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Virtual Collaborative Learning: Examination of E-tutors' Interaction with Student Groups and the Achievement of their Intended Outcomes

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Abstract

In the dynamic landscape of global education, this research focuses on interactions within Virtual Collaborative Learning (VCL) environments, specifically examining the roles of electronic tutors (e-tutors). Two key questions guide the study: 1) What types of interactions occur in VCL courses? 2) Can e-tutors achieve their intended outcomes in VCL, as evaluated by both e-tutors and students? The methodology involves fully structured interviews with e-tutors and students, applying Kuckartz' content analysis approach. The analysis reveals six interaction types: increasing motivation, bonding/building trust, improving group communication, changing behaviour of individual participants, clarification of uncertainties, and obtaining information. Results indicate that e-tutors frequently aim to enhance motivation through positive affirmation and build trust, particularly in the norming phase. The study sheds light on preferred communication formats, such as written group chats, and highlights the significance of effective communication strategies, especially in the forming phase. The research concludes that e-tutors largely meet their intended outcomes, with variations in perceptions between e-tutors and students. The study also identifies areas for improvement, suggesting clearer articulation of communication criteria and exploring the impact of chosen communication methods on group dynamics. The findings contribute insights to refine the methods employed by e-tutors, ultimately enhancing the success of VCL modules. Despite certain limitations, the study provides a foundation for future research to develop recommendations for improving e-tutoring practices in VCL environments.

Keywords: e-learning, e-tutors, virtual collaboration, group dynamics, online education, interaction types

INTRODUCTION

In an era characterised by rapid globalisation, digitalization, and the unprecedented challenges brought forth by the global pandemic, the landscape of education is undergoing a transformation. Given this scenario, the importance of digital teaching and collaborative learning is continuously increasing. Specifically in the context of VCL, the role of e-tutors has become indispensable, serving as key facilitators in navigating the intricacies of virtual learning environments (Clauss et al., 2019b; Altmann et al. 2022).

This scientific paper embarks on a qualitative analysis to examine interactions within the VCL context, specifically focusing on the roles of e-tutors. The research aims to address two pivotal questions:

RQ1: Which types of interactions can be observed in the VCL module?

RQ2: Can e-tutors attain their intended outcomes when interacting with student groups within the VCL environment, as evaluated from the perspectives of both e-tutors and students?

The overarching goal is to systematise interactions of e-tutors with their groups, discern patterns, and uncover potential gaps in the realisation of educational objectives. The research problem revolves around how e-tutors can achieve their intended outcomes in VCL environments, particularly concerning interactions and communication strategies. The gap to be addressed lies in understanding which types of interactions occur in VCL courses and whether e-tutors can attain their intended outcomes. This highlights the necessity of considering perspectives from both e-tutors themselves and student evaluations. By doing so, this research aspires to contribute valuable insights that can pave the way for refining the methods employed by e-tutors, ultimately enhancing the overall learning success of VCL modules in the long term.

Theoretical Background

Virtual Collaborative Learning

The term virtual collaborative learning (VCL) describes a type of group work conducted in a virtual space in which learners must work together to solve complex case studies. It consists of several design elements, one of which is the case study that the students work on (Altmann et al., 2023; Schoop et al., 2021). It needs to be realistic, set in a discipline familiar to the learners and complex to challenge students to come up with new approaches (Clauss et al., 2019a). The next design element is the technical platform. It needs to support synchronous and asynchronous communication and a wide range of other collaborative functionalities, such as simultaneously editing documents or polling options (Clauss et al., 2021). Another indispensable part of VCL is the professionalised pedagogical support in the form of e-tutors who assist learners in navigating the digital space and the collaborative process (Clauss et al., 2019b). Their work is heavily supported by learning analytics and information visualisation, as it helps them have a better overview of their group's progress and potential problems (Clauss & Fischer, 2020). The general design of a VCL project needs to foster collaboration, a high level of self-organisation, and continuous communication among the students. This is also represented in the learning objectives for VCL, which mainly focus on enhancing the collaborative skills of the participants (Altmann et al., 2023).

