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Determining Factors of International E-Tutoring

Mattis Altmann
TU Dresden, Germany
mattis.altmann@tu-dresden.de

Lisa-Marie Langesee
TU Dresden, Germany
lisa-marie.langesee@tu-dresden.de

Victor Berger
TU Dresden, Germany
victor.berger@mailbox.tu-dresden.de

Maximilian-Alexander Höflich
TU Dresden, Germany
maximilian-alexander.hoeflich@mailbox.tu-dresden.de

Amira Materna
TU Dresden, Germany
amira.materna@mailbox.tu-dresden.de

Purpose: Virtual Exchange (VE) enables geographically separated collaboration without the need for physical travel and the use of resources like time and money. The complexity for students participating in VE modules can be reduced by using e-tutors as learning facilitators. In this context, we focus on determining factors for e-tutorial support in international collaborations in higher education and thus cross-cultural and cross-border collaboration of learners in the sense of VE.

Study design/methodology/approach: This paper aims to answer the research question: "Which determinants impact e-tutoring during collaborative and international Virtual Exchange modules?". Therefore, the results are compiled, analysed, and synthesized with the help of a Systematic Literature Review (SLR) according to Okoli & Schabram (2010).

Findings: The result is a concept matrix of 41 identified determinants of international e-tutoring in higher education, divided into six main categories: responsibilities, competencies, communication, organization, pedagogy, and prerequisites. The results allow a more precise separation of e-tutors' activities in VE modules and thus offer concrete proposals for differentiating, improving, and scaling the role of the e-tutor.

Originality/value: Students' demand to acquire global skills becomes more and more common. VE modules offer the potential to meet this demand if delivered correctly. Previous research in this field partially covers determining factors of e-tutoring, but there is a lack of a concise overview that can serve as a basis for improvement.

Introduction

In today's world, the possession of global skills is increasingly important, especially from the perspective of ongoing internationalization, and can also be a decisive factor in the hiring process for professionals (Ullah et al., 2019). Consequently, students should be educated on local and global levels to complement traditional education. This allows for understanding and appreciating the perspectives of others and interacting openly, appropriately, and effectively (Chan & Dimmock, 2008). Global skills are used quite synonymously with 21st-century skills, although the term global skills is more appropriate in the wake of internationalization and globalization. These skills extend the concept of 21st-century skills to include so-called "high skills", "skills for the digital economy and society", and "skills for cultural understanding" (Bourn, 2018).

As international learning and work experience is receiving more awareness and significance, many students have a personal aspiration for Virtual Exchange (VE) (O'Dowd & O'Rourke,

2019; Altbach et al., 2009). At the same time, the experience of working in an international team is increasingly demanded by employers (Nationale Agentur für EU-Hochschulzusammenarbeit et al., 2020; Crossman & Clarke, 2010). However, physical presence abroad often entails difficulties and restrictions. For example, many students cannot financially afford to study abroad. Additionally, there are constraints on the university side, such as capacity limits for the admission of international students or funding (Otto, 2018). Moreover, during the Covid-19 pandemic, it is nearly impossible to carry out or reliably plan foreign travel due to entry restrictions, making the relevance of an alternative to physical exchange even more significant (Koris et al., 2021; Bali et al., 2021).

The VE construct provides a solution to the described problem. This term broadly refers to online-based collaboration among geographically separated learners from different countries and cultures, mainly within the context of higher education (O'Dowd, 2018). In this context, the use of e-tutors to support the learning and collaboration processes is often discussed (Altmann & Clauss, 2020; Clauss et al., 2021; Otto, 2018). E-tutors can generally be regarded as virtual learning facilitators that accompany digital learning processes and are the first point of contact for learners in modern e-learning environments (Jödicke & Teich, 2015). They do not act as content mediators but rather accompany, watch, and moderate learners as they acquire knowledge and solve complex problems independently (Jödicke & Teich, 2015). The literature only provides marginal information on how international e-tutoring should be designed ideally and which influencing factors or challenges must be considered in international e-tutoring. Learning support in the virtual space requires a different approach than in the analog space; for example, the lack of social clues and teaching presence must be managed (Baym, 2015). Furthermore, the literature shows a broad spectrum of tasks implicated by the role of an e-tutor in international courses, but there is a lack of a clear synthesis of the spectrum of tasks. The use of e-tutors in virtual exchange scenarios increases the complexity of the role of the e-tutor and the need to structure it becomes even more apparent. This paper aims to present the state of research and generate an up-to-date view on determining factors of e-tutoring in VE projects. The derived research question of this paper is:

Which determinants impact e-tutoring during collaborative and international Virtual Exchange modules?

