

Article

Pre-Service Teachers' Perceptions of Their Digital Feedback Literacy Development Before and During the Pandemic

Jennifer Schluer

Chemnitz University of Technology, Germany

Received: 15 November 2021/Accepted: 30 May 2022/Published: 30 July 2022

Abstract

Feedback is central to successful learning, but digital feedback still appears to be underutilized by teachers. As a result of the Covid-19 pandemic, its relevance for teacher education has increased, though. This paper reports on a three-year study that aimed to foster pre-service teachers' (PTs') digital feedback literacy as part of their TESOL studies. Two cohorts participated in the years before (N=29) and two at start of the Covid-19 pandemic (N=28). This way, it was possible to compare the PTs' perceptions of their digital feedback literacy development before and during the pandemic.

Data were collected at various stages of the intervention through pre-, while- and post-surveys as well as the feedback videos that were created by the PTs. The different data sources were analyzed in a mixed-methods manner by means of statistical procedures and qualitative content analysis (Kuckartz & Rädiker, 2019). Through the intervention, the PTs perceived an increase in their digital feedback literacy. This was demonstrated by their heightened knowledge, positive attitudes and technological-pedagogical skills in the production of feedback videos, especially in the pandemic courses. The contribution will close with recommendations for developing dynamic digital feedback literacies among (pre-service) teachers in the future.

Keywords

Digital feedback literacy, preservice teachers, teacher education, Covid-19, screencast feedback

1 Introduction

The development of digital literacy is a complex and continuous process due to the dynamic changes in technologies and in the educational landscape. One of these unforeseen and unprecedented shifts occurred when the Covid-19 pandemic set in and educational institutions had to close in order to reduce the amount of face-to-face contacts. As a consequence, educators had to quickly transform their teaching and invest substantial efforts to make learning possible from remote (see e.g. the special issues by Wong, 2020a; 2020b).

As a teacher educator in the field of TESOL, I likewise faced several challenges arising from the

sudden shift to online-only in early 2020. By now, the fourth semester of digital teaching has passed. However, already before the pandemic, I aimed to foster pre-service teachers' (PTs') digital feedback literacy as part of a three-year study that started in late 2018. Hence, two cohorts participated in the years before the pandemic and two at the start of the pandemic. This unique situation allowed me to compare the PTs' perceptions, attitudes and skills development regarding digital feedback literacy before and at the beginning of the Covid-19 pandemic.

The motivation for the study was to prepare prospective TESOL practitioners in Germany for the demands of their future profession. While the need for a higher degree of technology integration in the classrooms had been voiced for quite some time in the foregoing years, not many had enacted its potentials in the classroom prior to the pandemic (see e.g. the review by König, Jäger-Biela, & Glutsch, 2020). Even after more than two years of Covid-19, many schools and their teachers seemed to be neither fully technologically nor pedagogically equipped to enable digital learning for their students (Monitor Lehrerbildung, 2021). Especially one important dimension of the teaching and learning process has been widely neglected during the shift to digital teaching, which is feedback (cf. Eickelmann & Drossel, 2020). The aim of feedback is to help learners improve and thus to close the gap between their current performance and the learning goal (Hattie & Timperley, 2007). The purpose of the present project therefore was to raise PTs' skills in the provision of digital feedback, specifically screencast feedback (SCFB).

The next sections will clarify in more detail the role of (digital) feedback and the specific situation of (pre-)pandemic teaching in Germany based on a review of prior studies. To develop digital feedback literacy among pre-service TESOL practitioners, an action research project was conducted that provided a rich database for investigating PTs' feedback perceptions and practices before and during the pandemic. Notably, survey and video data were analyzed in a mixed-methods manner through quantitative and qualitative procedures. Based on the findings, the paper will conclude with recommendations for developing dynamic digital feedback literacies in teacher education and continuous professional development.

2 Literature Review

In this section, findings about digital teaching in Germany before and during the pandemic will be synthesized first. Next, the central term digital feedback literacy will be defined. As it requires ongoing openness and critical reflection, it is reasonable to start with its development from early stages onwards, for instance in teacher education programs at universities. However, there is hardly any research about this, especially regarding multimodal digital feedback. By exemplarily focusing on SCFB, the present project will therefore address this research gap in the literature.

2.1 Digital teaching in Germany before and during the pandemic

Technology-enhanced teaching had already grown in importance in teacher education in Germany in the years before the pandemic, notably as a response to the strategic paper by the *Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany* (Kultusministerkonferenz, 2016). The required competencies are also sketched in frameworks such as TPACK in the US (Koehler, Mishra, & Cain, 2013; Mishra & Koehler, 2006) or DigCompEdu at the European level (Redecker & Punie, 2017). Nevertheless, the development of digital competencies has not yet been systematically integrated into teacher education in Germany (Monitor Lehrerbildung, 2021).

A recent study prior to the pandemic revealed that only one quarter (25.9%) of the teachers in Germany reported to have learned about digital media during teacher education, which is significantly below the international mean of 41.6% (Eickelmann, Bos, & Labusch, 2019). Altogether, merely 23.2% of the teachers stated that they had used digital media in their daily teaching, but mostly for presenting

information (44.1%) rather than for providing individual support to students. In particular, feedback was hardly ever given digitally. This is exactly the gap that the current study aimed to fill.

One may wonder whether there might have been an upsurge in digital media use and digital feedback as a consequence of the emergency remote teaching (ERT) experience during the lockdown of educational institutions. ERT describes teachers' rapid response to "school and university closures in a time of crisis" (Hodges, Moore, Lockee, Trust, & Bond, 2020). Indeed, only one third of all schools in Germany felt prepared for the sudden shift to digital learning (Eickelmann & Drossel, 2020) as they had used digital technologies already before the school closures. Overall, however, the teachers mainly sent around tasks via email (63%), about one quarter uploaded them onto the school server (28%) or onto the learning management platform (LMS, 25%), some used a messenger (20%) or provided the tasks in print via postal mail or orally via phone (16%). The provision of feedback to students was perceived as particularly challenging by the teachers (62.3%) (Eickelmann & Drossel, 2020). Typically, it was reduced to email only if provided at all (Wildemann & Hosenfeld, 2020), even though there are many other possibilities (see Schluer, 2022). To seize them, digital feedback literacy is necessary.

2.2 Digital feedback literacy

Feedback informs students about their current level of performance in relation to the learning objective and aims to scaffold their learning process into the desired direction (Hattie & Timperley, 2007). Successful feedback hence starts with diagnosing learners' prior knowledge and determining the learning goals in order to provide appropriate support (Hattie & Clarke, 2019).

To help learners improve, feedback can contain corrections, explanations, recommendations, encouragement and support in the use of learning strategies (cf. Hattie & Timperley, 2007). Commonly, feedback is given in either oral or written ways, whereas digital methods have hardly ever been explored systematically. Examples include digital feedback via email, chats, webmeetings, audio and video recordings as well as written comments in a text editor or cloud document (for an overview see Schluer, 2022). To give the best possible feedback in each of these modalities, teachers need to be able to select appropriate methods and tools in order to engage in digital feedback exchanges with their learners (cf. Redecker & Punie, 2017).