Virtual Teams

Due to advancements in technology and globalisation, virtual teams have gained prevalence in both organisational settings and higher education. As a consequence, the virtual team has evolved into a pivotal mechanism not only for accomplishing tasks but also for facilitating team learning processes (Hu, 2015). Johnson et al. (2002) emphasised the dependence of virtual teams on team interaction and individual acceptance. Challenges include social interaction problems stemming from a lack of willingness to participate, inadequate planning, conflicting schedules, and individual differences of opinion. The absence of nonverbal communication in virtual environments was identified as problematic, given its crucial role in social interaction and team formation. The obstacles faced by virtual teams in higher education also concern the educational journey itself. Students engaged in virtual exchange programs confront communication hurdles, including struggles to interact with peers, a dearth of community cohesion, and the absence of immediate feedback loops (Ala-Kortesmaa & Muñoz, 2023).

E-Tutors

E-tutors, certified through a unified program (Clauss et al., 2019b), are trained to guide learners through virtual group work to enhance individual and group learning outcomes (Clauss et al., 2020, 2021). They provide technical support, facilitate organisational aspects, and ensure adherence to deadlines while empowering learners in collaborative processes (Altmann et al., 2023). E-tutors play a crucial role in creating a positive group environment, managing conflicts, and bridging the gap between learners and instructors (Altmann et al., 2023). Additionally, they contribute to documentation, influencing grading decisions and the achievement of learning goals, including interdisciplinary and social competencies (Clauss et al., 2019b; Schoop et al., 2020). However, e-tutors refrain from direct involvement in assignment creation (Altmann et al., 2023).

Group Phases

To examine the group phases in the context of the VCL, Tuckman's (1965) Group Phases Model and insights from Johnson et al. (2002) were applied. Tuckman's (1965) foundational model was analysing four stages in group development: Forming, Storming, Norming, and Performing. The Forming phase, characterised by orientation and testing, involves identifying boundaries between interpersonal and task-related behaviour. Storming entails conflicts arising from interpersonal issues. Norming involves overcoming resistance, developing group cohesion, a sense of identity, and new roles and standards. The group transitions to the Performing phase, utilising interpersonal structures to support task-solving. Results from Johnson et al. (2002) indicated that Tuckman's (1965) Group Phases Model can be applied to virtual teams. The insights from both provide an essential understanding of virtual team dynamics.

Interaction

Efficient communication and interaction play a vital role in fostering collaboration capability, team reflexivity, and decision-making within virtual teams (Batarseh et al., 2017). Within the scope of this investigation, the subject of interaction in the virtual space between students and e-tutors is elucidated. In this context, Moore (1989) identified three essential types of interactions in virtual learning: interaction with content, interaction with the instructor, and interaction with classmates. Regarding interaction with content, the focus is on the learner's engagement with instructional material. During interaction with the instructor, a diverse array of interactions occurs through various communication channels. Interaction with fellow learners fosters social exchange and establishes a supportive

community. Subsequently, in this work, emphasis is placed on the interaction form with instructors, specifically with e-tutors.

Swan (2001) underscores the significance of specific design factors for virtual interactions. The results indicate that increased interaction with instructors leads to higher satisfaction and improved levels of learning. Three critical factors for the success of online courses are identified: clear course structure, regular and constructive interaction with the instructor, and dynamic discussions. These factors contribute to the formation of online research communities and collaborative student groups (Ralston-Berg & Braatz, 2021; Jaggars & Xu, 2016; Moallem, 2003).

METHOD

In this paper's methodology, the content analysis approach, according to Kuckartz (2016) was chosen. This content analysis is designed to systematically analyse texts, using specific categories to identify patterns, themes, and structures within the material. The process involves defining categories, coding the material according to these categories, and interpreting the results. The method provides reliable and objective findings by offering a structured approach to analysing textual data.

Fully Structured Interviews

In the preparatory phase of Kuckartz' (2016) content analysis, a standardised interview was devised to survey e-tutors in the context of VCL within a specific higher education module. It was supposed to develop an interview that systematically examined interactions between e-tutors and students through daily inquiries.

