TransLaboration: An Online Collaborative Learning Environment with Socially Shared Regulation Prompts in Translation Classroom

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Abstract: Online collaborative learning (OCL) has been widely used in various disciplines including translation subject. Effective OCL needs the support of the OCL environment and pedagogical methods. Socially shared regulation (SSR) is a useful strategy to improve OCL because it stimulates students' participation. In learning translation, OCL is usually adopted but students struggle with regulating their learning to reach consensus about their translation work. This paper presents a new OCL environment, *TransLaboration*, to support collaborative translation learning. In *TransLaboration*, SSR prompts are embedded to facilitate students' social interaction, Moodle is used as the LMS, Tencent QQ works for students' chatroom and Kingsoft Document is applied as the workplace for collaborative translation. The design of *TransLaboration* and learning activities are presented in this paper, and further investigation is needed to maximize its function.

1 INTRODUCTION

Online collaborative learning (OCL) is a pedagogical approach involving students working in groups to achieve common learning objectives using online tools and environment (Ng et al., 2022). OCL is regarded to be an effective way to promote students' knowledge construction and cognitive development, as well as foster students' sense of community and belonging among learners and has been widely adopted in various educational contexts and different subject domains (Oyarzun & Martin, 2023).

OCL supplies the space and time for students to work together on learning tasks where they discuss and analyse with critical discourse, provide food for thought, argue with each other from different perspectives, and reflect on the collaborative job. Therefore, OCL emphasizes the active and collaborative construction of knowledge through social interaction and negotiation (Picciano, 2021)

However, OCL is faced with some challenges and limitations that hinder the effectiveness and quality of collaborative learning. For example, students may encounter difficulties in participating in effective interaction, managing time, resolving conflicts, and coordinating group dynamics (Oyarzun & Martin, 2023; Robinson et al., 2017). Therefore, it is important to design and evaluate OCL environments that can support students' and teachers' needs and expectations. Therefore, the design of a good OCL environment has been a research concern (Johler, 2022).

OCL environment facilitates OCL by providing various functions that enhance the OCL process, such as Chatroom, uploading learning materials, whiteboard, file sharing, annotating, feedback and assessment, and by mediating the OCL activities (Robinson et al., 2017).

Regulation of the learning process is an important factor affecting OCL, and successful OCL needs socially shared regulation (SSR) (Borge et al., 2022). In SSR, group members collectively set goals, make plans, monitor collaborative learning, and evaluate and reflect on the learning process (Järvelä et al., 2013). They continuously adjust their cognition, metacognition, emotion, motivation, behaviour, etc.,

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in OCL process so as to complete the learning task together (Isohätälä et al., 2017).

Socially shared regulation of learning is proven useful to improve students' knowledge construction (Chen et al., 2019; Grau & Whitebread, 2012), group performance (Panadero & Järvelä, 2015) and problem solving (Hurme et al., 2009; Panadero et al., 2015).

Nevertheless, SSR is difficult to achieve because group members possess different previous experiences and regulatory strategies. They may not be aware of the opportunity for SSRL or lack the motivation to regulate collectively even if the collaborative learning tasks are pedagogically designed (Järvelä et al., 2014; Malmberg et al., 2015). Learners' SSR levels could only be improved with the engagement of regulation prompts (Järvelä et al., 2016).

Translation, as a complex cognitive and linguistic activity, involves the conversion of two languages, cultures and thinking modes (Li, 2018). Translation education can benefit from OCL because collaboration is also crucial for learning translation, as it enables translation learners to theorise and test hypotheses, transmit translation knowledge, utilise better translation strategies, get real-life translation experience, gain improvement in translation competence and achieve optimum translation results (Al-Shehari, 2017; Moghaddas & Khoshsaligheh, 2019).

However, to work collaboratively in a translation classroom, students need such support as the coordination strategy (Barros, 2011), task assignment (Bayraktar Özer & Hastürkoğlu, 2020), time management and collective problem-solving (Amini et al., 2022) which could be addressed with the help of SSR. However, no research has been conducted on the effect of SSR in translation learning.

Based on this background, this paper presents a new OCL environment, *TransLaboration*, aiming to facilitate translation learning in higher education. *TransLaboration* comprises a Moodle LMS, a Chatroom and a co-authoring system. SSR prompts is embedded in *TransLaboration* to ensure meaningful collaboration. The development of *TransLaboration* and the corresponding learning activities will be presented and discussed in this paper.