To answer the research question, a systematic literature review according to Okoli & Schabram (2010) was conducted. The identified articles were analysed, systematized, and subsequently discussed. In sum, 41 factors, classified into six main categories, were detected that determine e-tutoring in an international collaboration context.

Theoretical Background

Virtual Exchange

A solution to the problems described above may result from the construct of VE. The term is accompanied by various concepts such as Collaborative Online International Learning (COIL), online international exchange, or telecollaboration. These other terminologies have evolved depending on the respective contexts and educational domains and are used accordingly in various disciplines. VE will be referred to exclusively within this paper, as it is frequently applied in higher education (O'Dowd, 2018). According to O'Dowd (2018), VE refers to the "engagement of groups of learners in online intercultural interactions and collaboration projects with partners from other cultural contexts or geographical locations as an integrated part of their educational programs" (p. 1). Wicking et al. (2021) see the digital and internet-based component as a sufficient condition of VE due to the geographical and usually cultural distance among the learners.

Consequently, VE participants mostly speak different languages and can be located in different time zones (Rubin, 2017). One focal point of a VE module is acquiring intercultural skills while working collaboratively on tasks. In this context, instructors from the participating institutions develop a joint module that focuses on the main elements of pedagogy, intercultural learning, and technology. The learners then work on the content through synchronous and asynchronous communication via internet-based tools, such as social software. Typically, the tasks in this type of collaboration are related to practical issues and are designed to be highly interactive and realistic (O'Dowd, 2018; Rubin, 2017). Altmann & Clauss (2020) also mention active teaching forms, formal and informal learning objectives, and the combination of formative and summative assessment as success factors of VE. According to the literature and due to these characteristics, VE particularly fosters the co-creation of knowledge and the learning of social and intercultural skills such as critical thinking, leadership, problem-solving, and especially intercultural understanding (Annan & Appiah-Kubi, 2020; King de Ramirez, 2021; Vahed, 2021). Consequently, VE offers the opportunity for learners who are unable to engage in physical mobility due to economic or social reasons to gain international and intercultural experience through a cross-national exchange (Annan & Appiah-Kubi, 2020).

E-Tutoring

VE projects often incorporate e-tutors as learning facilitators in higher education. The term "e-tutor" and the tasks and roles attributed to it are subject to multiple perspectives (Ferrari & Triacca, 2021; Ramorola, 2018). Generally, the overarching task of an e-tutor is to support learners in an e-learning arrangement in achieving their learning objectives and to support the responsible module instructors in clarifying questions and problems that potentially arise (Jödicke et al., 2014; Jödicke & Teich, 2015). Denis et al. (2004) define the e-tutor as "someone who interacts directly with learners to support their learning process when they are separated from the tutor in time and place (…)" (p. 3). As a result, the emphasis of the e-tutorial activity is on a supportive attitude toward the students and not, as in other forms of learning, on the guidance and instruction of the learners (Balazs, 2005). In general, e-tutors guide the learners' work but do not directly participate in solving the tasks given (Reeb et al., 2021). The role of e-tutors in this context is much more based on accompanying, observing, moderating, and stimulating activities in the self-directed acquisition of knowledge. They are intended to provide learners with guidance while collaborating (Jödicke & Teich, 2015; Reeb et al., 2021).

E-tutors also need to identify potential problems and conflicts early and provide solutions to overcome them (Clauss et al., 2019). Accordingly, e-tutors act as the first point of contact for students in a virtual learning environment when encountering technical, organizational, content-related, or interpersonal problems. Due to the spatial distance of the learners in an e-learning scenario, the learners' communication with the e-tutors mostly takes place virtually and asynchronously (Jödicke & Teich, 2015). Beyond their support function, e-tutors can contribute to formative assessment and formative feedback. Further, they support the formative assessment of individual and group performance of the respective tutored students through observation (Altmann et al., 2021). For this observation of work performance, the e-tutors should be given structured observation sheets backed by specific criteria (Jödicke et al., 2014). According to the tasks mentioned, e-tutors require an appropriate qualification and, consequently, special pre-coordinated training (Jödicke & Teich, 2015; Reeb et al., 2021).