The interview comprised two parts. In the first segment, inquiries were made regarding current interactions, capturing the date and the group under supervision for precise categorization. In the case of existing interactions, information was queried following RQ1, encompassing details about the occasion, type of interaction, and communication format. Additionally, the group was categorised within the stages of Tuckman's (1965) group development model. Furthermore, the anticipated or expected effects of the interaction were documented. The second part of the interview involved queries about previously conducted interactions. This included soliciting information on the date of the past interaction, its content, and a concise description. E-tutors were prompted to discuss the observed effects of the prior interaction. After a four-week inquiry period, further data collection on interactions was ceased.

Immediately following, individual questionnaires based on feedback from e-tutors were devised for each supervised group. The primary purpose of these questionnaires was to analyse the interactions that were conducted in alignment with the actual sentiments of the students. Regarding RQ2, this investigation is conducted by assessing the interactions from both the perspectives of the e-tutors and the students. Specifically, it examines whether the e-tutors can attain their goals and expectations regarding interaction with student groups in the VCL environment. Both the assessments and reports of the e-tutors, as well as the feedback from the involved students, are taken into account to gain a comprehensive understanding of whether the interactions fulfil their intended purpose and what effects they have. This questionnaire-based survey was conducted on a group-specific basis, with each student given one week to complete the questionnaire. An in-depth examination of the content of the interactions was conducted and subsequently classified into overarching categories. The questionnaires commenced with general inquiries about interactions perceived as particularly helpful or less helpful during the study period. Subsequently, sections are focused on the previously categorised overarching

types of interactions per group. These sections were standardised only with the changing context of the interaction content. Questions were contributed regarding the changes that occurred after the interaction, insights into potential enhancements, and suitable forms of communication. These questions were repeated for each overarching type of interaction within the respective group. The full questionnaires can be found in the Appendix (in German language).

The demographic of the participants in the observed module was interdisciplinary and included bachelor's, master's, and diploma students from two German universities. Fields of study that were represented among the students were

Analysis

Following data collection from e-tutor interviews, systematically the effects of interactions on their corresponding instances by employing both date and interaction description for accurate correlation were assigned. As a result, each interaction was transcribed into individual documents, including their effects. Subsequently, the dataset was organised by groups, and within each group, the documents were ordered chronologically.

The first step of the analysis consisted of reading the material, keeping the research question and theoretical background in mind, and taking notes of relevant passages in the text, as described by Kuckartz (2016). Following this, a category system was built based on important information in the readings and patterns of similarity in the different documents, as well as the research questions, following step two of Kuckartz's (2016) approach. The categorization process yielded six distinct categories, namely:

1. Occasion of Interaction
2. Nature of Interaction
3. Form of Communication
4. Group Phase
5. Intention
6. Fulfilment of Expectations

The application of the first five categories was specifically tailored for RQ1, while categories five and six were oriented towards addressing RQ2. A comprehensive set of definitions for each category was established to ensure uniformity and precision in interpretation. The analogous methodology was applied to the student interviews, leading to the identification of the following categories essential for addressing RQ2:

1. Nature of interaction
2. Form of Communication
3. Impact of Interaction (intention)
4. Perceived Support
5. Fulfillment of Expectations
6. Desired changes

Based on these categories the coding of the interviews commenced, implementing the third step of Kuckartz (2016). To facilitate the systematic analysis of the coded data, the tool MAXQDA was used for qualitative data analysis (QDA). MAXQDA is used for computer-assisted qualitative data and text analysis, where the interviews were analyzed for content and marked with relevant codes. To further

enhance the rigor of the analysis, a double-coding procedure was implemented on selected sections to validate the clarity of definitions and ensure consistency in interpretation.

