Guiding and Inspiring Teachers to Incorporate Feedback in Course and Task Design: An Interactive Feedback Taxonomy

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Abstract *In contemporary conceptualizations of feedback, teachers play a key role in developing pedagogical designs that facilitate student learning through feedback (Boud & Dawson, 2023; Carless & Winstone, 2023). However, practical guidance for teachers is scarce or often remains on a rather abstract level. The present chapter therefore introduces an interactive feedback taxonomy to guide and inspire teachers in the pedagogical planning process. It is based on a qualitative scoping review of 135 empirical studies (Brück-Hübner & Schluer, 2023) as well as relevant literature and practical experience in teacher education. The chapter outlines the seven main dimensions of the feedback taxonomy, along with reflective questions for their manifold design options. It can be consulted by pre- and in-service teachers, either individually or as part of curriculum planning courses or professional development workshops. Beyond pedagogical planning at the micro- or meso-level of single tasks or courses, it can also assist in curricular macro-level processes to transform or innovate existing feedback designs.*

Keywords *feedback; course design; pedagogical planning; professional development; feedback taxonomy*

1. Introduction

Recent years have seen a renewed interest in the teachers' role in feedback processes. Therein, teachers are considered as designers of educational environments that facilitate student learning through feedback (Boud & Dawson, 2023; Carless, 2022; Carless & Winstone, 2023). However, existing conceptual frameworks do not provide clear guidance for teachers to navigate the plethora of possibilities and "engage in pedagogical planning for their unique classroom environments" (Kaya-Capocci et al., 2022, p. 1). Based on a systematic review of the empirical literature (Brück-Hübner & Schluer, 2023), the present paper proposes an instrument to help teachers incorporate feedback procedures into their course and task design. More precisely, it presents an interactive website that

builds on and expands the feedback taxonomy that Brück-Hübner and Schluer (2023) derived from their qualitative scoping review of feedback studies in higher education. Since their review only covered journal articles from a limited time period and database, it also contained a few gaps which are now addressed by the expanded online version of the feedback taxonomy.

To lay a theoretical and conceptual foundation, the current chapter will explain central terms first and inspect existing teacher feedback literacy frameworks for curriculum planning and task design. While these models outline several competencies of feedback-literate teachers and contain general recommendations for pedagogical planning, teachers might face challenges in utilizing them for the incorporation of feedback processes in their courses. A feedback taxonomy will therefore be introduced that intends to inspire and guide teachers to transform the variety of pedagogical options into curriculum planning and task design. Rather than pre-determined options, it contains numerous reflective questions to stimulate critical thinking and creative design innovations. Finally, the chapter closes with suggestions for future studies and teaching practice.

2. Terminology and Literature Review

In this section, relevant key terms will briefly be defined before existing frameworks for pedagogical design will be reviewed from the lens of teacher feedback literacy.

2.1. Feedback Literacies

Current conceptualizations of feedback literacy emphasize the distinct but intertwined responsibilities of learners and teachers (Carless, 2022; Carless & Winstone, 2023; Nash & Winstone, 2017; Tai et al., 2023; Winstone & Carless, 2020). They place an emphasis on the active role that learners need to take throughout the feedback process, while teachers are responsible for adequate pedagogical designs. More precisely, **learner feedback literacy** is defined as the knowledge, dispositions (attitudes and willingness), strategies and capacities students need to seek, produce, understand and utilize feedback to enhance their learning (Carless & Boud, 2018, p. 1316). **Teacher feedback literacy**, in turn, "comprises design, relational and pragmatic aspects" (Carless, 2022, p. 145) needed to enable feedback processes which facilitate student uptake, including considerations of interpersonal, affective and contextual aspects (Carless & Winstone, 2023). This necessitates the negotiation of a shared understanding of the feedback concept, sufficient feedback opportunities, as well as teachers' support (guidance, modelling, coaching) throughout the feedback process (cf. Carless & Winstone, 2023, p. 152). Teachers thus create the conditions that would foster students' feedback literacy and their learning from the feedback. As Carless and Winstone (2023) put it, teacher feedback literacy is "the knowledge, expertise and dispositions to design feedback processes in ways which enable student uptake of feedback and seed the development of student feedback literacy" (p. 153).

2.2. Pedagogical Design

As we have seen above, pedagogical design is an important dimension of teachers' feedback literacy (Carless & Winstone, 2023; Winstone & Carless, 2020). In general, **pedagogical design** refers to the process and product of creating teaching and learning environments that support student learning. It encompasses various systematic choices as part of curriculum planning, course design, task design, and materials development. In that respect, it emphasizes the use of instructional strategies that consider the needs of the students to facilitate meaningful and engaging learning experiences. Zooming in on pedagogical design as a central dimension of teacher feedback literacy, Carless and Winstone (2023) highlight educators' ability to

(1) "Design curriculum and assessment sequences to encourage student generation and uptake of feedback;
(2) Support students in making judgments about their own work and that of others, through activities such as peer feedback and evaluating exemplars;
(3) Use timely guidance and intrinsic feedback to make expectations clear and avoid the problem of post-task feedback coming too late for student uptake;
(4) Deploy technology, as appropriate, to facilitate feedback engagement and uptake." (p. 154)

There are also more exhaustive lists of suggested practices by Winstone and Carless (2020, p. 170) or in the review article by Boud and Dawson (2023). While they comprise several important facets, teachers might have difficulty in enacting them, since learning objectives and classrooms vary to a considerable extent. What, then, is meant by an "appropriate" design of courses and tasks that facilitate students' active engagement in the feedback process? Clearly, such a pedagogical design requires a consideration of different variables and their interrelationships. First and foremost, these include the learning objectives, the learners as well as the learning activities (and their sequencing) to reach the learning goals. The concertation of regular and appropriate feedback opportunities should be granted by taking into account social, affective, communicative as well as the technological dimensions.