An example of an established e-tutor training can be found at the TU Dresden at the Chair of Information Systems, esp. Information Management. The e-tutor qualification is designed as a blended learning arrangement that extends over one semester and has a project character. The students work in groups on a complex case study to understand group and work processes in virtual collaborations. In addition, future e-tutors will be guided on how to motivate group

members and proactively guide cooperation. Conflict management plays another essential role in e-tutor training. Conflict potentials are to be recognized, isolated, and resolved early. In this understanding of the role, the e-tutor has the role of a learning facilitator (Schoop et al., 2019).

Methodology

To identify the factors that affect international e-tutoring, the approach of conducting a systematic literature review (SLR) according to Okoli & Schabram (2010) was used. This method consists of the following eight steps.

1. Purpose of the literature review: First, the research goal, research question, and the associated methods were defined. The purpose of an SLR is to represent the current state of the art as a basis for developing new theories, closing areas of substantial research, and uncovering current problem areas and research gaps (Webster & Watson, 2002). The SLR aims to explore the existing knowledge base on international collaboration, focusing on e-tutoring.

2. Protocol and training: A draft of a written protocol was created, which records the planned execution of the individual steps. A detailed and reproducible procedure was established for steps four to six, carried out independently by the researchers.

3. Searching for the literature: The databases used can be found in the first column of Table 1. The search was limited to the search terms “tutor*”, “international”, “virtual exchange”, “virtual mobility”, and “collaborative online international learning”, linked by the Boolean operators “AND” and “OR”. The linkage was then run as a full-text search. The following search string was created: (Tutor*) AND (international) AND ("virtual exchange" OR "virtual mobility") OR (collaborative AND online AND international AND learning). Due to the peculiarities of the individual databases, there were slight differences in the way of expression concerning truncations and quotation marks.

4. Practical screen: The SLR uses German or English authored sources dated from January 2011 to October 2021 to cover e-tutoring and VE, respectively COIL. According to Dawson & Ferdig (2006), research should be limited to studies related to the specific research question. Thus, there must be reference to e-tutors and their importance or influence in VE. Publications found during the research were then checked for suitability based on title and abstract analyses. Literature that was not sufficient for answering the research question or without access to full text was excluded. Duplicates were identified and removed.

5. Quality appraisal: Since the primary goal of this paper is to record the determinants of international e-tutoring as comprehensively and precisely as possible, a target number of 30 to 50 sources was specified to keep the analysis manageable (Okoli & Schabram, 2010). Petticrew & Roberts (2005) suggest that reviewers rate the articles qualitatively and weigh them in low, intermediate, or high quality. Papers were included if they scored high or intermediate. Further, it was determined that the non-fulfillment of a criterion is weighted with zero, a low one with one, a mediate with two, and a high fulfillment with three points. The minimum value to be achieved for the average of all seven criteria was set to 2.0.

Table 1: Overview Searching Process

Databases	No. of Results after Database Search	Practical Screen	Quality Appraisal
Academic Search Elite	318	22	8
Business Source Complete	79	16	5
Emerald Insight	68	12	5
Scopus	87	9	2
Web of Science	18	15	8
Google Scholar	101	34	21
Total	671	108	49

6. Data extraction: After applying the quality appraisal, the identified papers were systematically examined for information that serves to answer the research question. Besides the content, the following further data was collected from each source: title, authors, publishing year, and corresponding database(s) in which the source was found. The complete collection can be found in Appendix A (https://tud.link/320o). Furthermore, keywords, synthesis type, and involved countries were gathered. To reduce personal bias, the documents were redistributed among three researchers after each step of the SLR. Therefore, the status and justification of relevance in every step and the responsible researcher were recorded.