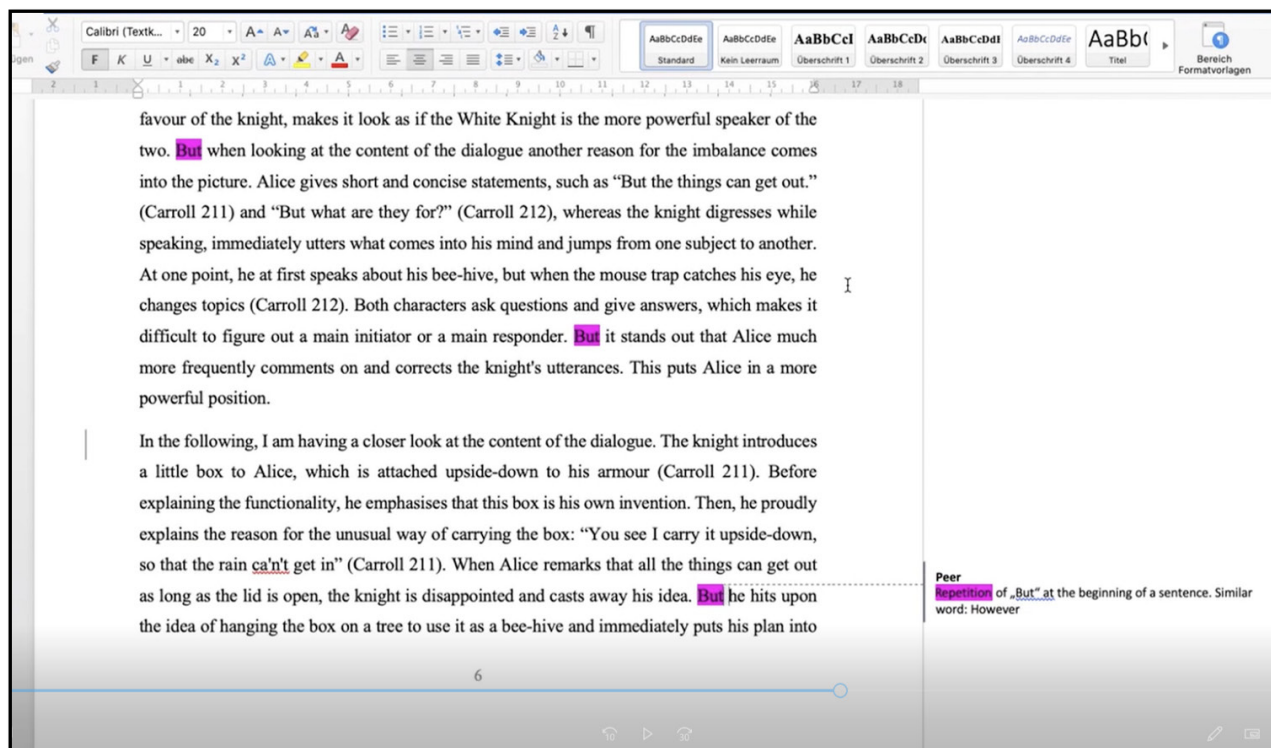
This is where the notion of digital feedback literacy comes in. In modern conceptualizations, learner feedback literacy lies at the heart of the feedback process (Carless, 2020). It can be defined as learners' ability to actively seek, generate, understand and utilize feedback information in order to improve their learning (cf. Carless, 2020; Molloy, Boud, & Henderson, 2019). The teacher's role is to facilitate the development of students' feedback literacy (Carless, 2020). To achieve this, it would be helpful for PTs to experience both perspectives, i.e. that of the learner and that of the teacher. A peer approach has therefore been developed that centered on the creation and exchange of SCFB.

2.3 Peer SCFB in teacher education

SCFB is an "asynchronous audiovisual feedback method" in which "assessors record their on-screen activities of navigating through an electronic assignment" (Schluer, 2020, p. 44). While doing so, they edit, highlight or annotate sections of it and simultaneously provide oral comments to offer corrections, explanations and suggestions. In Figure 1, for example, the PT highlighted recurring expressions and suggested to vary the word choice in order to improve the quality of the paper. In contrast to feedback in text editors, the visual highlighting was accompanied by oral explanations and was less static overall. Soon afterwards, the PT navigated to other pages in which the word choice was repetitive as well. Moreover, the PT could show additional resources (e.g. a thesaurus website) in the SCFB to encourage self-directed learning.

Figure 1

Screencast Feedback Example



Numerous advantages had been cited for teachers and learners when SCFB was utilized (see the review by [Schluer, 2020](#), pp. 45–46). For the learners, the simultaneous oral and visual explanations provided a greater richness in detail and clarity than written feedback ([Ali, 2016](#); [Grigoryan, 2017](#)). Accordingly, students perceived a higher feedback quantity and quality ([Ali, 2016](#); [West & Turner, 2016](#)). Moreover, the multimodality may cater for different learner needs, including special needs students. They can access the videos at their own pace and rewind them as needed, which could contribute to a more thorough uptake of the contents ([Séror, 2012](#)). Students also appeared to be more motivated as they found the feedback more personalized than written feedback (as reviewed by e.g. [Stannard, 2019](#)). This also helped to strengthen social rapport in the classroom, especially in online settings ([Grigoryan, 2017](#)).

Teachers likewise appreciated these benefits. However, they also raised some concerns, in particular regarding the time it takes to produce SCFB for a number of students ([Fang, 2019](#); [Soden, 2017](#)). Quite often, they acknowledged that it may become faster with practice ([Kay, Petrarca, & Bahula, 2019](#)). Still others perceived affective barriers, such as feeling uncomfortable with recording their voice or feeling overwhelmed by the technology ([Soden, 2017](#)).

To reduce potential barriers and help the PTs develop the required skills, a peer SCFB approach had been designed that allowed them to experience the perspectives of feedback providers and recipients simultaneously ([Schluer, 2020](#)). Already before the pandemic, it aimed to foster PTs’ technological, pedagogical and subject-matter competencies in an integrated manner (cf. the TPACK model by [Koehler et al., 2013](#); [Mishra & Koehler, 2006](#)). As part of the research design, the PTs were asked to reflect on their own prior knowledge at course start before they learned about feedback and SCFB in a stepwise manner. Subsequently, they implemented peer SCFB themselves and reflected about their production and reception experiences as well as their overall learning gain from the seminar.

With the two data sets collected prior to the Covid-19 pandemic in face-to-face seminars and at the beginning of remote teaching, it can be determined whether the PTs’ attitudes towards SCFB were influenced by the increased relevance and prevalence of digital teaching. This has led to the following research questions (RQs): Before and during the pandemic, what are the similarities and differences in

PTs' perceptions of (1) feedback as well as digital learning and teaching at the beginning and end of the intervention; (2) the SCFB production process; (3) the received SCFB?

3 Methodology

A three-year study was conducted to develop PTs' digital feedback literacy during their TESOL studies. As an action research project, data were elicited from the PTs at various stages of the intervention. Two cohorts took part in the years before (N=29 PTs) and two at start of the Covid-19 pandemic (N=28). This allowed for comparisons of PTs' perceptions, experiences and digital products before and during the pandemic.