Crucially, feedback should not be a singular and isolated event, but an integral part of curriculum design in which multiple and multidirectional feedback opportunities are enabled (Boud & Molloy, 2013, pp. 699–700). Feedback therefore needs to be "designed into learning processes from the outset" of curriculum planning (Winstone & Carless, 2020, p. 9). Therein, student agency should be fostered and foregrounded through "ongoing cycles" of feedback and learning, through which students progressively build their skills in judging and improving the quality of their work (Winstone & Carless, 2020, p. 94). In other words, "the design of multiple, sequential, and nested tasks, where comments on students' work can be applied to future tasks and learning opportunities" is "[f]undamental to [such] a curriculum approach to feedback" (Winstone & Carless, 2020, p. 9).

Boud and Dawson (2023) refined and reorganized Carless and Winstone's (2023) three dimensions into micro-, meso-, and macro-levels within their "Teacher Feedback

Literacy Competency Framework" as follows: (1) macro-level: program design and development; (2) meso-level: course module/unit design and implementation; (3) micro-level: feedback practices relating to individual student assignments (p. 161). These three layers are intertwined and collectively address various aspects of curriculum development, course design, and lesson planning.

Competence area (1), i.e. the macro-level, stresses the need to plan feedback opportunities strategically on a wider scale, i.e. beyond individual assessment tasks (Boud & Dawson, 2023, p. 161). For example, this could refer to systematic feedback designs stretching across course units or even across modules within or beyond specific degree programs (see chapter 2 on course redesign by Schluer in this volume). Clearly, this requires concerted efforts among colleagues as well as with the responsible managerial boards and policymakers, especially when several subject disciplines are involved. In contrast to changes in single courses, such an overarching endeavor promises to strategically build learners' feedback literacy throughout their studies. This way, repetitions of foundational feedback trainings can be avoided, while giving more room to explorations of a variety of feedback procedures throughout the curriculum (cf. Winstone & Carless, 2020, p. 167: "Connectivity of learning across modules"). Moreover, human and technological resources would be pooled effectively, leading to a reduction of individual teachers' investments (Boud & Dawson, 2023, pp. 161–162). Furthermore, the exchange with colleagues could be enriching, motivating and inspiring for teachers and encourage dialogue across disciplines (cf. Boud & Dawson, 2023, p. 162; see the transfer fellowship by Schluer & Meier, 2024). On the other hand, it not only requires long-term preparatory planning, but also regular monitoring and revisions concerning the suitability of the (cross-)curricular feedback design. Overall, however, such wider-scale planning could help to make feedback a more natural part of learning and teaching as well as lead to a deeper understanding of the feedback construct and contents.

Zooming in a bit further, competence area (2) addresses the organization of feedback events at the meso-level, i.e. within a course or course unit. Therein, the sequencing of tasks and feedback processes becomes crucial. Ideally, there will be a continuous and multidirectional feedback dialogue in the course, with feedback from one task being useful for students' work on the subsequent task and so on (Boud & Dawson, 2023, pp. 164–165; Winstone & Carless, 2020, p. 79). In addition, learners' feedback skills will be developed progressively, e.g. by becoming more familiar with assessment criteria and by becoming confident in peer-feedback, self-feedback, and student-to-teacher feedback. In that respect, they can try out and discuss the use of different modes of feedback delivery for specific learning objectives and task types (e.g. Schluer, 2023b; Schluer, in prep.; Liu, chapter 3 in this volume). Crucially, teachers should design their courses in a way that fosters students' active engagement through all stages of the feedback process, from feedback requests to feedback provision and feedback utilization (cf. Winstone & Carless, 2020, pp. 97–114, 170, 185). Learners could co-create success criteria and feedback guidelines (p. 81), but also contribute by suggesting additional (digital) tools for feedback exchanges (see social media chapter 12 by Schluer in this volume). Moreover, teachers might encourage students to utilize additional feedback sources beyond the confines of the course, e.g. by consulting learning advisors (Boud & Dawson, 2023, p. 166), internet resources or AI tools (see chapters 16 and 17 by Schluer in this volume). If available,

educators could activate learning analytics on the course platform so that students can trace and reflect on their development (cf. Boud & Dawson, 2023, p. 166). As suggested by Winstone and Carless (2020), learning analytics dashboards might usefully "be combined with e-portfolios, to enable students to curate artefacts and feedback that chart their learning journey" (p. 63; see also Winstone & Carless, 2020, p. 48, ch. 4, and Schluer, 2022, pp. 222–223, on the idea of digital feedback portfolios).

Finally, at the micro-level, competence area (3) is devoted to individual students' needs at particular points in time (Boud & Dawson, 2023, p. 166). For this, teachers (and students) require diagnostic skills to fine-tune their comments (Boud & Dawson, 2023, p. 166) and scaffold the learning process within the learners' zone of proximal development (Vygotsky, 1978). As Boud and Dawson (2023, p. 166) explain, it is about making the feedback not only "useful" but also "usable" for the student. This also relates to decisions about the feedback modality and technology used (Boud & Dawson, 2023, p. 166). Such an individual differentiation can be time-consuming, but there might also be certain fits between task types and feedback modes (see "Contexts of Use" pages on the "Digital Feedback Map" by Schluer, 2023a: https://tinyurl.com/DigitalFeedbackOverview).