7. Synthesis of studies: The overview created for the data extraction was expanded to include the category relevant references and their page number. This relates to the determining factors identified in the sources that answer the research question. According to Webster & Watson (2002), a concept matrix was created based on the overview to visualize the mapping of all relevant provided information. In an additional step, the factors were used to create main categories. The influencing factors organized in individual topic categories are discussed in the results.

8. *Writing the review:* Lastly, the SLR has been written and reviewed.

Results

During the systematic literature review, 672 documents were identified for analysis. The articles considered were based on quantitative (4), qualitative (44), and mixed methods (1) research methods. A total of 49 documents met the described requirements for data extraction, whereas more than half of the papers date from 2019 to 2021. Subsequently, 222 relevant text passages were extracted from the identified literature. In the synthesis, 41 determining factors could be derived, which were then summarized into six main categories: *responsibilities, competencies, communication, organization, pedagogy,* and *prerequisites.* The allocation and quantity of mentions of the determining factors in the findings are shown in Figure 1.

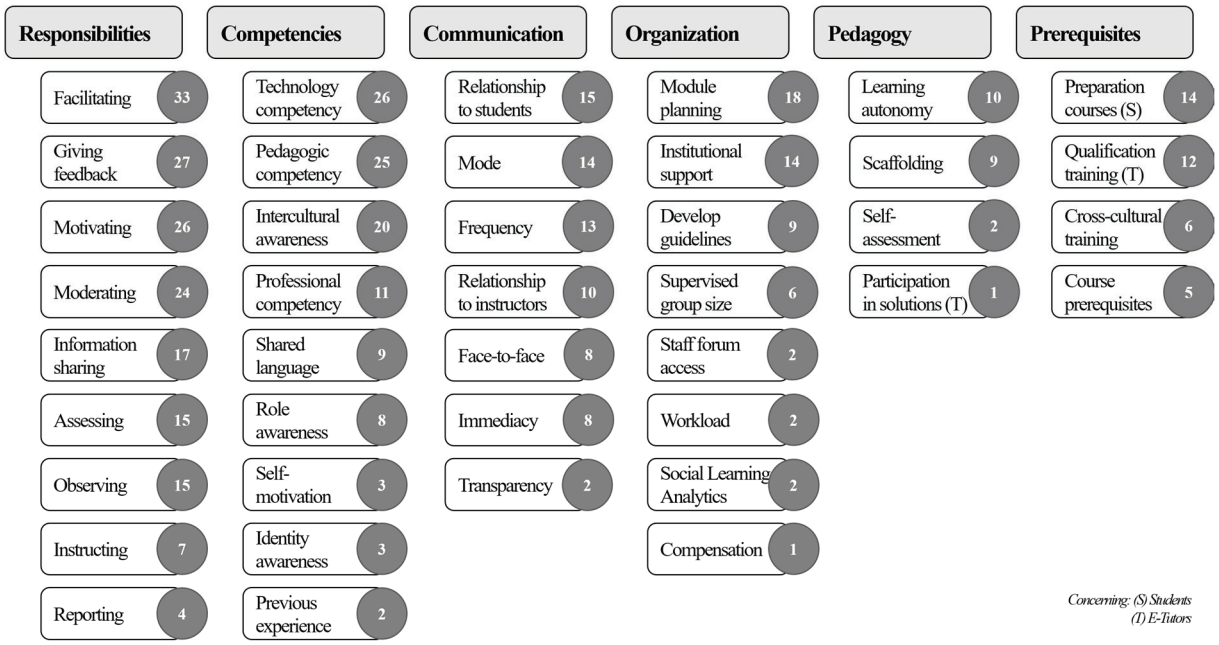

Figure 1: Overview of identified determinants for international e-tutoring

The categories formed are described below, detailing the two most frequently cited factors per category.

Responsibilities (48 mentions)

Responsibilities relate to the direct functions and purpose of an e-tutor and include all interactions with participants that have a professional or organizational connection to the module. The influencing factors within this category are facilitating, giving feedback, motivating, moderating, information sharing, assessing, observing, instructing, and reporting.

Facilitating (33 mentions): describes that the collaboration and knowledge exchange between the participants should be enabled or, if necessary, interrupted [D050]. The facilitator aims to remove obstacles that prevent the participants from self-directed learning. At the same time, the participants should be empowered to remove such barriers themselves. In this context, the e-tutor should avoid unwanted interference but should still take the necessary time to resolve a concern of the participants if asked [D014].

