult learner experiences in VE are identified? This analysis indicates more research, models, and instructional and curricular supports are needed to realize the potential of VE for graduate and adult learners. Some findings are common to VE at all education levels while others are specific to graduate and adult learners.

### **5.1. Participation across nations and disciplines**

In this review, the majority of graduate students were located in regions and countries that are also well-represented in the broader VE field (e.g., [Lewis & O'Dowd, 2016](#); [Rubin et al., 2022](#); [Stevens Initiative, 2021a, 2022](#); [Zak, 2021](#)). A frequently cited benefit of VE is expanded access to and with students from all parts of the world. Keeping in mind this review was limited to English-language sources, this review suggests a need to expand graduate-to-graduate level partnerships to other parts of the world.

Most sources described exchanges in the same or related fields. It is likely that because a graduate program provides advanced and more focused study in a particular field or discipline, partnering with courses from the same content area is preferred. If true, faculty need assistance to identify international partners in their specific fields. International education administrators should work with faculty and their professional associations to develop field-specific networks for growing graduate-level exchanges in those fields where VE is not widely practiced.

## 5.2. Learning goals, activities, and outcomes

Professional preparation permeated VE goals and activities. Several sources provide insights for designing graduate-level exchanges with relevance for multiple fields. [Dorner \(2018\)](#) illustrated how VE might be used to push graduate learners to engage more deeply in their chosen discipline. Others provided insights for facilitating team development, functioning, and collaboration (e.g., [Chen, 2020/2021](#); [Fuchs, 2016](#); [Magnier-Watanabe et al., 2017](#); [Müller-Hartmann, 2016](#); [Zemliansky, 2012](#)).

Consistent with the broader field, evidence of student experiences and learning were primarily gleaned from qualitative sources such as student feedback, instructor artifacts, student activities, and data collection instruments (e.g., [Helm & Guth, 2022](#); [Stevens Initiative, 2020](#); [Zak, 2021](#)). Strengths of this compilation of reviewed sources include in-depth analyses of collaborative processes and triangulated findings based on multiple types of evidence. Like the broader field, there is a need for more instruments and strategies to assess graduate student learning. This collection offers an opportune starting point for exploring evidence collection strategies for graduate and adult learner VEs.

The sources largely identified promising experiential or learning outcomes – suggesting VEs can support intercultural learning, expanded understanding of a profession or discipline, and opportunities to practice professional skills. Little is known, however, about how a VE experience impacts professional practice over time. Graduate learners who are currently working – or soon will be – have only begun to make sense of what they learned during the VE and how to integrate those insights into their professional practice. Future research should examine how such experiences are integrated into individuals' understanding of their profession and practice over time.

## 5.3. Adult learners and VE

As experiential learning, international VEs can prompt adults with professional and life experiences to re-examine familiar beliefs, attitudes, and practices in order to spur new learning ([Kolb & Kolb, 2017](#)). To accomplish this level of deep learning, exchanges benefit from taking into account adult learner orientations, preferences, and realities. In selected sources, adult learner characteristics and challenges (i.e., life experiences, goals, relevance-seeking, identities, and multiple responsibilities) were referenced as contributors to the VE experience and student learning.

Reflection is an essential component of experiential learning ([Kolb & Kolb, 2017](#)). For adult learners in a VE, reflection can facilitate re-examining those established beliefs, attitudes, and practices. It

can assist learners to make connections to professional and life experiences. Several sources employed multiple reflections during the exchange that provided space for adult learners to explore cultural beliefs and attitudes, intercultural engagement, and team/group processes (e.g., Hauck et al., 2020; Magnier-Watanabe et al., 2017; Tanghe & Park, 2016).

Language-related fields offer extensive expertise for designing learning to facilitate intercultural communication and growth. These fields can be vital resources when integrated with attention to adult learners' developmental stage and learning preferences. Tanghe and Park's (2016) exploration of team member negotiation of professional, personal, and cultural identities to construct meaning offers an example of how a deeper level of intercultural learning and communication might evolve in a VE for adult learners. The perceived relevance of interculturality to one's profession can also play a role in graduate learner motivation to fully engage with international peers (i.e., Ingudóttir et al., 2018; Magnier-Watanabe et al., 2017). Here again, reflective activities and explicit strategies can help adult learners make these connections to their professional roles.

Global virtual teamwork is a complicated undertaking for adults with specific learning goals; established beliefs, attitudes, and practices related to work, teams, and task completion; and multiple work and family responsibilities (e.g., Magnier-Watanabe et al., 2017; Tanghe & Park, 2016). Several sources described strategies that might support team development and functioning for adult learners. Needs assessments and group process-oriented reflections during and/or after the exchange provide space for learners' to explore their expectations and roles in group work (e.g., Fuchs, 2016; Magnier-Watanabe et al., 2017; Tanghe & Park, 2016). Readings and activities that explicitly address team development and functioning can prepare adult learners to understand and navigate team dynamics (e.g., Magnier-Watanabe et al., 2017).

VEs should broaden adult learner access to international learning experiences because these encounters do not require in-person travel. Even without physical mobility, however, many adult learners still navigate their education with work, family, and other social responsibilities. Limited attention was devoted to how adult learners meet these challenges in a course-based VE. More research is needed to understand the logistical challenges that can constrain adult learner participation and identify mitigation strategies.

## 6. Conclusion

VE offers the potential to broaden graduate and adult learner participation in international learning, deepen that learning, and establish connections with peers in similar professions across the globe. These experiences can foster the kinds of new insights about one's professional practice described by Kolb and Kolb (2017). It is also possible that graduate learners can gain insights about individuals they are likely to interact with in their professional roles through a VE with peers from a similar culture or country. VEs offer possibilities for a sustained global network of professional colleagues that extends beyond the life of the exchange.

This article posed four questions. What are the characteristics of VEs designed for graduate students? What are the learning goals, structures, and activities? What student outcomes are reported? And what insights about adult learner experiences in VE are identified? The search of peer-reviewed English sources across all disciplines yielded only 16 VEs specific to graduate and adult learners. This indicates much more information is needed to help faculty and international education administrators design VEs for the graduate and adult learners who constitute a significant portion of higher education enrollment across a wide range of fields and disciplines (e.g., OECD, 2022). VEs should incorporate adults' learning goals, orientations, preferences, while also addressing their logistical challenges. Future research can support this by studying how to leverage adult learner's professional and life experiences to deepen learning across a variety of fields and disciplines. In addition, future study should examine how graduate and adult learners integrate new learning from a VE into their professional practice over time. More research-based VE evidence, models, and networks focused on graduate and adult learners will increase opportunities for deep learning across all fields and disciplines.

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