Altogether, it becomes evident that teachers play an important role in carefully crafting and coordinating feedback events in the classroom and curriculum. In contrast to previous beliefs, they are not simply responsible for delivering feedback comments to the learners, but for creating feedback designs that foster and enable learners' active participation in feedback seeking, feedback provision and feedback use (cf. Boud & Molloy, 2013; Winstone & Carless, 2020). In view of the multi-faceted pedagogical possibilities, some practical guidance would be helpful that educators can consult to gain orientation and inspiration about potential feedback designs. As a complement to the "Digital Feedback Map" (DFM; available at https://tinyurl.com/DigitalFeedbackOverview) that only centered on digital feedback designs, a meta-map was created as a follow-up to the DFM project by Schluer (2023a). This meta-map also builds on the feedback taxonomy that was derived by Brück-Hübner and Schluer (2023) through a qualitative content analysis of existing feedback research. Previous and current work on feedback taxonomies will therefore be briefly reviewed next.

2.3. Feedback Taxonomies and Educational Frameworks

Taxonomies are classification systems that help to structure the manifold dimensions of a phenomenon (see the review by Brück-Hübner & Schluer, 2023, p. 128). They serve several functions, e.g. to provide information and guidance, and also help to advance theorization about a topic as well as to encourage innovation in teaching practice (cf. e.g. Baumgartner, 2006; 2012).

One of the most popular taxonomies in educational contexts is Bloom et al.'s (1956) taxonomy of learning outcomes (Anderson et al., 2001). It concentrates on the cognitive domain of learning and distinguishes between six dimensions of increasing cognitive complexity: knowledge, comprehension, application, analysis, synthesis, evaluation. Affective, relational, and contextual variables that shape the learning process are, however, largely ignored in this taxonomy. Contemporary guidelines for course design, such as the

Qualifications Framework for Higher Education Degrees in Germany (Bartosch & Hiller, 2017), therefore highlight four competencies that should be fostered in higher education, i.e. knowledge and understanding; application, utilization and generation of knowledge; communication and cooperation; and scientific self-understanding/ professionalism.

Moreover, in recent years, the so-called "Future Skills" have become a buzzword in the educational discourse (see Stifterverband für die Deutsche Wissenschaft, 2021). They comprise an array of 21 competencies that are categorized into "classical competencies", such as intercultural communication, creativity, problem-solving and resilience, "technological competencies" (e.g. knowledge about data analytics and AI), "digital key competencies" required for participation in a digitalized world, and "transformative" competencies to help resolve societal challenges (Stifterverband für die Deutsche Wissenschaft, 2021). For the latter, skills in change management are essential, such as setting goals, making informed judgments, and generating (innovative) solutions, paired with interpersonal skills in managing dialogues and conflicts. Similarly, the OECD Learning Compass 2030 (OECD, 2018) foregrounds transformative competencies and thereby emphasizes learner agency and co-agency as key elements. Altogether, these frameworks build on the "4Cs of Education", which are "critical thinking and problem solving", "creativity and innovation", "communication" and "collaboration" (Trilling & Fadel, 2009). Teachers and educators can help to develop many of these skills by creating pedagogical designs that resonate with contemporary conceptualizations of feedback literacy.

Existing frameworks of the feedback process, however, mostly concentrate on individual aspects of the complex construct, including learner or teacher competencies, characteristics of the feedback message, interpersonal dimensions, or sociomaterial factors of the learning environment (see the review by Schluer & Brück-Hübner, 2024, p. 2). Others, such as the MISCA model (Lipnevich & Panadero, 2021; Panadero & Lipnevich, 2022), organize the complexity into superordinate dimensions, i.e. the feedback message (M), implementation (I), student (S), context (C) as well as the (inter-)actions of all agents in the feedback process (A). However, many of these models and frameworks might be too static, abstract or general for educators who seek explicit advice for creating pedagogical feedback designs (cf. Kaya-Capocci et al., 2022, p. 1). Thus, to assist teachers in this process, a taxonomy is still missing that mirrors and organizes the diversity of feedback designs. Brück-Hübner and Schluer (2023) therefore conducted a qualitative content-analytical scoping review to create a comprehensive taxonomy which aims to facilitate a systematic and differentiated description of didactic feedback designs and could likewise inspire future research studies and teaching practice.

3. Methodology

Faced with the plurality of possible pedagogical scenarios, teachers might need guidance and inspiration for the development of adequate feedback designs in their curriculum planning and course as well as task design. To obtain an overview of existing feedback practices, Brück-Hübner and Schluer (2023) as well as Schluer and Brück-Hübner (2024) conducted a review of published feedback interventions in higher education. More precisely, the authors applied a qualitative scoping review to identify the breadth of peda-

gogical feedback designs in existing research (Grant & Booth, 2009, p. 101). Throughout this process, they paid close attention to potentially differing conceptual understandings of feedback practices. While doing so, they followed the principles of qualitative content analysis by Kuckartz (2016) as well as Gläser and Laudel (2010) to explore the terrain in an open manner.

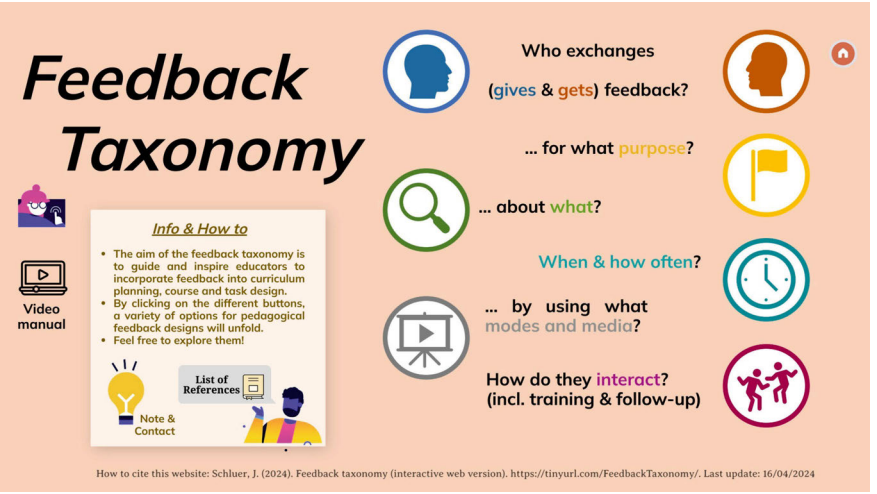
In conducting this scoping review, Brück-Hübner and Schluer (2023) examined 1,134 peer-reviewed journal articles that were published in English between January 2018 and July 2022 and were freely accessible in the ERIC database. The authors screened the abstracts to ensure that the articles dealt with intervention studies about feedback in higher education. While this already caused a reduction to 202 studies, the subsequent detailed scrutiny of the methodological sections of these articles revealed another criterion for exclusion, i.e. a lacking description of feedback practices. Consequently, 135 studies remained, whose methodological sections were manually coded in a software program for qualitative data analysis, i.e. MAXQDA 2022. After the initial coding, Brück-Hübner and Schluer (2023) consensually structured the codes into a category system (the feedback taxonomy), which eventually comprised seven main categories and around 250 subcategories (for details see Schluer & Brück-Hübner, 2024). From a practical perspective, these categories serve to answer key questions of pedagogical feedback designs.