Feedback to Students (27 mentions): refers to the feedback that the participants receive from the e-tutor. The feedback varies, for example, in the form of the feedback (verbal or written), the time, the intervals, the comprehensiveness, and the target group (individual or group feedback). In this context, formative feedback on learning processes and group communication serves to discover problems at an early stage [D571]. The feedback should encourage the learners and have the goal to explain whether learning objectives are achieved and stimulate the learners' self-reflection [D390, D487].

Other tasks within this category include sharing content relevant to the assigned tasks, mediating intragroup problems or conflicts, and assisting with technical issues [D025].

Competencies (44 mentions)

This category refers to the hard and soft skills of e-tutors. In addition to professional capabilities, these include technical, content-related, or interpersonal competencies. The identified factors under this category are technology expertise, pedagogic expertise, intercultural awareness, professional expertise, shared language, role awareness, self-motivation, identity awareness, and previous experience.

Technological competency (26 mentions): focuses on the technical skills of the e-tutors. Relevant points are the familiarity with the applications used [D467] or the ability of the e-tutor to guide the participants on the correct use of the collaboration tools [D571].

Pedagogical competency (25 mentions): emphasizes the pedagogical skills of e-tutors. The e-tutor should, among other things, create a positive learning environment [D476] and use a supportive, collaborative, or pedagogical style of interaction [D071].

The e-tutors' awareness of their role and tasks [D467] is as much a component as self-motivation [D487]. In addition, abilities such as mutual understanding on a linguistic and cultural level [D201] and relevant previous experience [D487] are also included. Thus, cultural awareness is a central concept to be considered.

Communication (28 mentions)

This category emerges from the communication in a VE project between e-tutors and participants and the module instructors. Personal relationships, scheduling, and implementation methods of communication are decisive aspects of this category. The determining factors include relationship to students, mode, frequency, relationship to instructors, face-to-face communication, immediacy, and transparency.

Relationship to students (15 mentions): describes the e-tutor's task to stimulate the initial getting to know of the learners or to initiate the social integration of non-interacting students. In doing

so, the e-tutor uses informal language to reduce the distance to learners. E-tutor immediacy can also be fostered through instant messaging, use of first names, emoticons, personal profiles, quick responses, or integration of synchronous activities [D069]. A higher e-tutor per student ratio can positively impact student engagement [D073].

Mode (14 mentions): refers to the form of communication between the e-tutor and the learners. In this context, synchronous communication improves e-tutor immediacy [D069] and ensures dynamic interaction, motivation, and social learning opportunities. On the other hand, asynchronous communication is used to reduce the transactional distance between learners and instructors, allowing learner flexibility and self-directed learning, and providing more time for reflection [D205]. The literature recommends a combination of both forms of communication, which requires monitoring [D251], design, implementation, and strategic planning [D509]. Furthermore, it is crucial for student satisfaction that e-tutors respond frequently and promptly, irrespective of the nature of the request [D069, D390, D509, D571].

Organization (33 mentions)

The fourth main category includes the organizational framework conditions that the module instructor or the institution determines. These factors specify the design of the VE module. The determining factors are module planning, institutional support, developing guidelines, supervised group sizes, staff forum access, workload, social learning analytics (SLA), and compensation. The concrete design of the e-tutor's role and responsibilities generally depends on the institution's decisions or the instructor of the module.

Module planning (18 mentions): means planning the organizational framework of the module. For example, this concerns organizing appointments and structuring online activities, ultimately preventing a lack of motivation [D026]. In some cases, the e-tutor is also responsible for implementing the module content, the learning and assessment tasks, and the administrative processes [D050].

Institutional support (14 mentions): relates to the period before and during the VE project and includes the provision of material and immaterial resources by the institution. For example, the institution should provide funding for travel, resources like teaching assistants, teacher training for the work in the VE, technical support, and access to technologies and the internet [D132]. Before starting the VE project, the support of the upper administration should be ensured, and all stakeholders should be integrated [D382].