2 METHODOLOGY

This study applied ADDIE instructional system design model to develop the OCL environment. The ADDIE model has been verified and widely used to create a learning environment (Johnson-Barlow &

Lehnen, 2021; Muruganantham, 2015). The model boasts an agile, iterative design process, which means that each step during development can be revised and improved. As such, errors can be fixed, and the learning environment can be optimized on time (Drljača et al., 2017).

2.1 The *Translaboration* Online Collaborative Learning Environment

The *TransLaboration* OCL environment aims to facilitate English-major undergraduates to foster translation competence in the translation classroom. Based on ADDIE model, the development of *TransLaboration* goes through five phases: analysis, design, development, implementation, and evaluation. These phases are interrelated and sometimes overlap. In each phase, tasks and outputs are set as guidelines to ensure the successful development of the OCL environment (Spatioti et al., 2022).

2.1.1 Analysis

Analysis phase aims to assess the needs of *TransLaboration* OCL environment. Firstly, the learning objective for designing *TransLaboration* is to foster skills in translating text with the guidance of socially shared regulation (SSR) prompts.

Next, the target learners' profile was identified based on their background and previously acquired knowledge. The learners are second-year English major students in a Chinese public university. They take the translation class and already understand the theoretical issues of translation. However, they need to improve their translation practice skills. Besides, they have Internet access and have experience in using OCL environments.

These characteristics were considered when setting SSR prompts in the *TransLaboration* and assigning the group work according to the pedagogical considerations based on Vygotsky (1978)'s social constructivist learning theory and Hadwin et al. (2011)'s SSR theory.

Following the above analysis, *TransLaboration* consists of three components: the Learning Management System (LMS), the online synchronous discussion tool, and the online co-authoring platform.

Moodle is used as the LMS to set the OCL environment with SSR prompts because it integrates three central learning system components: the learning strategy, learning material and learning media (Gamage et al., 2022). Students obtain learning

tasks, SSR prompts and submit the group work in Moodle.

Tencent QQ (QQ) is applied as the online synchronous discussion tool. *TransLaboration* uses QQ rather than Moodle Chatroom for the following reasons. Firstly, QQ is independent of Moodle, which means that students can simultaneously discuss in QQ and refer to Moodle for task specifications and SSR prompts. If students use Moodle Chatroom, they have to log out of the Chatroom to check the learning materials, which would interrupt the discussion. Secondly, compared with Moodle Chatroom, Tencent QQ provides functions such as capturing, annotating and sending screenshots, which were necessary to discuss translation tasks in this study.

Kingsoft Document (KDoc), an online co-authoring platform, is used to edit the translated text collaboratively online. Group members could log in to Kingsoft Document and edit the translation while checking the SSR prompts and other learning materials in Moodle and discuss via Tencent QQ. Figure 1 illustrates the working space for *TransLaboration*.
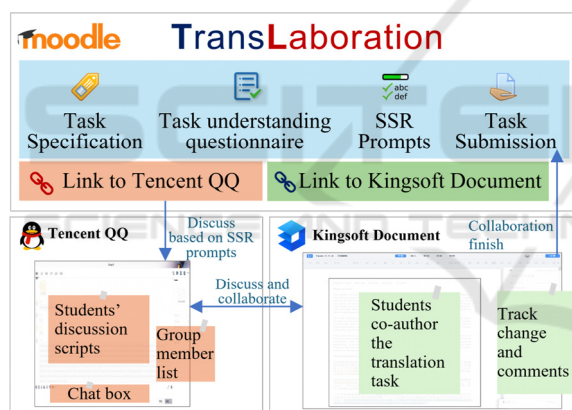

Figure 1: Working space for *TransLaboration*.

2.1.2 Design

Design phase aims to create a framework for collaborative learning activities. Figure 2 illustrates the flow chart of the using *TransLaboration* in translation learning.

The learning activities go through three steps. In Step 1, students read the task specification to understand the learning task and make a preliminary plan individually. They are required to read the task specification, translation materials, and fill in the "questionnaire for individual task understanding and planning" to help arouse their prior knowledge and understand the learning task to facilitate their group discussion. Step 1 is finished in the Moodle platform.
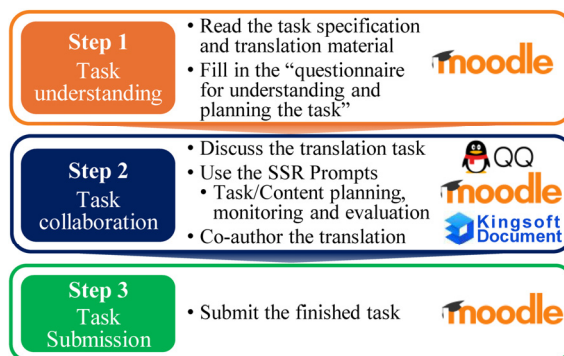

Figure 2: Design of learning step.