Building on the initial findings by Brück-Hübner and Schluer (2023) as well as Schluer and Brück-Hübner (2024), the present chapter seeks to describe and interpret the dimensions of the feedback taxonomy from the practical perspective of pedagogical design. For this purpose, I transformed the category system into an interactive map which is publicly accessible via the following link: https://tinyurl.com/FeedbackTaxonomyEN (Schluer, 2024). Like the originally derived classification, the interactive website is meant to be understood as an open system that can be expanded by new developments. In fact, the website already contains several subdimensions that had not been included in the limited number of studies reviewed by Brück-Hübner and Schluer (2023). Notably, videoconferences were almost entirely absent in the reviewed papers even though they had turned into a popular medium for feedback exchanges since the Covid-19 pandemic (Brück-Hübner & Schluer, 2023). Moreover, Brück-Hübner and Schluer (2023) noticed that the initially retrieved but eventually discarded studies showcased further instantiations of feedback directions, e.g. peer feedback among teachers (Kanuka & Sadowski, 2020), or feedback by workplace practitioners to university students (Vencille et al., 2021). However, these publications had to be excluded from the final list of 135 studies because they did not meet all criteria for inclusion. Another difference to the original taxonomy is that the category labels were transformed into reflective questions to meet teachers' needs. The use of guiding questions is meant to facilitate the navigation of the interactive map and resonates with the idea of creative exploration and innovation. The contents of this expanded feedback taxonomy will be introduced in the following section.

4. Contents of the Interactive Feedback Taxonomy

Altogether, the feedback taxonomy by Brück-Hübner and Schluer (2023) comprised seven categories, which were transformed into guiding questions for teachers who plan to (re-)design their courses through feedback processes. The seven categories are represented by unique symbols, as illustrated in Figure 1.

Figure 1: The Seven Categories and Guiding Questions of the Feedback Taxonomy



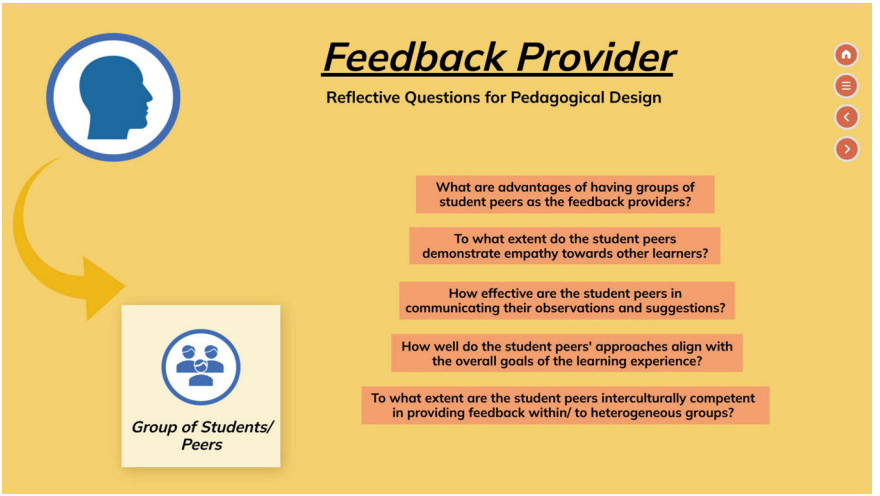
In the next sections, more detailed information about each category will be given.

4.1. Questions about Feedback Provision

Based on Brück-Hübner and Schluer's (2023) review, the feedback provider category unfolds into four subdimensions and guiding questions, respectively. The first question is "Who gives feedback?". For this, the review yielded nine possibilities: teacher, mentor, tutor, student peer, learner, self, supervisor/ external expert, affinity group, or technology/ system (for details see Schluer & Brück-Hübner, 2024, pp. 5–6). Moreover, the categories "teacher", "student peer" and "learner" can be further subdivided into "single" or "group", e.g. "a single student peer" or "a group of student peers". In addition, technology-based feedback comprises subcategories such as "Student Response Systems", "Automated Correction Systems", "AI, Intelligent Tutor, Bot".

The next question is "Which status do the feedback providers have?". In peer scenarios, the feedback providers can have the same or higher levels, e.g. with regard to knowledge in a particular subject field, language proficiency or strategy use. Furthermore, groups of learners can consist of current students and/ or alumni. Some sample questions are provided in Figure 2.