Lastly, the coded sections were analysed, making use of the quantification of material summaries provided by the QDA tool (Kuckartz, 2016). Correlations of codes in documents, frequency of occurrence, overlapping codes, and cross tabs of the segments were utilised to identify relevant relationships. In the data analysis, responses from both e-tutors and students were coded and categorised to identify patterns and trends and assess goal achievement. The aim was to compare the results from both perspectives to determine concurrences and disparities. This facilitated a comprehensive evaluation of interactions within the VCL environment and the identification of areas for improvement. It was decided to examine the codes for RQ1 through the lens of the intentions of e-tutors. RQ1 lays the foundation for RQ2, which more closely focuses on the intentions and their fulfilment. To answer RQ2 the outcomes were matched with their respective intentions and their fulfilment of expectations. This was then supplemented by information on the most helpful interactions, the preferred form of communication, and desired changes on the student side.

RESULTS

Interaction Types

In this section findings on how interactions and their intended outcomes in the field of virtual collaborative group work in higher education context are described. Employing the methodology described in the previous chapter, the following paragraphs focus on results relevant to answering RQ1. In the following, statements made in the interviews will be abbreviated as 'I'. All results can also be found in the Appendix (in German language).

Increasing Motivation

In a total of 36 documents, e-tutors expressed their wish to motivate students with their interaction. The most common mean for this objective was to use positive affirmation (91%) which was often utilised in the mandatory feedback given to the groups (50%). Regarding the distribution among the group phases, a slight peak in the performing phase (41%) can be observed in comparison to the norming and storming phases (28%, 22%).

Bonding/Building Trust

Bonding with participants and building trust were other intentions that the e-tutors conveyed. It was mentioned in 13 documents. For eight out of those 13, the corresponding interaction was mandated, whereas the other most prominent occasion was a lack of communication within the group (31%). This was largely done through written communication with the whole group (77%) and was concentrated in the norming phase of the VCL (62%).

Improving Group Communication

The intention to improve group communication was coded in a total of 27 documents. This was particularly sought to be enhanced when it involved explanations or information, positive reinforcement, or feedback. These interactions could primarily be attributed to guidelines from the chair (72%). In the initial phase of forming, the intention to improve group communication was evident (15 times).

Changing Behaviour of Individual Participants

The code for individual behaviour changes was assigned 38 times in 23 documents. Particularly in giving feedback, the goal of individual behaviour changes is pursued (34%). This achievement of goals was sought in explanations (22%), and positive reinforcement (21%). The primary reason for these interactions can be traced to departmental guidelines in 43% of cases and student inquiries in 30% (I, ID:41, 18.10.2023). It was observed that written group chats represented the preferred form of communication, while written one-on-one chats were only used once. Additionally, it was noted that the intention to change the behaviour of individuals was more prominent in the norming phase (44%).

Clarification of Uncertainties

E-tutors intended to clarify uncertainties with the group in 25 interactions, with it being successful 68% of the time. Most often, this followed group members inquiring for input from the e-tutors or directly asking questions regarding a specific issue. Besides also using the mandatory feedback for clarification (16%), there were a few occasions when e-tutors noticed their group needing assistance, resulting in them initiating the communication (16%). The intention to clarify uncertainties often correlated with the intention of changing the behaviour of individual group members (44%) or improving group communication (20%). The predominant method of communication chosen was written text directed to the entire group (84%).

Obtaining Information

E-tutors intended to obtain information from members of their group in a total of six interactions. The triggers for each of these interactions were, in equal parts, a conflict occurring in the group, a lack of communication, and being part of the mandatory feedback sessions. Four times out of six, e-tutors were seeking factual information. The other two times were used to inquire how the different parties felt about a certain matter. This intention was mainly expressed in the performing stage. Means of communication were equally distributed, such as writing to the whole group, individual group members, and talking to the whole group in a video call.

Coming to an Agreement

The intention to reach an agreement with the students was documented in a total of seven documents and primarily served the purpose of scheduling appointments. These agreements were predominantly communicated in writing within the group, with a single instance of using a one-on-one chat for this purpose. An increased application was evident during the forming phase (71%). It was noteworthy that the code for agreements was not used in groups three, five, and six.