In step 2, students engage in group discussion via QQ and edit the translation together in KDoc. During the discussion, group members should refer to the SSR prompts embedded in *TransLaboration*.

The design of SSR prompts is based on six SSR strategies – task planning, content planning, task monitoring, content monitoring, task evaluation and content evaluation – aiming to prompt students to set group goals, make a group plan, monitor and evaluate the task progress and learning contents during the collaboration procedures. Table 1 shows the design of SSR prompts during the group discussion.

Table 1: Design of SSR prompts during the collaboration.

Procedures	SSR prompts	SSR Strategies
1. Set group goal	• Please consider the task requirement. • Please set a specific goal rather than a general goal. • Please consider whether the goal is feasible.	• Task planning
2. Make group plan	• Please consider the group goal. • Please allocate the time and subtasks. • Please assign roles for group members. • Please consider the resources you may use to complete the task. • Please consider the translation theories you may use to complete the task (e.g. translation standards, strategies, methods and skills). • Please consider whether the plan is feasible.	• Task planning • Content planning

Table 1: Design of SSR prompts during the collaboration (cont.).

Procedures	SSR prompts	SSR Strategies
3. Finish translation task in group	• Please check the time. • Please verify the progress of the completion of the task. • Please check for the accurate use of translation theories (e.g. translation standards, strategies, methods and skills). • Please provide a reason to support your idea.	• Task monitoring • Content monitoring
4. Evaluate group work	• Please check whether your group completed all the task requirements. • Please check whether your group met the initial goal. • Please reflect on whether your group applied translation theories to guide translation practice. • Please reflect on the strategies your group used to solve problems. • Please summarize gains and weaknesses. • Please rate your group's final product.	• Task evaluation • Content evaluation

In step 3, after evaluating the group work, students submit their translation works to the OCL environment through Moodle.

2.1.3 Development

TransLaboration OCL environment is developed based on the information gathered in the analysis and design phase. The architecture of *TransLaboration* is shown as Figure 3.
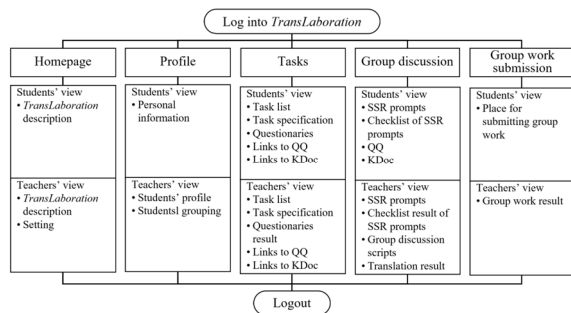

Figure 3: Architecture of *TransLaboration.*

To make *TransLaboration* user-friendly, the user interface is simple and clear, as shown in Figure 4. In the

learning task webpage, appealing colours are used to draw students' attention. The buttons are set based on the learning steps. As such, students only need to click the button and finish the task step by step.
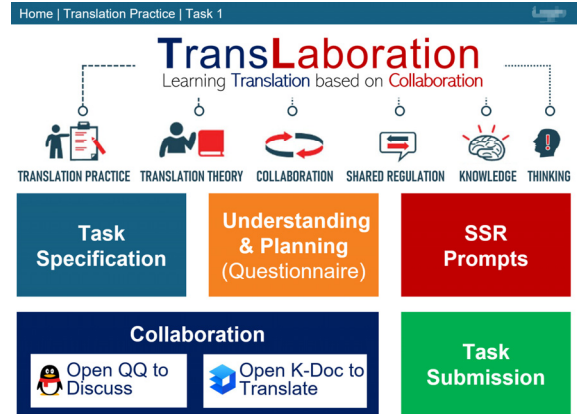

Figure 4: Screenshot of learning task portal in *TransLaboration.*

To facilitate students using SSR prompts in the group discussion, SSR prompts are set along the sequential order of the tasks and embedded in *TransLaboration* (as shown in Table 1). SSR prompts are shown with a checklist to remind the group members of each other's progress and promote their group awareness and regulation (Hadwin et al., 2011). Students are asked to tick the checklist after using the SSRL prompt item. If they have applied all the items, 100% is shown. As an example, Figure 5 illustrates the checklist for SSR prompts when making the group plan.