Figure 2: Reflective Questions for Groups of Students as Feedback Providers

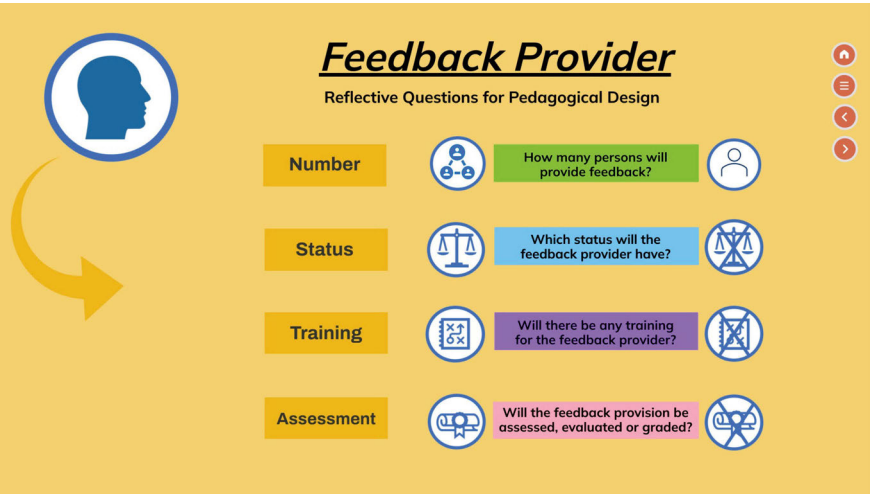


The third question is "Is there any training for the feedback providers?". In that respect, feedback givers might be "trained" or "not trained." In fact, however, this subdimension is gradual rather than dichotomous in nature. The review of studies by Brück-Hübner and Schluer (2023) showed that there can also be substantial differences with regard to the scope, design and intensity of the feedback training sessions. To exemplify, students might receive a training prior to the feedback session or additional coaching during the feedback activity. They could co-construct assessment criteria together with the peers and the teacher, or they are requested to follow guidelines set by the teacher. Concerning the mode, training might be limited to the provision of a handout or could occur via "peer feedback screencast training sessions" (Irwin, 2019, p. 466) or in face-to-face meetings (Waleed Daweli, 2018, p. 273). Thus, questions of medium and mode (see category 5) as well as frequency and intensity (cf. category 6) are also relevant for the training phase, not just to the actual feedback provision. Consequently, further questions to be addressed in this category are "To what extent are the feedback providers trained, and in what ways does the feedback training occur?"

Finally, the last question in this category is whether the quality of feedback provision is assessed, evaluated, or graded in the educational setting. This question turned out to be particularly relevant for students as feedback producers, either in peer feedback or self-feedback scenarios. In the first place, the answer to this question is either yes ("assessed/ graded") or no ("not assessed/ graded"). Upon closer examination, there can be further differentiation, e.g. whether the evaluation is simply part of feedback training or whether (and to what percentage) it counts towards the final grade in a seminar.

A summary of these four major access points is depicted in Figure 3 and is likewise offered for other categories of the interactive feedback taxonomy.

Figure 3: Four General Considerations for Pedagogical Design for Feedback Provision



It should be noted that the background color of the pages as well as the colors of the symbols change with each major category for easier navigation and recognizability.

4.2. Questions about Feedback Reception

The second category centers on the question "Who receives feedback?". In theory and practice, design options similar to those for the first question are plausible. However, the review yielded a somewhat divergent picture. The answers to this question were teacher, student peer, learner, self, external expert, study program coordinators, and fictional person (Schluer & Brück-Hübner, 2024, p. 6). Two new categories thus emerged (study program coordinators and fictional person), whereas "affinity group" and "technology/system" were not mentioned. However, feedback to a system is possible, e.g. feedback about the quality of responses an AI bot provides (see chapter 16 by Schluer in this volume). In addition, the feedback recipients can be single students, peers or teachers, or groups.

Secondly, feedback recipients can be further categorized according to their training status. In that regard, the following question can be asked: "Is there any training for the feedback recipients?". This category might be specified further by asking "to what extent are the feedback recipients trained and in what ways does the feedback training occur?" For example, are guiding questions provided by the teacher to help learners reflect on the feedback and clarify their understanding of it, or are sample action plans issued to the students to guide them in their self-regulated learning endeavor? How much time is devoted to the feedback training?

Another question relates to the ways in which the feedback reception is assessed (or not). Commonly, the comprehension of the feedback is deduced from revisions of the assignments or from action plans that are set up. These contemplations intersect with question 7 and are therefore part of that category (see below for details).

4.3. Questions about Feedback Content

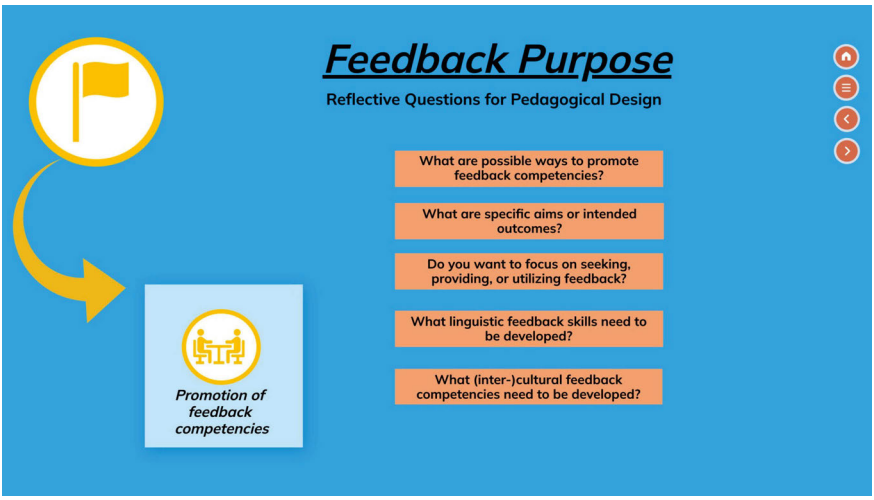
The third category of the feedback taxonomy is "Feedback content". In the first place, the following question can be asked: "What does the feedback refer to?" Three categories emerged in response to this question, i.e. "product", "process", and "course/university experience". For each of them, several options are conceivable (see Schluer & Brück-Hübner, 2024, pp. 6–7, for details). For products, they pertain to the medium and task type, e.g. written, oral or multimedia (see also section 4.5). With regard to processes, the feedback might refer to individual or collaborative work. The assessment could be focused on certain criteria or address several of them, e.g. "structure", "content", "language and style", "formalities (e.g. citation, layout)" and "originality/creativity". Furthermore, the feedback on "courses/university experience" may occur in a standardized manner via evaluation surveys or via various formative procedures (see also section 4.6 about feedback timing). It can relate to questions about the course structure and contents, the student interaction and course management as well as to characteristics of the hybrid, online or on-site environment. Decisions about the feedback content are to a large extent conditioned by the purpose of the feedback, which will be dealt with next.