Access to a staff forum for better communication [D509], the creation or application of existing guidelines [D026], the use of SLA [D592], small group sizes [D073], and compensation [D657] can enhance teaching and learning.

Pedagogy (17 mentions)

The category pedagogy includes pedagogical principles such as the learning autonomy that determines how the e-tutor intervenes in the group processes or the freedom given to participants in their solution approach. The pedagogy defines the possible scope of action of the e-tutor and is regulated by the institution. The determining factors in this category are learning autonomy, scaffolding, self-assessment, and participation in solutions by e-tutors.

Learning autonomy (10 mentions): specifies the flexibility given to the participants when solving a task. A key component is a balance between autonomy and structure [D488]. For example, too much structure in the form of frequent formative feedback can restrict participants' development, whereas too much autonomy may cause similar results [D073].

Scaffolding (9 mentions): refers to adjusting the support to the work and skill level of the group. Hence, the skills to recognize the group needs and the flexibility to adapt the support to the group needs are central for the e-tutor [D069]. For example, less support is needed if the group has an established structure [D073].

To ensure that the interventions are accepted and implemented, e-tutors must not actively collaborate on student solutions but accompany the groups on their way to the solution [D571]. Iterative self-reflection and formative evaluation of e-tutors by students positively impact teaching style and can be captured in the form of best practices [D334, 390].

Prerequisites (27 mentions)

This category includes the preconditions for participation in a VE module and the required qualification for participating e-tutors. This concerns, for example, the completion of an initial qualification module, a specific language proficiency, or previous experience as an e-tutor. The determining factors of this category are preparation modules, qualification training for e-tutors, cross-cultural training, and module prerequisites.

Preparation module (14 mentions): describes that the learners receive needs-oriented training in preparation for the VE module [D487]. Contents refer to technological skills (instructions and demonstration regarding the use of the platform) [D152], intercultural awareness (including a briefing on cultural differences in the communication) [D152, D608], digital literacy [D608], and an introduction on how to act in the virtual space [D382].

Qualification training (12 mentions): serves the e-tutors to learn how e-coaching, monitoring, and manual observation work [D592]. Training provides an understanding of group dynamics and work processes and how they can be supported. Consequently, training can assist in topics like participants' motivation, conflict management, and group work evaluation [D571]. In addition, e-tutors facilitate their technology skills and are sensitized for specific issues such as cultural differences [D488].

Generally, module instructors or institutions are responsible for determining and verifying participation prerequisites. Furthermore, contextualized information about the foreign culture and partner university should be provided during cross-cultural training [D152].

Discussion, Limitation & Outlook

The SLR was conducted to answer the research question "Which determinants impact e-tutoring during collaborative and international Virtual Exchange modules?". The authors could identify 41 determining factors of international e-tutoring in higher education, divided into six main categories: e-tutor *responsibilities*, e-tutor *competencies*, *communication* by e-tutors, *organization*, *pedagogy*, and *prerequisites*. Through the concept matrix (see Fig. 1), according to Webster and Watson (2002), this paper establishes a systematization for e-tutoring in VE modules. The factors from the main categories of *responsibilities*, *competencies*, *communication*, and *pedagogy* can be influenced directly during the running module by the e-tutor. This does not apply to the main categories of *organization* and *prerequisites,* as these have already been coordinated or performed before starting the module.

Within this research, two interacting but separable roles of e-tutors were identified: the e-tutor as a learning facilitator and the e-tutor as a learning organizer. The systematization in Figure 2 delineates these roles and the assigned categories.