Figure 5: Checklist for SSR prompts (The contents are the same with SSR prompts in Procedure 2. Make group plan).

The function and interface of *TransLaboration* are designed to facilitate students' group work. Students discuss in separate groups via QQ chatroom, meaning that each group member could only see their own group members, and others were invisible. In this case, their discussion would not be disturbed by other groups. Figure 6 shows students' discussion in QQ chatroom.

Students edit the translation together in KDoc, while while discussing via QQ. KDoc could be

accessed directly through a link from the learning task portal. During the collaboration, each group member's version is tracked, facilitating their interaction and evaluation. Figure 7 illustrates students co-author the translation in Kdoc.
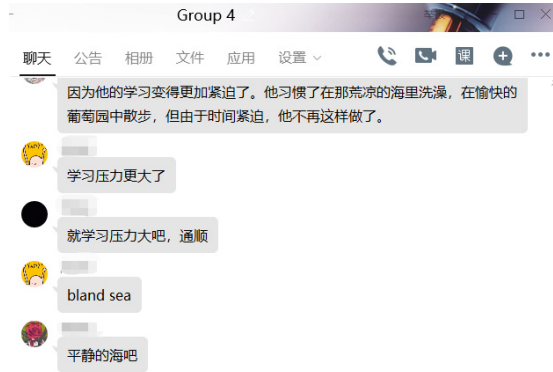

Figure 6: Students discuss in QQ Chatroom.

Figure 7: Students co-author the translation task collaboratively in KDoc.

2.1.4 Implementation

User test is carried out before the implementation of actual learning activity to ensure the functionality and integrity of *TransLaboration*. The OCL environment is tested by 20 students. All the participants were informed of the consent. They work in groups of 4 members and are given a sample translation task, aiming to test the usability of task specification, questionnaire, SSR prompts, online Chatroom, translation practice collaboration and group work submission. Their comments and suggestions are used to improve the design and functionality of

TransLaboration. Table 2 shows the feedback from the students in the pilot study and the corresponding improvement.

Table 2: Examples of feedback from the students in the user test and the corresponding improvement.

Feedback	Improvement
"Moodle Chatroom is not user-friendly. We neet to discuss while reading the SSR prompts. We have to log in and log out of the Chatroom from time to time. It is distractive and reduces our efficiency."	Tencent QQ was used to replace Moodle Chatroom because Moodle log files were not used in this study.
"It will be more convenient if we can go to Kingsoft Document directly from a button with our group number."	The URL links to Kingsoft groups were redesigned as a button with the group number in it.
"When I do not know what to do next, I check the SSR prompts and have an idea."	-

2.1.5 Evaluation

Expert evaluations are carried out to correct the errors and improve the functionality of *TransLaboration*. The evaluation phase comprises two parts: formative and summative evaluation.

The formative evaluation is ongoing between development phases to correct the errors and improve the functionality of *TransLaboration*. In the analysis, design and development phases, all the task information, learning objectives, learning content, learning strategy and prototype of the learning environment are evaluated and revised by experts. For example, in the design phase, the consistency of SSR theory and SSR prompts used for the online collaborative learning environment was validated by an expert, and revisions were made before moving to the development phase.

The summative evaluation is conducted after the completion of *TransLaboration* along with the user test. Education technology experts and teachers are invited to validate the effectiveness and efficiency of *TransLaboration*, especially whether the learning activities align with the learning objectives. Table 3 shows the comments from the expert validation.

Table 3: Expert validation of online learning tasks and environment.

Expert	Position/Qualification/ Working Experience	General comments
A	Teacher/PhD in Translation Studies/14 years	The tasks are generally good for translation practice.
B	Associate Professor in Computer Science/Software engineer/15 years	The online learning system is tested and suitable for this study.
C	Teacher/PhD in Educational Technology/15 years	The online learning activity is suitable and the SSR Prompts are good to go.