4.4. Questions about Feedback Purpose

For any feedback design, the objective of feedback provision is pivotal. As a response to the question "What is the purpose of the feedback?", the scoping review yielded the following options: "correction", "learning support", "motivation/ encouragement of the attitude", "activation", "promotion of feedback competencies", "improvement of the (feedback) methodology/training", "improvement of teaching/ teaching skills", "study program evaluation/accreditation", "collection of information" and lastly "increase of transparency/comprehensibility of assessment" (see Brück-Hübner & Schluer, 2023; Schluer & Brück-Hübner, 2024, p. 7). To avoid overloading the feedback recipients and sustain their motivation, a clearly defined purpose is recommended, which should also be mirrored in the actual feedback contents and assessment criteria (see category 3). In that regard, the web version of the feedback taxonomy offers numerous guiding questions for educators. For instance, when the promotion of feedback competencies constitutes the purpose of the feedback, the reflective questions listed in Figure 4 might prove useful.

Likewise, for many of the other above-listed purposes, finer distinctions can be made, e.g. "What is the specific purpose of correction?" or "In what ways should the feedback recipient be motivated?" Often, several purposes apply at once, which, however, might not be immediately discernible for the feedback recipient. In that respect, the mode and style of feedback delivery is influential, as will be pointed out in the next paragraph.

Figure 4: Reflective Questions for Fostering Feedback Competencies



4.5. Questions about Feedback Media and Modes

This category encompasses the manner, media and modes through which feedback exchanges take place. They are captured by the overarching question "How is feedback exchanged?".

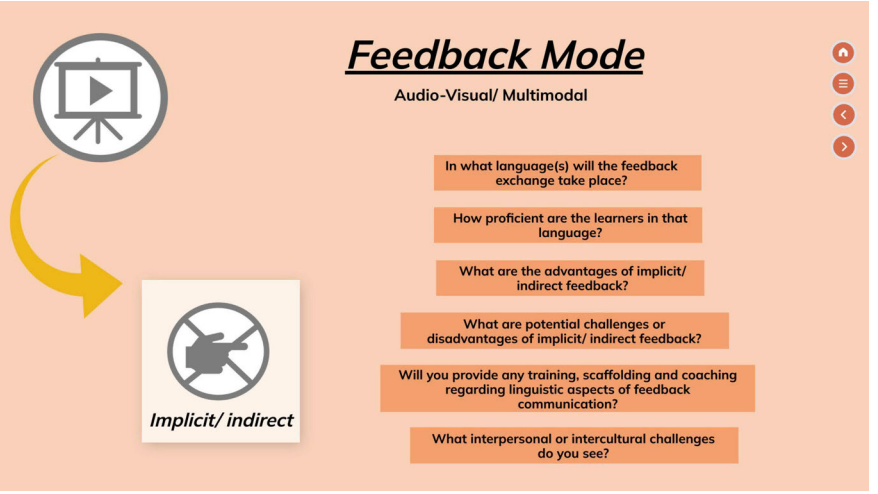
The feedback mode can be "written/visual", "oral/audio", and "audio-visual/multimodal". Each of them unfolds into numerous subtypes, depending on the chosen media and tools. For example, "written/visual feedback" could be written comments on a paper (e.g. on the task solution/document, separate document/handout/sheet) or shared in a variety of electronic ways, e.g. in an e-mail (text or attachment), chat message (e.g. on learning platform or instant messenger), posting/comment (on social media, blog/e-portfolio, or forum), or in a correction/evaluation software (e.g. autocorrection program, evaluation/assessment software, tutoring software) (for further elaboration see Schluer & Brück-Hübner, 2024, p. 8).

Since the feedback taxonomy also incorporates non-digital feedback methods, it serves as a supplement to the "Digital Feedback Map" (DFM), which is exclusively devoted to digital feedback exchanges (Schluer, 2023a: https://tinyurl.com/DigitalFeedbackOverview). On the other hand, the DFM contains more details than the feedback taxonomy, e.g. with regard to videoconference feedback and digital feedback portfolios that were not examined in the reviewed studies by Brück-Hübner and Schluer (2023).

Often, the chosen media, tools and modes affect the manner in which feedback exchanges occur, e.g. whether they can be conducted asynchronously and/or synchronously. Also, some might afford anonymous commenting whereas others do not. Teachers therefore have to carefully consider their affordances and limitations when planning feedback exchanges in the classroom (see also Schluer, 2022). Beyond that, they need to reflect on the impact of the language(s) and (in)directness of the feedback, especially in multilingual or foreign language classrooms. To this end, the screenshot

in Figure 5 lists a few relevant aspects to encourage further reflection by teachers and dialogue with the learners.