3.1 Context of study

Responding to the call for developing digital competencies among PTs, I started an action research project in 2018. The aim was to foster the digital feedback literacies of prospective TESOL practitioners. Specifically, I concentrated on SCFB as there was no other comparable project in Germany despite the many benefits that are cited in the international literature (see section 2.3). I therefore decided to introduce SCFB to the PTs while researching its impact at the same time. Action research is characterized by these simultaneous and interlocking processes of taking action and conducting research, which are reflected systematically and critically. This is enabled through a spiral process of planning, taking action, observation and evaluation (Lewin, 1946; see e.g. McTaggart, 1994). The approach resonates with the idea of reflective practice, which is crucial for the teaching profession (see e.g. Brandenburg, Glasswell, Jones, & Ryan, 2017).

Therefore, while trying out a new feedback method (SCFB) for the first time, the PTs continuously reflected on their actions in order to improve their feedback practices further in the future. This process was facilitated by several surveys that the PTs were asked to complete throughout the seminar and by their final analytical paper. Simultaneously, these instruments served data collection purposes, as will be explicated next.

3.2 Intervention and instruments

The intervention occurred in advanced English language teacher education courses at German universities. At the beginning of each course, the PTs completed a pre-survey that asked open questions about their own understanding and prior experiences with feedback. Moreover, two open questions dealt with the experiences they had already gained with digital learning and teaching methods. In addition, they were requested to self-assess their familiarity with digital learning and teaching methods on a 5-point Likert scale. Further questions inquired into their course expectations. At course end, the post-survey returned to these aspects in order to identify potential changes that might have resulted from the intervention.

In the intervention itself, the PTs were familiarized with feedback from a theoretical and practical perspective (see Schluer, 2020, for details). Notably, they were requested to provide peer feedback on electronic text drafts of academic papers. They exchanged their drafts anonymously and assessed them according to relevant criteria. Consequently, the PTs needed to engage more deeply with the assessment criteria for academic papers in the field of English studies. Afterwards, they began to produce peer SCFB by utilizing Techsmith's video editor Camtasia. The PTs were free to try out different features and select those that they found most appropriate for feedback provision.

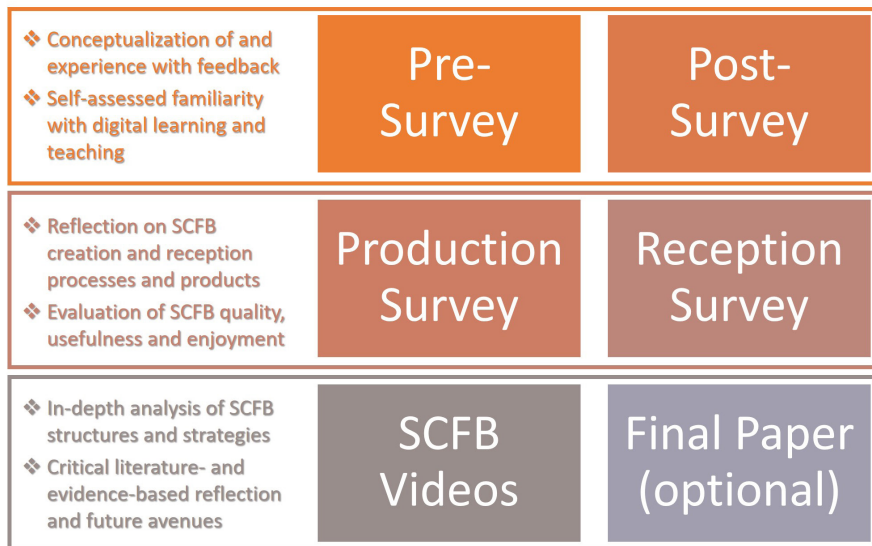
Directly after the finalization of the feedback videos, the PTs filled in a production survey. Subsequently, they received the feedback files (SCFB and the annotated text documents shown in the

videos) that their peers had created. Immediately afterwards, they were asked to evaluate the received feedback along several dimensions in the reception survey. In addition, they had the chance to reflect on the video products more closely by writing an analytical and reflective paper.

To summarize, Figure 2 gives an overview of the instruments.

Figure 2

Overview of Data Collection Instruments



All instruments had been piloted with a group of students from the same population. Nevertheless, they were re-evaluated after each implementation as part of an “emergent design” (Creswell, 2014, p. 186). This has led to minor modifications of some surveys (questions being removed, reformulated or added). All surveys contained a mixture of open-ended and closed questions and were implemented online by using the application Soscisurvey¹. Many of the closed questions consisted of 5-point Likert scales, ranging from e.g. “fully disagree” to “fully agree”. Especially for the reception survey, several items had been adapted from prior research (e.g. Ali, 2016; Phillips, Ryan, & Henderson, 2017) to facilitate comparisons and enhance their validity. Furthermore, reliability was ensured through reflexive accounting and the involvement of other researchers, as explained below.

3.3 Analysis

The data from the closed survey questions were analyzed statistically by using Microsoft Excel. For the open questions, all surveys were imported into MAXQDA (versions 2018/2020), a software program for qualitative and mixed methods analyses. A mainly inductive coding procedure was applied in the process of qualitative content analysis. With this method, the open responses were explored and analyzed systematically (Kuckartz, 2018; Mayring, 2010; Rädiker & Kuckartz, 2020).

To complement the survey findings, the SCFB videos were analyzed in MAXQDA (versions 2020/2022) through a complex coding procedure of the multimodal data (Kuckartz & Rädiker, 2019). As a first step, a transcription manual was compiled and continuously modified until all verbal, paraverbal and nonverbal actions had been considered. The transcripts were checked for consistency and completeness (cf. Gibbs, 2007) in five transcription rounds by three student assistants, one research assistant and the main researcher herself (myself). This repeated checking was deemed important, as the PTs kept on using new feedback strategies and video effects that had not yet been implemented in the foregoing years. For similar reasons, the category system in MAXQDA kept on growing and necessitated

additional rounds of consistency checks. Beyond that, other coders were involved in the research process to further enhance reliability (intercoder reliability, [Kuckartz, 2018](#), p. 206). Several PTs analyzed their own and/ or others' videos, which served as a kind of communicative validation (see [Flick, 2007](#), p. 16; [Mayring, 2010](#), p. 120) or "member checking" ([Kuckartz, 2018](#), p. 218). In total, N=22 term papers were composed by the PTs, dealing with N=26 videos. To reach further objectivity, a research assistant who had neither participated in a feedback or SCFB seminar beforehand coded all video data independently from the researcher and without consulting previous term papers. Inconsistencies were eliminated through in-depth discussions during regular research meetings.