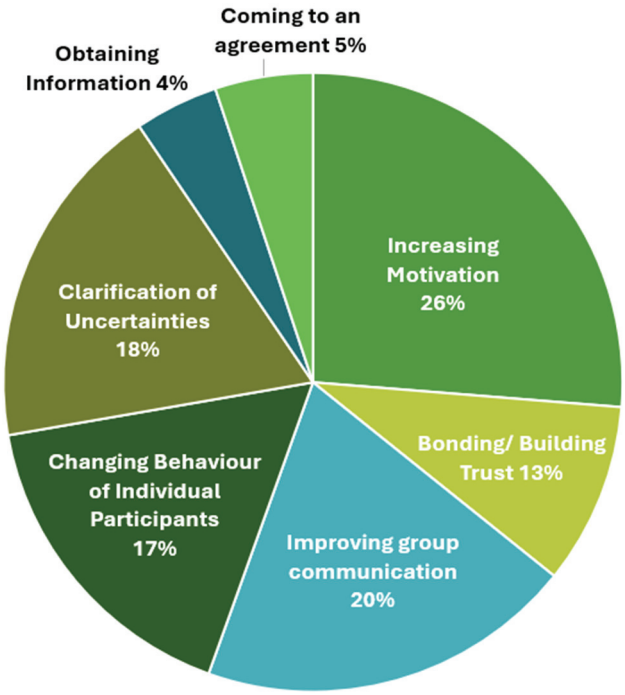

Fig.1 Distribution of Interaction Types

Attainment of Intended Outcomes

Building on the results concerning RQ1, the second part of this chapter will now focus on results relevant for answering RQ2. For this purpose, both interviews (e-tutors and students) will be looked at. All results can also be found in the Appendix (in German language).

E-tutors' Expectations Met Measured Through Perceived Effects by E-tutors

E-tutors achieved their highest fulfilment rates (86%) when obtaining information from the group while clearing up uncertainties reached fulfilment 56% of the time. Changing individual behaviour was successful 45% of the time. The percentages were lower for improving group communication (36%), reaching an agreement (29%), and increasing motivation (22%).

E-tutors' Expectations Met Measured Through Perceived Effect by Students

Comparing e-tutors' intentions with student-perceived outcomes reveals variations. The highest fulfilment was observed in the intention to improve group communication (27%), followed by increasing motivation (26%), clarifying uncertainties (25%), and bonding/building trust (23%). Changing individual behaviour was only observed in 9% of cases, and e-tutors obtaining information went unmentioned by students. Notably, interactions often yielded unintended consequences, with the most common being the clarification of uncertainties (19 times), increased motivation (16 times), improved group communication (13 times), and building trust (10 times). Unexpected behaviour change occurred only four times, with no mention of relayed information to the e-tutor.

Communication

In total, it can be asserted that the written communication in the group was preferred in 30 instances and across eight different interaction types. It was observed that 17% of students would prefer oral

feedback in the group during feedback sessions (I, Group 3, ID 6, 21.11.2023). Similarly, another group expressed a preference for oral communication (I, Group 4, ID 3, 13.11.2023). Furthermore, 17% of students favoured agreements in group conversations, while 11% preferred written individual chat. The evaluation of group queries illustrated that the written communication format in the group chat was the most popular at 81%, while group conversation was chosen 13% of the time and individual chat at 6%. During the analysis, it became apparent that individual conversations were neither utilized by e-tutors nor desired by students.

Changes

Primarily, most students expressed no suggestions for changes regarding the chosen interaction methods of e-tutors. This was particularly evident in interactions related to scheduling appointments, specific e-tutor queries, document confirmation, group inquiries, and interactions concerning missing group members. In these situations, 80% or more of the students showed no need for modifications in the approach of e-tutors. Regarding received feedback, 43% and for the welcome post, 47% of students provided no suggestions for changes in the chosen interaction methods. During conflict situations, 57% of students expressed no proposals for improvements, and in meetings 59%.