Figure 5: Reflective Questions about the Language(s) and (In)directness of Feedback Exchanges



4.6. Questions about Feedback Timing and Frequency

In this category, a major distinction is made between "formative" feedback on the one hand and "summative" feedback on the other hand. Formative feedback means that feedback is provided during a task, e.g. on a draft that learners have submitted, whereas summative feedback is given at the end of a process or task, e.g. during a final class test or course evaluation (e.g. Boraie, 2018, p. 1; see the review by Schluer, 2022, pp. 17–18). Especially the frequency and timing of formative feedback can vary considerably, which in turn will have implications for the learning process and its outcomes. Possible guiding questions included in the web version of the feedback taxonomy are as follows:

- How often is feedback exchanged?
- What might be the optimal timing for feedback, considering factors such as the nature of the task, learner proficiency, and learning objectives?
- Will you combine formative and summative feedback, and if so in what ways?
- What are the advantages of having a time delay, and what are the disadvantages?
- How long is the time delay? What implications does it have?

4.7. Questions about Feedback (Inter)actions

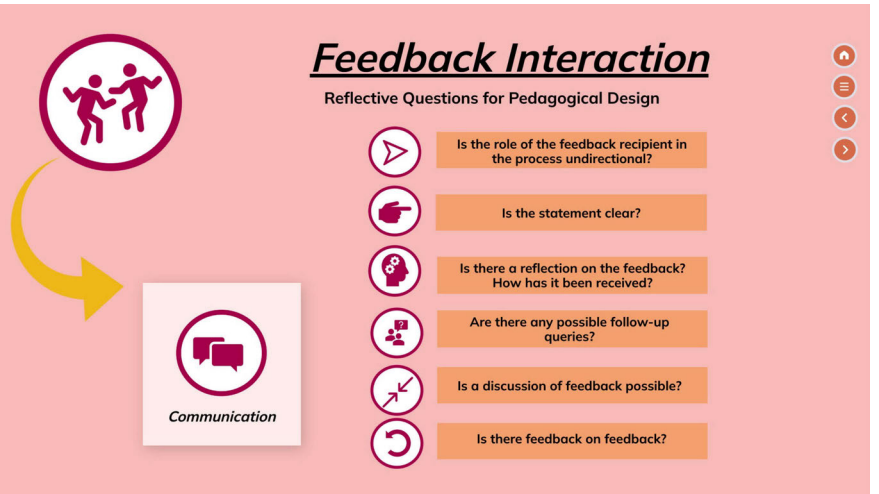
Apart from the feedback event itself, the actions and interactions occurring before or after it hold significant importance in the planning of feedback processes (Schluer & Brück-Hübner, 2024, p. 9). In Brück-Hübner and Schluer's (2023) review of studies, the category mainly centered on the role of the feedback recipient ("What is the role of the

feedback recipient in the process?"). However, in the web version, the interconnected responsibilities of the feedback providers and recipients are considered, as exemplified by the following reflective questions:

- Initiation phase: To start a feedback dialogue, what are possible ways to request feedback, and from whom?
- Communication phase: During the feedback exchange, how could providers and recipients interact?
- Follow-up/ Revision phase: After the reception of feedback, how could you encourage learners to interact with the feedback and with the feedback provider?
- All phases: How could you support the learners during all these stages? What resources and instructions might be beneficial?

For each phase, there are several options, enabling or restricting possible interactions between feedback providers and recipients. For illustration, Figure 6 gives some food for thought regarding the communication of the feedback.

Figure 6: Reflective Questions for the Communication Phase of Feedback Exchanges



Certainly, different media and tools could be utilized for each phase, which again instantiates the manifold interrelations between the categories. To give an example, portfolio tasks could be seen as "natural sites for feedback dialogues" (Winstone & Carless, 2020, p. 88, based on Esterhazy, & Damșa, 2019), i.e. the communication phase is likely to occupy a central position in the pedagogical feedback design. Further relations are still to be explored, for which the feedback taxonomy might provide inspiration. Possible implications for future research and teaching practice will therefore be discussed next.

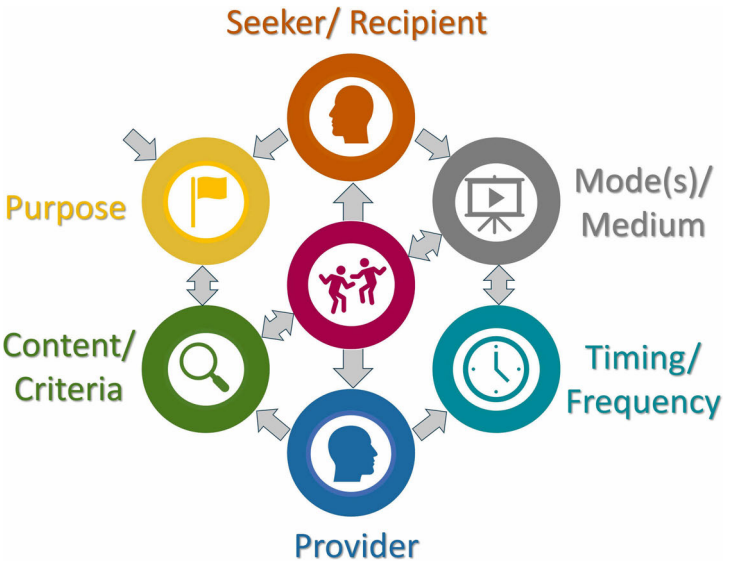
5. Discussion

The foregoing sections have highlighted the importance of pedagogical planning and presented a feedback taxonomy that can assist teachers in that regard. This section will discuss potential uses of the interactive feedback taxonomy in teaching contexts and identify avenues for future research.

5.1. Use of the Interactive Feedback Taxonomy in Teaching Contexts

By consulting the interactive feedback taxonomy, pre- and in-service teachers can gain inspiration and guidance for (re-)designing feedback processes at micro-, meso- and macro-levels. Each of the seven main dimensions can be accessed flexibly, i.e. the above order of questions is by no means binding. As the purpose of the feedback and the learner are considered primary for pedagogical design, educators and (prospective) teachers could start with the feedback purpose and then navigate to the other dimensions (cf. Schluer, 2023b, p. 8). This procedure is visualized in Figure 7.