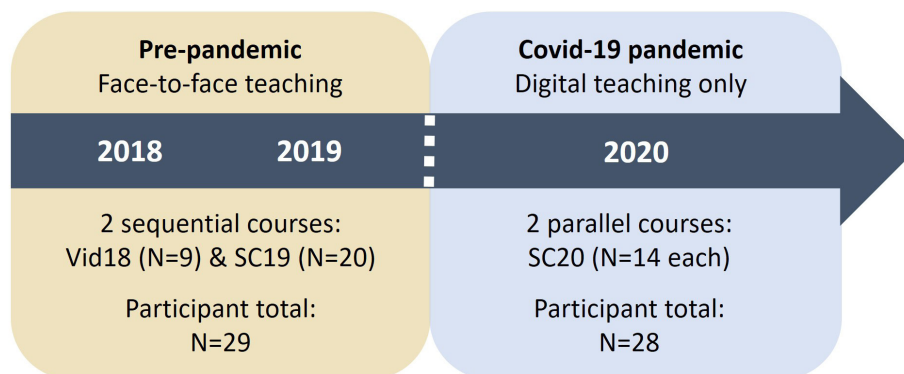
3.4 Participants

All participants were pre-service English language teachers studying at Master level at German universities (target population). They registered for an advanced teaching methodology course, resulting in a "naturally formed grou[p]" of a classroom ([Creswell, 2014](#), p. 168). This convenience sample can be considered as representative of the target population, e.g. in terms of gender ratio (majority of female PTs), specialization (mainly secondary education) and seniority (mostly fifth year of studies, i.e. seventh to eighth semester).

Informed consent and complete data sets (surveys and videos) were available from all 57 participants. The data from each cohort were analyzed separately, though, to allow for a context-sensitive approach. About half of the data stemmed from the two courses before the pandemic and the other half from two courses during the pandemic. In that regard, it should be noted that SC20 consisted of two parallel courses with 14 PTs each. Figure 3 gives an overview of the datasets and their temporal sequencing.

Figure 3

Overview of Data Sets



Prior to the analysis, all participant data were anonymized by allocating a random number in a three-digit format. Moreover, the shorthand "S" for "student" and the year of data collection were added. To exemplify, sample participant codes were S001-18, S009-19 and S112-20, which will be utilized in the presentation of the results.

4 Results

The presentation of results in this section will follow the order of the three research questions. The particularities of the individual years will be considered in addition to the potential contrast between the pre-pandemic (face-to-face) and pandemic (digital) courses.

4.1 RQ1: PTs' perceptions of feedback and digital methods (pre- and post-surveys)

When asked about the importance of feedback in the pre-surveys, the PTs almost unanimously stressed that it was “important” or “very important” for language learning in order to help students improve. This tendency was most pronounced in the SC20 course, with 25 out of 28 participants selecting the highest score on the rating scale. Moreover, the number of PTs emphasizing the value of positive feedback (N=9) was higher than before (N=3 in SC19). Still, the focus on error correction and weaknesses prevailed in the comments with N=20 codings. Especially for the pre-pandemic participants, feedback mainly consisted of error corrections, sometimes even of grading only. Clearly, these differences across the years might also be due to other reasons that are unrelated to the pandemic situation, for instance their personal experiences. Indeed, the frequency and kinds of feedback that the individual PTs had experienced themselves varied considerably. Accordingly, their degree of satisfaction with feedback differed to quite some extent from “unsatisfying” (cf. S003-19) to “helpful” (S011-19).

Prior to the intervention, most of them had obtained oral feedback (immediate during oral contributions in the school classroom and delayed feedback after presentations at university) as well as written feedback (notably on tests, exams and essays) in educational settings. In the pre-pandemic pre-surveys, experience with digital feedback was not mentioned at all. However, the pandemic participants stated that – at least in their private life or free-time – feedback increasingly occurred “on social media platforms in forms of short comments, thumbs ups or ‘likes’” (S108-20) or via text and audio “messages on the mobile phone” (S207-20; cf. S202-20). Nobody, however, had experienced video as a feedback format.

Even when asked for “other ways of feedback provision” they would be interested in, nobody in Vid18 and only four PTs in SC19 referred to digital methods in the pre-survey. In stark contrast, several PTs (N=16 codings) in SC20 signaled interest in using digital or technology-enhanced feedback methods in their future job. They listed online platforms (LMS), audio feedback and video feedback, including SCFB.

Turning to the post-surveys, we again note some similarities but also differences. The post-surveys were conducted after the PTs had gained theoretical knowledge about feedback and practical experience in the provision of electronic feedback in a word processor and video editing program. This way, they had become aware of several criteria of effective feedback, including the importance of positive feedback instead of correcting errors only. Their increased familiarity is evidenced by the survey responses. In their feedback definitions, we observe a shift from exemplification (pre-surveys) to abstraction as well as indications of a deepened understanding (post-surveys). In the post-survey definitions, the PTs commonly emphasized the main goal of feedback, which is helping others improve (N=21 in SC20), and listed several criteria for effective, motivational and supportive feedback. The coded passages for negative feedback decreased accordingly.

Besides outlining strengths and weaknesses, a third feedback dimension emerged in the SC20 post-survey definitions, which is giving recommendations. What is more, virtually everyone emphasized that feedback is “very important”. The explanations largely resembled those given by the SC19 participants, but rendered two correlations even clearer than before: On the one hand, feedback to learners aims to help learners improve (N=20), while feedback to teachers will help them improve their teaching (N=10). Finally, in the SC20 post-survey, the respondents appeared to be aware of a wider range of feedback forms, including digital or multimodal feedback methods (N=3).

The heightened awareness is also reflected by their digital self-assessments. The initial level of the PTs' self-assessed familiarity with digital learning methods started off higher each year, with an arithmetic mean of 2.22 in Vid18, 2.60 in SC19 and 2.64 in SC20. It increased to about 3.6 on a five-point Likert scale at the end of all courses. By comparison, the self-assessed familiarity with digital teaching methods was lower than for digital learning at course start, but likewise increased by almost exactly one point at course end in SC19 and SC20, and even by two points in Vid18 (see Table 1).

Presumably, the intervention was an important factor in that regard, as the paired samples t-tests revealed a highly significant difference between the pre- and post-surveys, with $p < 0.001$ in each cohort.

Table 1

Familiarity with Digital Learning and Teaching Methods at Course Start and End

| | Digital learning familiarity | | Digital teaching familiarity | |
|-------|-------------------------------------|-------------|-------------------------------------|-------------|
| | pre | post | pre | post |
| Vid18 | 2.22 | 3.56 | 1.67 | 3.67 |
| SC19 | 2.60 | 3.60 | 2.35 | 3.35 |
| SC20 | 2.64 | 3.57 | 2.25 | 3.29 |

The slightly lower initial score for digital teaching familiarity in the pre-survey of SC20 compared to SC19 might stem from the special circumstances during the time the data were collected. Everyone had experienced an abrupt shift to digital teaching at the beginning of the pandemic (ERT), which is why the actual familiarity with digital teaching was presumably rated a bit lower. Nevertheless, the similarities between SC19 (pre-pandemic) and SC20 (pandemic) are astonishing. There thus seems to be a fairly consistent effect of the intervention on PTs' self-assessed familiarity with digital learning and teaching methods, which is independent of the special circumstances arising from face-to-face and digital teaching.

The free-text responses complement the rating results. In the pre-pandemic pre-survey of SC19, for instance, we notice a much greater range of aspects relating to digital learning methods and digital teaching methods compared to Vid18. Prior to course start, most PTs in SC19 stated to have learned from videos or video tutorials (N=26), followed by online platforms (N=13). As for digital teaching, many respondents merely named specific hardware devices (such as laptops, tablets, projectors or smartboards) or software applications (e.g. Google Docs or PowerPoint presentations).