The suggestions of the welcome posting pertained to the general platform choice, with a desire for more decision-making authority regarding platform selection. Suggestions were expressed for an online meeting instead of a group posting (I, Group 6, ID 1, 10.11.2023). More organizational support for the group in the welcome posting and to shorten the post to obtain concise information were noted. During group inquiries, communication with all group members was requested. It was noted to enable more planning and quicker responses. Especially in feedback (see communication format section), the suggestion was made not to exclusively choose a written communication format or to communicate feedback in the form of an online meeting (I, Group 2, ID 1, 10.11.2023; Group 6, ID 4, 13.11.2023). More regular feedback and detailed explanations in feedback were also recommended. For scheduling appointments, it was suggested that we preferably discuss them through a short call. Additionally, more planning and structure during meetings were desired. In communication about an absent group member, faster responses were demanded, allowing the group to adjust to further procedures. During a group conflict, more follow-up questions were requested by e-tutors to ensure a comprehensive understanding of the conflict.

Helpfulness

Due to repeating advice and criticisms that emerged after the initial feedback, the subsequent feedback was rated as unhelpful three times. Especially in one group, the meeting was rated as unhelpful three times because it did not provide added value to students, and no specific questions arose at this early stage. Similarly, the welcome post was perceived as unhelpful as it had no impact on the group and its collaboration. It was also noted that due to the lack of possibilities to ask substantive questions, the interaction with the e-tutor was perceived as very limited.

In contrast, the feedback from e-tutors was rated as particularly helpful, with 19 mentions. According to the students, this allowed students to work more efficiently through the provided structure in the feedback and contributed to improving collaboration. The welcome post was also rated as the most helpful three times. It facilitated planning the basics at the beginning and provided students with useful tips. The meeting was considered most helpful three times in clarifying questions and receiving feedback on the general approach in the module. The quick response to questions for a better understanding of tasks was also considered most helpful three times. In a group in the module, a conflict

arose. The support of the e-tutor during this conflict was considered particularly helpful by three members, as it led to a better conflict resolution strategy. Also, in terms of meetings and interactions for welcoming, different feelings and preferences of students are manifested. These were independently rated as both most helpful and least helpful.

DISCUSSION

In this chapter, the findings will be summarised and discussed. After a detailed analysis of the research questions and presentation of the empirical findings, the focus now shifts to interpreting these results. A critical examination of the applied methodology is undertaken, and potential limitations are reflected upon.

This paper provides deeper insights into interactions during a VCL module and the experiences of e-tutors and students regarding this. Therefore, standardised interviews were conducted with e-tutors and students. The collected data were subsequently systematically and structurally analysed using a content analysis approach according to Kuckartz (2016). The systematic approach allows a comprehensive capture of patterns to gain profound insights into the presented data. The applied research method enables a thorough and structured analysis of qualitative data that aligns with the research's requirements and goals.

This study provides revealing insights into the dynamics of interactions in the VCL context. To address RQ1 regarding the exploration of various types of interactions manifested within the VCL course, the different interactions were examined. It was demonstrated that interactions to enhance motivation through the provision of feedback using positive reinforcement occur. Additionally, this interaction for motivation enhancement was relevant in all group stages. This suggests that even when no noticeable support is required, both motivation and group collaboration can suffer. Therefore, the goal of e-tutors was to maintain high motivation even when no support seems to be needed. Interactions for building trust took place in the initial days of the module during the norming phase. This suggests that establishing a strong relationship between e-tutors and students at the beginning of group formation is particularly crucial to enhance the impact of subsequent interactions. A preference for written communication within the group was observed. However, oral group discussions were also utilised. It was noted that the initial contributions were consistently in written form. For better acquaintance and relationship-building, a personal conversation can be a better support to achieve these goals.