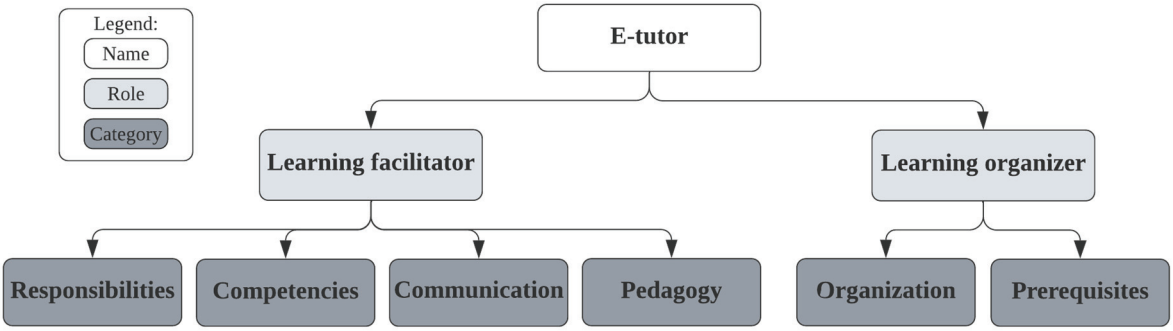

Figure 2: Identified e-tutor roles

The main category of *responsibilities* focuses on the direct interaction with the learner during the running module. The concrete realization within a VE module of the most mentioned factors, namely facilitating, giving feedback, motivating, and moderating may vary depending on the participating institutions, students, learning approach, and task design. The main category of *communication* focuses more on how the e-tutor interacts with the actors of a VE module. The most mentioned factors are relationship to students, mode, frequency, and relationship to instructor. Especially the international context and fluctuation of institutional partners do not allow a solution that fits every case. Therefore, experiences and improvements of the main categories of *responsibilities* and *communication* should be recorded in an open but adaptable form so that an adjustment to the specific context is feasible. A possibility to improve these main categories iteratively is to capture them in pedagogical patterns or design principles. This can, for example, be realized by mining for pedagogical patterns that describe best teaching practices in a systematized form to reuse them in other VE modules (Fioravanti & Barbosa, 2016).

In contrast, the main categories of *competencies* and *pedagogy* promote standardization within a training or qualification framework for e-tutors transferable among different VE modules. Furthermore, the mentoring approach can be used to support inexperienced e-tutors by experienced e-tutors and ensure knowledge transfer (Goold et al., 2010).

The main category of *organization* with the most frequent factors module planning, institutional support, and develop guidelines describes preparatory activities for a successful VE module. Further, the main category of *prerequisites* with the most frequent factors preparation courses, qualification training, and cross-cultural training highlights the preparation of the actors for specifics they will face during the VE module. Both main categories take place mainly before and after the implementation of the module. Nevertheless, they are indirectly influencing the activities of the e-tutor as well as the students during the implementation of a VE module. They are offering the potential for outsourcing to an experienced instructor or professor, depending on the available staff. If possible, the categories of *organization* and *prerequisites* should be excluded from the direct responsibility of the e-tutor to avoid an overcomplexity of the role.

The SLR identified commonly mentioned e-tutor roles and obligations countered by specific competencies. In this regard, facilitation can be seen at the centre of e-tutoring in the VE context. To meet the associated characteristics of *communication*, such as the relationship with students, frequency, type of communication, and immediacy, e-tutors require social, communicative, and intercultural *competencies*. Given the internationalization of higher education, an e-tutor qualification should include intercultural competencies and intercultural conflict management to ensure a high quality of diverse learners' support.

Due to the methodological characteristics and restrictions of an SLR, the described determining factors cannot be reliably evaluated concerning their practical effect size. It is hardly possible

to determine whether the factors mentioned less often in the searched texts are less significant in practice. Finally, it should be noted that the role of the e-tutor is multidimensional and differs according to the context and scale where it is applied (Ferrari & Triacca, 2021). The requirements for e-tutoring may vary depending on the design of the VE module, its overarching learning objectives, and the underlying teaching and learning approaches (de Metz & Bezuidenhout, 2018). The identified roles in figure 2 should be taken as a basis for the individual adaption in VE modules to offer a more flexible scalability.

Since the influence of the factors is methodologically unweighted, an empirical follow-up study should validate which of the listed factors determine the success of international e-tutoring in a VE collaborative setting. As described above, it is recommended to foster the research toward developing pedagogical patterns in the categories of e-tutor *responsibilities* and *communication* and investigate the categories of e-tutor *competencies* and *pedagogy* concerning standardization of the e-tutor qualification. To design an e-tutor qualification program in a meaningful way and sharpen the profile of an e-tutor, common tasks of an e-tutor should be combined with the required competencies to fulfil them in future research. Thus, a clear competency profile of an e-tutor can be derived and provided to module supervisors in higher education institutions.

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