By contrast, recorded lectures (N=27) and live webmeetings (N=28) were the two most frequent categories for digital learning methods in the pandemic pre-survey of SC20. They had not been mentioned in previous years, which clearly had to do with the recent changes in educational practices as a result of the institutional lockdown caused by Covid-19. In addition, there were several further digital applications that had not been listed beforehand, such as quiz apps, online surveys, e-portfolios and digital storytelling. The experiences were thus more differentiated as compared to the foregoing years, but still rather limited. For instance, nobody had ever produced videos for teaching purposes prior to course start.

Similarly, in terms of course expectations, the number of codings for digitalization was discernibly higher in SC20 than before. Moreover, a new category emerged in which many respondents (N=11) explicitly highlighted the relevance of the seminar for their future profession owing to the importance of digital teaching they are currently experiencing and the general impact digital media have on students' lives. However, most of them were also interested in traditional feedback methods that they could implement in the future (N=20).

In the post-surveys, the PTs' reported learning gain complied with the course objectives, i.e. feedback and screencasting as well as its culmination in the creation of SCFB. Concerning feedback and screencasting, the PTs recognized a wide spectrum of additional applications, e.g. with regard to peer feedback or the creation of screencasts for instructional purposes.

Overall, the PTs' attitudes towards screencasting appeared to be more positive in the pandemic course SC20 than in the years before. While several SC19 participants doubted whether SCFB would be feasible for them in their future career, there appeared to be a shift from "hard to implement in my future job" to "in

line with digitalization”, the latter of which emerged as a new category in SC20. This definitely resulted from the special circumstances of the semester in which the need to move to digital teaching was most pressing due to Covid-19. To exemplify, S107-20 concluded that

It [the seminar] gave me a chance to look at a possible way of giving feedback from home, without talking to a student in a face-to-face conversation. I don't think that teaching, as we knew it, will come back after the pandemic is over. I believe that teaching will shift towards a mix of digital learning and education in schools.

4.2 RQ2: PTs' perceptions of the SCFB production process (production survey)

This section will investigate the PTs' production experience, mainly through a thematic analysis of their responses to the open-ended questions.

In Vid18, it was hard to identify patterns in the data due to the limited number of participants. By contrast, the responses in the pre-pandemic course SC19 led to three major and interrelated categories, i.e. affective aspects (N=23), manner of feedback provision (N=15) and use of software program (N=7). In SC20, they were likewise the most frequent ones, but also complemented by a few others. Affective factors comprised both positive (enjoyment and fun during video production) as well as critical aspects, notably the time-consuming nature of SCFB production. Especially the SC19 respondents therefore doubted whether SCFB would be feasible in their daily teaching, but only N=2 in SC20. However, many PTs acknowledged that they had become used to the SCFB procedure during the course already, specifically due to the user-friendly program. In S118-20's words,

At the beginning of this course I thought it would be much harder using the programme and I didn't like to hear my own voice, but afterwards I was proud of the result, even though it was not perfect.

The overall enjoyment score of the SCFB production process was 3.58 in SC19, which is similar to the mean of 3.67 in Vid18. In SC20, it was minimally higher, with M=3.68. The majority cited the increase in technological skills as a positive experience (N=35 out of 73 codings in SC19; N=66 out of 102 in SC20). Several were “surprised about [their] own ability to create a video” (S217-20) because they did not consider themselves technologically talented. In particular, the PTs described the video editor as user-friendly and stated that they liked working with it (N=54 out of 102 codings in SC20), also because of the creative freedom it offered (N=7 in SC20). Its multimodality was seen as advantageous for pointing out particular passages in the assignment (S016-19) and for modulating the voice as needed, e.g. to motivate the recipient (S020-19). In that regard, several PTs had been confronted with their own recorded voice and their pronunciation for the first time, which helped them reflect about its impact but also gave them more speaking practice (cf. S016-19). For example, S001-19 explicated that “[i]t was interesting to imagine oneself sitting on the other side as the audience, trying to imagine watching it for the first time and if it is understandable for the audience.” Moreover, some PTs felt that they had become more acquainted with academic standards due to the peer review activity (e.g. S022-19). In addition, a few PTs in SC20 ascertained that the suggested time limit of five to six minutes helped them set a focus in their feedback message. To exemplify, S213-20 explained that “the screencast video helped [her] to concentrate on the major points [she] wanted to refer to because the time was limited and because [she] did not want to overwhelm the feedback recipient.”

Simultaneously, the PTs conceded that the technology was new to them and therefore they considered it challenging. Some found it difficult to synchronize the verbal explanations and the screen actions, which either led to substantial editing or re-recordings. Despite this, virtually everyone was open towards producing screencasts in their future job, at least for specific purposes and if certain pre-conditions were met. Given the time investments (N=12 in SC19; N=13 in SC20), most PTs could not imagine the

regular provision of individual SCFB, but only for specialized purposes. To exemplify, they thought about creating generic SCFB for small groups (S003-19; S008-19) or for an entire class (S009-19), or else individualized feedback for a limited number of students only (S008-19; N=3 in SC20). This could be SCFB for older students (S119-20), for learners with special needs (S104-20), for shorter assignments (S012-19) or important projects (S015-19; S201-20; S208-20).

In addition, a new category emerged in SC20 that dealt with the conditioning factors related to the special situation they found themselves in:

Under special circumstances like we have now with the COVID-19 virus this is indeed a great way to interact with students and since most of them grow up with computers, there should not be any problems. (S208-20)

Moreover, S105-20 more generally said that screencasting was in line with the increasing digitalization. Still, it will and should not be a full replacement of face-to-face teaching, as four other PTs had pointed out (S108-20; S114-20; S203-20; S216-20). A combination of different feedback methods would therefore be the favored solution in their view (S209-20; S216-20). Further conditioning factors they cited were the preferred learning styles (S120-20) as well as the quality of the screencasts (S111-20; S202-20), which in turn requires certain competencies from the producers. As S202-20 noted,

it highly depends on a good structure and preparation of screencasts. For me personally, the most important aspect of screencasting is a solid pace when speaking, in connection to the right amount of appropriate feedback (not too much or too less).

Whether the PTs' first attempts at producing SCFB were successful from the recipients' perspective will be examined in the next section.