2.2 Collaborative Learning Task

TransLaboration is developed to improve students' practical translation skills in the translation classroom. Following the collaborative translation task design in previous studies (Pitkäsalo & Ketola, 2018; Turiman et al., 2023), the learning tasks in *TransLaboration* go through three procedures: a. identify the source text, b. translating the text, and c. submit the translated text. The three procedures are clearly structured in *TransLaboration.*

In terms of the types of CL tasks, *TransLaboration* supports translation tasks and translation post-editing tasks depending on the learning materials uploaded to the co-authoring system. For translation tasks, the co-authoring system only contains the source text, and for translation post-editing tasks, the co-authoring system contains both the source text and the initially translated text (with errors). Students read the learning materials, make analyses, and input or edit the translation collectively.

To promote students' collaboration, *TransLaboration* embeds SSR prompts (See Table 1) that guide group members to collectively understand, proceed, and reflect on the collaborative translation tasks. As such, the design of SSR prompts focuses on prompting the discussion regarding both the task content, such as checking for the appropriate use of translation skills, and the task process, such as checking for compliance with task instructions.

Meaningful discussion is one of the preconditions for the success of collaborative translation (Tekwa, 2023). Pedagogically, to promote students' discussion and collaboration, before collaboration, students are required to finish the "Questionnaire for

task understanding and planning", which guides them to understand the learning task and make preparation for the coming group work.

During the group work, one group member can be assigned as the prompter to help activate the SSR prompts in a timely manner and ensure that all the group members are engaged in meaningful discussion.

Besides, during the collaborative translation tasks, students may use such functions as track-change, comments, and screenshot capture, which are all included in *TransLaboration.* For example, students may capture a website's screenshot to support their translation; They may need to revert to a previous translation version through track-change; and they may use the comments when doing the peer review.

3 DISCUSSION AND CONCLUSION

This paper aims to introduce *TransLaboration*, an OCL environment for undergraduate students in the translation classroom. The OCL environment breaks down the limitations of time and space in collaborative learning and provides students with more opportunities to internalize socially constructed knowledge (Smith, 2017). The key to successful OCL is to ensure that group members share information in the learning group (Johler, 2022). Nevertheless, merely situating students in an OCL environment and assigning the group task does not necessarily result in effective learning activities because they cannot automatically be involved in the discussion (Qureshi et al., 2023). Group members need guidance for interaction during OCL (Le et al., 2022).

As such, we apply the ADDIE model to develop the *TransLaboration* OCL environment and optimize it to improve students' engagement in online discussion during collaborative translation practice. Following Isohätälä et al. (2017); Michalsky and Cohen (2021); Vuorenmaa et al. (2022) that SSRL can facilitate social interaction by promoting learners' social presence, social support, and social feedback, we take SSR into the pedagogical consideration in *TransLaboration.*

As SSR is difficult to achieve and prompts are needed for the emergence of SSR (Kielstra et al., 2022; Zheng et al., 2019), we embed SSR prompts in *TransLaboration* to enable students to regulate their learning activities collectively throughout the collaboration. With the help of SSR prompts, group members align their task perception and planning (Järvelä & Hadwin, 2015) before the collaborative

translation task. Group members apply SSR prompts during the translation task to ensure effective and meaningful collaboration (Kielstra et al., 2022). Upon completion of the translation task, SSR prompts engage students in group evaluation and reflection, which helps the group members improve future learning and regulation skills (Michalsky & Cohen, 2021).

The *TransLaboration* OCL environment provides students with the workspace to develop their translation competence based on SSR. Although it is designed with a user-friendly interface, clear structure and scientific translation learning logic, improvements are still needed in the following two aspects.

At first, the integration level of *TransLaboration* could be higher. The current *TransLaboration* encompasses three separate components: the Moodle-based learning portal, the QQ-based discussion tool and KDoc-based co-authoring system. Fusing the three components into one OCL platform would increase the learning efficiency.

Secondly, in the current *TransLaboration*, the SSR prompts function in a manual method. Students need to refer to the SSR prompts by themselves or by the group member who acts as the prompter. The AI-enhanced self-adaptive SSR prompts could be developed into *TransLaboration* to prompt students to use the appropriate SSR strategies so as to make them better involved in collaborative translation learning.

For further study, we plan to validate the effectiveness *TransLaboration* in improving students' translation practice competence. SSR prompts stimulate students' cognitive cognitive performance (Järvelä et al., 2014; Zheng et al., 2019) including critical thinking and creative thinking skills, which significantly impact students' translation performance (Cheng, 2022; Li et al., 2022). As a future study, we plan to conduct research to assess the effect of *TransLaboration* on students' translation performance and higher-order thinking skills. Besides, students' log files and discussion scripts can be gathered from *TransLaboration* to analyse students' social interaction during OCL.

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