Based on the results, the necessity for improved group communication becomes evident, particularly during the Forming phase. It can be interpreted that groups may not have optimally harmonised at the beginning of the course. Targeted support measures during this phase could positively influence interactions. Therefore, it is suggested that supportive strategies should be implemented at the beginning of the course to promote the development of effective group communication. Similarly, it has been shown that behavioural changes, particularly through feedback, are sought. The increased presence of these objectives in the Norming phase might suggest that groups already exhibit a certain level of cohesion, while role conflicts persist. These conflicts could be addressed through targeted interventions, strengthening group harmony. In conflict situations or instances of insufficient communication, e-tutors initiated interactions to obtain information. This suggests that there is a lack of understanding of the situation. However, to make informed decisions on how to handle students in these situations, such information is crucial. As per Johnson et al.'s statement (2002), during conflicts, employing nonverbal communication, particularly oral expressions, may be essential to gain a deeper understanding of the

context within situations. Similarly, in cases of inadequate communication, a specific request directed at particular students can be the most effective approach to increase communication.

To investigate RQ2, whether the e-tutors' intended outcomes can be achieved through their chosen interactions, the perspectives of both e-tutors and students were examined. In the perception of the e-tutors, the achievement of objectives was greatest in the obtaining of information and the clarification of uncertainties. This can be attributed to the good measurability of these interactions. On the other hand, the increase in motivation and the building of trust showed a low level of conformity with expectations, as these effects are difficult to measure and can only be deducted through other consequences. According to the students' perceptions, expectations were most fulfilled in the improvement of group communication. Gathering information from the perspective of e-tutors was placed at the last position. This can be clarified by noting that the group didn't directly observe this effect impacting their experience.

The observation reveals a disparity in the perception of group communication between e-tutors and students, suggesting a potential divergence in the understanding of effective communication. While the group may be content, the e-tutor's dissatisfaction could stem from insufficient documentation, complicating evaluation, and intervention. This highlights the potential need for e-tutors to articulate their criteria for effective communication more clearly, emphasising the mutual benefit of communication methods that serve both the group and the e-tutor. The interaction aimed at resolving uncertainties constitutes the most frequently unexpected outcome. It can be hypothesised that e-tutors unconsciously answered questions through explanations and information. In summary, RQ2 can be affirmed. The expectations of the e-tutors, assessed from both perspectives, are fulfilled. In particular, gathering information from e-tutors exhibits a high level of fulfilment. A preference for written communication in the group chat, especially for group demands, was evident. The traceability of this chosen communication method was considered a significant advantage, contributing to the effectiveness of group work. Additionally, it became apparent that individual conversations, despite the advantages of quicker clarification and building trust, were neither utilised by e-tutors nor desired by students, which underscores the group-centric aspect of the module. It would be interesting for future research to analyse the reasons behind the chosen communication methods and explore their impacts. The results indicated that most students did not provide suggestions for changes. This could suggest overall satisfaction. However, the absence of responses to change suggestions may indicate a lack of creativity, motivation to respond to the interview, or incomplete sharing of experiences. Targeted inquiries or additional feedback mechanisms in future research could address this issue. A more in-depth analysis of change suggestions through interviews, focus groups, or surveys could derive specific recommendations for improving e-tutoring practices.

As with any empirical investigation, this study is not without limitations. Due to empty responses in the questionnaires and a larger number of students, the finding percentages are smaller compared to the e-tutors. Hence, a direct comparison is challenging, and a ranking appears more suitable. Focusing on a specific module might impact the generalizability of the results. Additionally, variations in diary completion by e-tutors and students, especially due to the length of the interview, could lead to biases. Furthermore, the questions regarding helpful/unhelpful interactions in the structured interview could have been positioned later to facilitate an optimised reflection of the interactions. Unique occurrences of conflicts and queries don't allow for universally applicable conclusions. A focus on the study population could be expanded by incorporating additional courses, programs, or institutions to ensure a more extensive representativeness. Lastly, a detailed examination of intentions seemingly without impact could be conducted to identify unnoticed effects.

In conclusion, this research project provides valuable insights into interactions in VCL. The results emphasize the importance of enhancing motivation through positive feedback and building trust in the initial phases. First practical implications can be used by e-tutors who accompany groups in a time frame of about one semester. This study contributes to the understanding of interaction dynamics in the VCL context and points towards potential approaches to make virtual learning environments more effective.

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