4.3 RQ3: PTs' perceptions of the received SCFB (reception survey and video analysis)

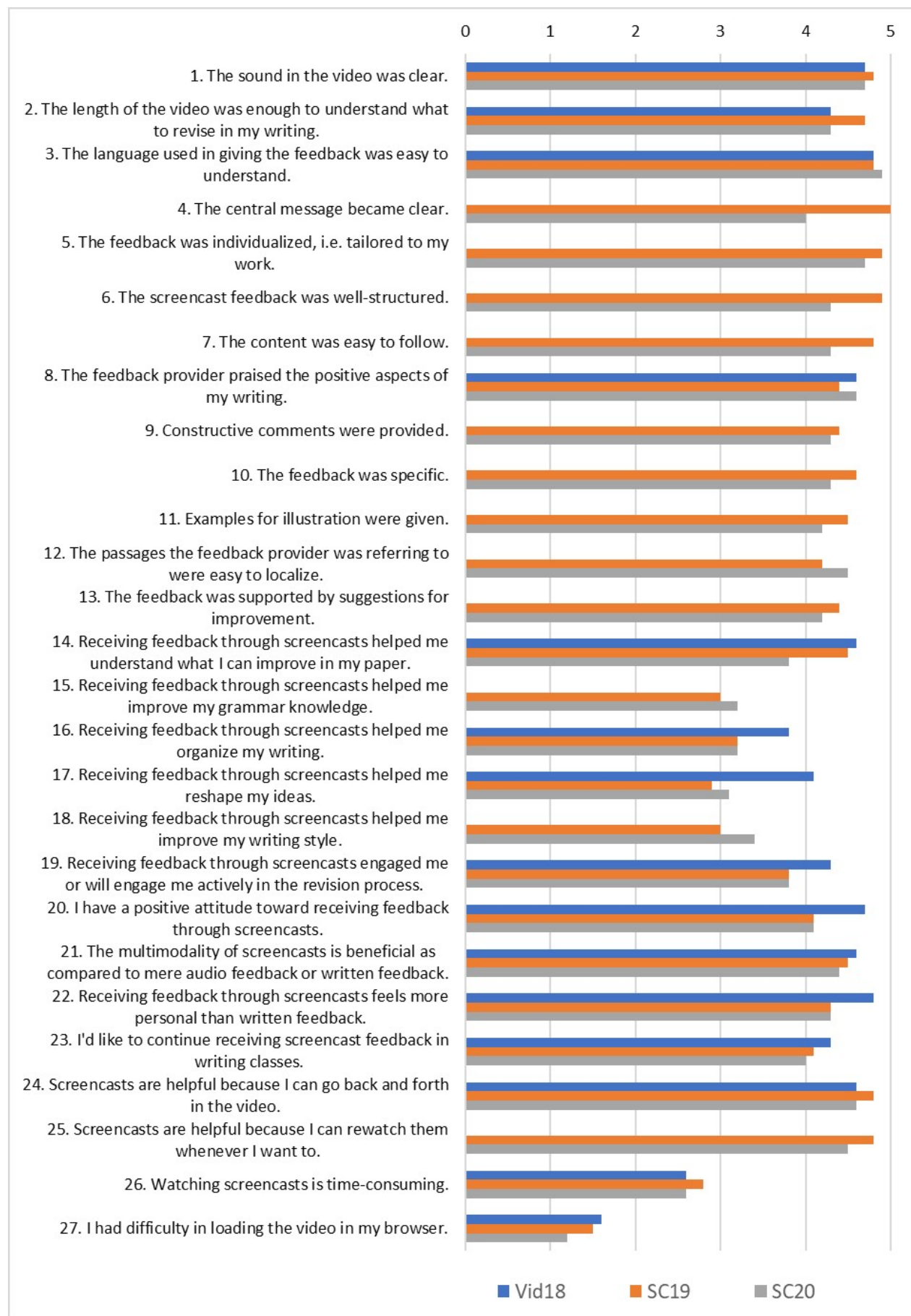
Indeed, from the reception perspective, the overall usefulness of the SCFB was confirmed by a mean of 4.1 on a 5-point Likert scale in SC19, similar to the mean of 4.3 in Vid18. The summed mean of all individual statements in SC20 likewise was 4.2, but the general usefulness was ranked at 3.5 only. In SC20, five PTs rated the overall usefulness as "slightly useful", which nobody had used beforehand (see also the drop for rating item #14). Two major reasons were given. First, the writers confessed that they had submitted an old paper and were already aware of the mistakes that their peer had identified (N=2). Second, they claimed that their peer was unaware of the specific paper requirements (N=3). This sometimes resulted in rather vague (S012-19) or unnecessary (S002-19) feedback comments in SC19 as well. Moreover, one pair in Vid19 criticized their peer's lacking knowledge about the topic (S009-18).

The wide majority, however, perceived the SCFB as helpful. In SC19, the following benefits of the received SCFB clearly stood out: the clarity of the conveyed message (M=5.0, statement #4), its personalized (M=4.9, statement #5) and well-structured nature (M=4.9, statement #6), the resultant ease of processing (M=4.8, statement #7) and understanding (M=4.8, statement #3) as well as other affordances coming from its multimodality (M=4.5 for statement #21) and asynchronicity (M=4.8 for statements #24 and #25). In SC20, the highest score (M=4.9) was given for the ease of understanding (#3), which was even higher than its mean in SC19.

Overall, the respondents in SC20 were slightly more critical, probably because of the high standards they pursued themselves, which is also reflected in the greater number of features they had incorporated in their videos. A comparison of all years and the ratings of the statements is visualized in Figure 4. In the online surveys, though, the different statements were clustered into smaller, thematically related sections and not presented as a long item battery.

Figure 4

Rating Results for Received Feedback in Vid18, SC19 and SC20



Finally, the low ratings for some peer videos might not necessarily be due to personal perceptions or contextual variables (such as submitting an old paper), but could likewise be indicative of shortcomings in the individual videos. All videos were therefore coded in terms of their structures, contents, visual strategies as well as selected auditory strategies.

Most PTs structured their video thematically, i.e. according to the assessment criteria, rather than going through the paper chronologically (e.g. S005-18). In that regard, feedback on form (273 codings) and language (249 codings) was more prevalent than feedback on content (119 codings). One major reason for this was that several peer assessors did not feel familiar enough with the paper's topic in order to give specific feedback about it. Some mentioned this in the video directly, while others adduced this reason in the surveys only.

Moreover, for most of the videos, the proportion of (specific) negative feedback (N=531 codings) was higher than for positive feedback (N=383). However, the negative feedback was mostly formulated in a constructive manner and comprised at least one recommendation (N=490) to help the peers improve further. Quite often, there also was an explanation given for the negative feedback (N=203) or an explanation for the recommendation (N=61). This might be the reason why most participants perceived the videos as helpful in the reception surveys.

In that regard, the utilization of visual and auditory strategies may have had an additional impact. Overall, a huge variety of different strategies was noted, some of which had been predominantly or exclusively used in SC20. For example, the PTs in SC20 utilized interactive buttons more frequently to direct the viewers to a particular resource, such as a website or manual with further explanations. Only two persons had utilized these buttons in SC19, but half of the participants in the SC20 pandemic course. On the other hand, explicit demonstrations, notably regarding formatting in the text editor or web searches, had occasionally been included in earlier years already (in two Vid18, three SC19 and eleven SC20 videos). However, the quality and usefulness of feedback videos is not automatically determined by the range of effects and strategies that are employed, but by their purposeful use. Experimental designs that test the impact of specific strategies would therefore be valuable to arrive at more precise conclusions.

5 Discussion

Teacher education plays a crucial role in developing the competencies that PTs need for their future profession (e.g. König et al., 2020). Due to changing circumstances, such as through the rapid transition to digital teaching during the Covid-19 pandemic (Hodges et al., 2020), the need for digital literacies, in particular digital feedback literacies, has become obvious (cf. Wildemann & Hosenfeld, 2020). The current project aimed to foster these competencies among PTs in the field of TESOL before and during the pandemic. This section will discuss the main findings in light of the previous literature and suggest implications for future work.

5.1 Response to research questions

This research aimed to explore and compare PTs' perceptions of feedback and digital methods in general as well as SCFB in particular. This comparison was two-fold: On the one hand, pre-, while- and post-data from an action research project were analyzed; on the other hand, data collected before and during the Covid-19 pandemic were compared. Overall, several commonalities were noted, but also some differences that can partly be attributed to the changed contextual conditions resulting from the sudden shift to remote teaching.

In response to RQ1, the analysis of the pre- and post-survey data revealed an increase in PTs' understanding of feedback and their self-assessed familiarity with digital learning and teaching methods.

Overall, there seemed to be a fairly consistent and highly significant effect of the intervention itself independent of the particular circumstances, i.e. teaching before or during the pandemic in face-to-face or digital modes, respectively ($p < 0.001$). In the pandemic course, though, many PTs stressed the heightened relevance of digitalization, which also had an impact on their openness towards SCFB. By contrast, the pre-pandemic participants more frequently doubted whether SCFB would be a realistic option for their daily teaching. Likewise, most prior research foregrounded the time-intense production of SCFB (Soden, 2017) while others emphasized the benefits for the learners (e.g. Ali, 2016).

In the study, the PTs experienced both perspectives. Regarding RQ2, the production was indeed often perceived as time-consuming, but also as enjoyable. The obstacles mainly centered on the initial time investments that can be overcome through regular practice (Kay et al., 2019). Some PTs even considered the voice recording positively, although prior work has identified this as a potential affective barrier to SCFB production (Soden, 2017). In the PTs' view, it helped them reflect on their own speaking style and reach greater clarity when communicating feedback.

The positive effects were confirmed by their own perception of the SCFB they received from their peer (RQ3). In particular, the PTs highlighted the clarity, comprehensibility and individualized nature of SCFB (Ali, 2016; Stannard, 2019). The perceived learning gain, however, varied, which could have resulted from situational circumstances, but also from the qualities of the SCFB videos themselves. These and other follow-up questions could be examined by future work, as will be outlined below.

5.2 Limitations and implications for future studies

In the current research, the PTs were free to try out different SCFB strategies to communicate feedback to their peer. The video analyses demonstrated a rich variety of possible SCFB structures and strategies, which, however, still need to be put to an empirical test regarding their effectiveness. Furthermore, while the peer SCFB approach proved useful for the present objectives, the PTs nevertheless need to practice digital feedback provision at schools. In that respect, the usefulness of SCFB for different assignment types should be examined more closely. Likewise, the current study was restricted to PTs in the field of English language teaching in Germany, but not in other disciplinary and geographical areas.

Moreover, it was limited to SCFB although there are several other digital feedback methods (pre-service) teachers should be aware of and competent in. Eventually, single feedback methods should not only be investigated in isolation, but also in combination with others (Schluer, 2022). Such combined approaches can be highly beneficial for the learners (Grigoryan, 2017; Séror, 2012), as also some participants have acknowledged. There are thus many research gaps that future studies can address, but also important implications for teaching practice, as will be shown next.

5.3 Implications for teaching practice

In the study, several PTs realized that feedback is not only essential for learners, but also for themselves as teachers because it might help them improve their teaching and thus the success of students' learning (cf. Hattie & Clarke, 2019). To gain more insights about the effects of the teaching and feedback practices, learners need to be able to give feedback as well. Teachers therefore play an important role as enablers of student feedback literacy (Carless, 2020). To accomplish this, they need to be competent in feedback provision themselves, including digital feedback methods.

However, during the pandemic, many educators felt challenged when they were required to move their teaching online. As exemplified by studies from Germany, teachers had mainly used digital media for the presentation of information, if at all (Eickelmann et al., 2019). Individualized feedback, by contrast, seemed to have been neglected or reduced to email only (Wildemann & Hosenfeld, 2020). Awareness of a broader repertoire of (digital) feedback methods therefore seems essential in order to

use it flexibly depending on learners' needs and situational factors (cf. [Schluer, 2022](#)). It is therefore crucial to develop *dynamic* digital feedback literacies among teachers and PTs, also because contextual conditions and technologies keep on changing. Such a dynamic conceptualization might be achieved through reflective practice as part of action research in teacher education and continuous professional development. Indeed, the present findings may point towards a greater "openness towards innovation" ([Rapanta et al., 2021](#), p. 716) as far as SCFB is concerned. The stepwise and reflective approach seemed to have developed the PTs' digital feedback literacies synergistically on the dimensions of technology use, pedagogy and content knowledge (see the TPACK model by [Koehler et al., 2013](#)) as well as on the affective dimension. The latter has to be considered as an important additional factor, especially when teachers are confronted with unforeseen changes in times of crisis ([Blume, 2020](#)). It is therefore recommended to introduce different digital feedback methods in a stepwise and systematic manner in pre-service teacher education as well as in-service teacher training and to investigate their implementation in actual teaching practice (cf. [König et al., 2020](#)).

6 Conclusion

Research has revealed that digital competencies among teachers are still very restricted, especially when it comes to the provision of technology-enhanced feedback for individual learner support ([Eickelmann & Drossel, 2020](#); [Wildemann & Hosenfeld, 2020](#)).

To raise teachers' awareness of and openness towards the alternatives that exist, pre-service teacher education and continuous professional development play a central role ([König et al., 2020](#); [Redecker & Punie, 2017](#)). By taking SCFB as an example, the current study used an action research approach to familiarize prospective TESOL practitioners with digital feedback. It gave them the chance to practically apply the skills as well as to reflect on their implementation. Even though the contexts had changed (i.e. from face-to-face to digital teacher education courses), there was a rather consistent effect of the intervention on the PTs' understanding of feedback and their self-assessed familiarity with digital learning and teaching methods. At the same time, the rapid shift to digital teaching at the beginning of the Covid-19 pandemic opened up new perspectives for the PTs. Beforehand, several of them feared that SCFB would be hardly feasible in their future job, whereas at the start of the pandemic, many PTs considered it as a valuable alternative that resonates with the heightened relevance of digitalization in education.

While the seminar concentrated on SCFB only, pre-service teacher education and continuous professional development for in-service teachers should likewise incorporate other digital feedback methods through a reflective approach that is closely intertwined with practice. This will help (pre-service) teachers to gradually develop their digital feedback literacies and to create optimal learning conditions for their students.

Note

1. The surveys are no longer accessible online, but can be made available upon request.

References

- Ali, A. D. (2016). Effectiveness of using screencast feedback on EFL students' writing and perception. *English Language Teaching*, 9(8), 106–121. <https://doi.org/10.5539/elt.v9n8p106>
- Blume, C. (2020). German teachers' digital habitus and their pandemic pedagogy. *Postdigital Science and Education*, 2(3), 879–905. <https://doi.org/10.1007/s42438-020-00174-9>

- Brandenburg, R., Glasswell, K., Jones, M., & Ryan, J. (Eds.). (2017). *Reflective theory and practice in teacher education. Self-Study of Teaching and Teacher Education Practices, Vol. 17*. Springer.
- Carless, D. (2020). From teacher transmission of information to student feedback literacy: Activating the learner role in feedback processes. *Active Learning in Higher Education, 43*(1), 1–11. <https://doi.org/10.1177/1469787420945845>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.
- Eickelmann, B., Bos, W., & Labusch, A. (2019). Die Studie ICILS 2018 im Überblick – Zentrale Ergebnisse und mögliche Entwicklungsperspektiven. In B. Eickelmann, W. Bos, J. Gerick, F. Goldhammer, H. Schaumburg, K. Schwippert, M. Senkbeil, & J. Vahrenhold (Eds.), *ICILS 2018 #Deutschland. Computer- und informationsbezogene Kompetenzen von Schülerinnen und Schülern im zweiten internationalen Vergleich und Kompetenzen im Bereich Computational Thinking* (pp. 7–31). Waxmann.
- Eickelmann, B. & Drossel, K. (2020). *Schule auf Distanz: Perspektiven und Empfehlungen für den neuen Schulalltag. Eine Befragung des Institut für Demoskopie Allensbach im Auftrag der Vodafone Stiftung Deutschland*. <https://www.vodafone-stiftung.de/umfrage-coronakrise-lehrer/>
- Fang, B. (2019). *Factors influencing faculty use of screencasting for feedback*. Doctoral Thesis, Abilene Christian University. <https://digitalcommons.acu.edu/cgi/viewcontent.cgi?article=1172&context=etd>.
- Flick, U. (2007). *Managing quality in qualitative research. The SAGE Qualitative Research Kit: Vol. 8*. Sage.
- Gibbs, G. R. (2007). *Analyzing qualitative data. The SAGE Qualitative Research Kit, Vol. 6*. Sage.
- Grigoryan, A. (2017). Audiovisual commentary as a way to reduce transactional distance and increase teaching presence in online writing instruction: Student perceptions and preferences. *Journal of Response to Writing, 3*(1), 83–128.
- Hattie, J., & Clarke, S. (2019). *Visible learning: Feedback*. Routledge.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112. <https://doi.org/10.3102/003465430298487>
- Hodges, C. B., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*.
- Kay, R., Petrarca, D., & Bahula, T. (2019). *Comparing the use of written and video feedback in pre-service teacher education: A case study*. Proceedings of the EduLearn19 Conference, 1-3 July 2019, Palma, Spain. <https://library.iated.org/view/KAY2019COM>
- Koehler, M. J., Mishra, P., & Cain, W. (2013). What is Technological Pedagogical Content Knowledge (TPACK)? *Journal of Education, 193*(3), 13–19.
- König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education, 43*(4), 608–622. <https://doi.org/10.1080/02619768.2020.1809650>
- Kuckartz, U. (2018). *Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung* (4th ed.). *Grundlagentexte Methoden*. Beltz Juventa.
- Kuckartz, U., & Rädiker, S. (2019). *Analyzing qualitative data with MAXQDA: Text, audio, and video*. Springer.
- Kultusministerkonferenz (2016). *Bildung in der digitalen Welt: Strategie der Kultusministerkonferenz. Beschluss der Kultusministerkonferenz vom 08.12.2016*. https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2016/2016_12_08-Bildung-in-der-digitalen-Welt.pdf

- Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, 2(4), 34–46. <https://doi.org/10.1111/j.1540-4560.1946.tb02295.x>
- Mayring, P. (2010). *Qualitative Inhaltsanalyse: Grundlagen und Techniken* (11th rev. ed.). Beltz.
- McTaggart, R. (1994). Participatory Action Research: Issues in theory and practice. *Educational Action Research*, 2(3), 313–337. <https://doi.org/10.1080/0965079940020302>
- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Molloy, E., Boud, D., & Henderson, M. (2019). Developing a learning-centred framework for feedback literacy. *Assessment & Evaluation in Higher Education*, 1–14. <https://doi.org/10.1080/02602938.2019.1667955>
- Monitor Lehrerbildung (2021). Lehrkräfte vom ersten Semester an für die digitale Welt qualifizieren: Policy Brief November 2021. https://www.monitor-lehrerbildung.de/export/sites/default/.content/Downloads/Monitor-Lehrerbildung_Digitale-Welt_Policy-Brief-2021.pdf
- Phillips, M., Ryan, T., & Henderson, M. (2017). A cross-disciplinary evaluation of digitally recorded feedback in higher education. In H. Partridge, K. Davis, & J. Thomas (Eds.), *Me, Us, IT! Proceedings ASCILITE2017* (pp. 364–371). University of Southern Queensland.
- Rädiker, S., & Kuckartz, U. (2020). *Analyzing open-ended survey questions with MAXQDA: Step-by-step*. MAXQDA Press.
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021). Balancing technology, pedagogy and the new normal: Post-pandemic challenges for higher education. *Postdigital Science and Education*, 3(3), 715–742. <https://doi.org/10.1007/s42438-021-00249-1>
- Redecker, C., & Punie, Y. (2017). *European Framework for the Digital Competence of Educators*. JRC Science for Policy Report. Publications Office of the European Union.
- Schluer, J. (2020). Individual learner support in digital ELT courses: Insights from teacher education. Special Issue: ELT in the Time of the Coronavirus 2020 (Part 2). *International Journal of TESOL Studies*, 2(3), 41–63. <https://doi.org/10.46451/ijts.2020.09.17>
- Schluer, J. (2022). *Digital feedback methods*. Narr Francke Attempto.
- Séror, J. (2012). Show me! Enhanced feedback through screencasting technology. *TESL Canada Journal/Revue TESL du Canada*, 30(1), 104–116.
- Soden, B. (2017). The case of screencast feedback: Barriers to the use of learning technology. *Innovative Practice in Higher Education*, 3(1), 1–21.
- Stannard, R. (2019). A review of screen capture technology feedback research. *Studia Universitatis Babeş-Bolyai Philologia*, 64(2), 61–72. <https://doi.org/10.24193/subbphilo.2019.2.05>
- Turner, W., & West, J. (2013). Assessment for “digital first language” speakers: Online video assessment and feedback in higher education. *International Journal of Teaching and Learning in Higher Education*, 25(3), 288–296.
- Wildemann, A. & Hosenfeld, I. (2020). Bundesweite Elternbefragung zu Homeschooling während der Covid 19-Pandemie: Erkenntnisse zur Umsetzung des Homeschoolings in Deutschland. https://www.zepf.eu/wp-content/uploads/2020/06/Bericht_HOMEschooling2020.pdf
- Wong, J. (2020a). ELT in the Time of the Coronavirus 2020 (Part 2): An Introduction. *International Journal of TESOL Studies*, 2(3), I–II. <https://doi.org/10.46451/ijts.2020.09.17>
- Wong, J. (2020b). ELT in the Time of the Coronavirus 2020: Introductory Remarks. *International Journal of TESOL Studies*, 2(2), 1–3. <https://doi.org/10.46451/ijts.2020.09.01>

Dr. Jennifer Schluer is an Assistant Professor for TESOL (Teaching English to Speakers of Other Languages)/ Advanced Academic English at Chemnitz University of Technology, Germany. She specializes in English language teacher education with a focus on digital teaching and digital feedback methods, academic writing and reading comprehension as well as language awareness, multilingualism and culture learning.