Figure 7: Feedback Design Cycle



The figure only illustrates some of the manifold interconnections between the different design dimensions that should be considered in the planning of feedback activities. To modify existing feedback designs, it might be sufficient to consult only one dimension and identify alternative options. Quite often, however, changes in one parameter are likely to necessitate adjustments on other dimensions as well. To exemplify, a modification in the medium and (digital) tool might have a direct influence on the feedback timing (on the asynchronous – synchronous continuum) as well as the (possible) interactions of the feedback providers and recipients and could thus require additional training

for them. Therefore, the (possible) impact on other dimensions should be reflected and assessed as part of the entire feedback process.

Crucially, teachers could explore the feedback taxonomy in dialogue with their learners to create more student-centered feedback designs (cf. Winstone & Carless, 2020, p. 175) and prepare them for peer feedback activities. This participatory approach can also help to critically question established modes, instruments and structures of communication by being open to negotiating new norms of interaction (Schluer et al., 2023). In that respect, word choices such as "provide" and "receive" deserve critical reflection, as they might not sufficiently represent the interactive nature of feedback exchanges. Likewise, the feedback taxonomy can help to overcome the exclusive association of feedback with correction, as it raises awareness of the multifaceted purposes feedback can serve. As such, a pedagogically embedded utilization and discussion of the feedback taxonomy could assist (pre-service) teachers in developing novel feedback designs which empower learners and enact a contemporary understanding of feedback as an ongoing dialogue about learning (cf. Winstone & Carless, 2020, p. 175).

In teacher education, the feedback taxonomy can thus be particularly valuable in curriculum planning courses where pre-service teachers learn to design courses, lessons, and tasks. From summer term 2024 onwards, it has therefore been implemented in the TESOL program as part of the "Curriculum Planning & Materials Development" course (see chapter 2 by Schluer in this volume). Also, with its link to the "Digital Feedback Map" (Schluer, 2023a: https://tinyurl.com/DigitalFeedbackOverview), the feedback taxonomy appears suitable for the new "Digital Teaching" course (see chapter 2) or any other course in which teacher competencies are to be developed. This certainly applies to professional development workshops as well, which we have started to conduct since summer 2024 (Schluer & Liu, 2024b). Through ongoing dialogue with pre- and in-service teachers, we strive to expand and improve the feedback taxonomy continuously. Consequently, additional subcategories and questions might emerge, which meet learners' and teachers' needs and incorporate new developments in society, pedagogy and technology. This, in turn, will have repercussions on the pedagogical design. As Schluer and Liu (2024a) remarked,

> "pedagogical designs should be re-shaped, re-aligned and re-negotiated continuously to meet specific learning objectives and learner needs. Due to the emergent and situated nature of feedback processes, also feedback literacies need to be developed dynamically (see Schluer 2022a: 238–250 on "dynamic digital feedback literacies") and practiced continuously (Tai et al. 2021: 10)." (Schluer & Liu, 2024a, p. 143)

Resonating with Kaya-Capocci et al.'s (2022) idea, the feedback taxonomy can thus "be used as a reflective device as well as a forward planning tool" to improve feedback practices and find inefficiencies in existing pedagogical designs (p. 8).

5.2. Suggestions for Future Research

In its present form, the interactive feedback taxonomy is largely based on Brück-Hübner and Schluer's (2023) as well as Schluer and Brück-Hübner's (2024) scoping review of

intervention studies conducted in higher education. As the publication period of the reviewed studies stretched from 01/2018 and 07/2022, the initial version did not yet include recent developments in a detailed manner, notably with regard to videoconference feedback and AI. It has therefore been expanded in the online version (Schluer, 2024; available at https://tinyurl.com/FeedbackTaxonomyEN). The interactive feedback taxonomy is to be understood as constantly evolving, based on its practical implementation in teacher education seminars and in-service teachers' professional workshops. Crucially, the usefulness of the feedback taxonomy still needs to be tested in these contexts. Moreover, research could be conducted with teachers who are using the feedback taxonomy for course design in their unique educational contexts. Such studies would provide insights into the usefulness of the feedback taxonomy and might uncover existing gaps.

Another area requiring further investigation and elaboration relates to multi-staged and iterative feedback designs at micro-, meso- and macro-levels, i.e. in individual tasks, courses and modules or entire degree programs (see Boud & Dawson, 2023). Indeed, most feedback designs contain a combination of several possible feedback directions, modes, and purposes etc. In that respect, it seems sensible to develop "a series of overlapping, interlinked or integrated tasks; or iterative sequences in which feedback from an earlier task can be applied to a later one" (Winstone & Carless, 2020, p. 79). Connectivity within a lesson, course or degree program is consequently central to feedback designs (Winstone & Carless, 2020, p. 168). Such designs can ultimately boost students' motivation and uptake as they recognize the value of engaging with the feedback (cf. Zimbardi, et al., 2017, cited by Winstone & Carless, 2020, p. 88). Hence, the seventh dimension of feedback interactions that precede and follow a feedback event deserves further attention in research and practice.

As variations in pedagogical design can affect the learning success and thus also the results of empirical studies, a clear description of the single steps and elements is pivotal to enhance the transparency and thus replicability and comparability of intervention studies. In that regard, the multidimensional feedback taxonomy assists researchers in crafting detailed descriptions of the feedback scenarios that they utilize in their studies (Brück-Hübner & Schluer, 2023, pp. 146–147). It may thus help overcome the vagueness in descriptive detail that was observed in several published studies (cf. Alqassab et al., 2023; Brück-Hübner & Schluer, 2023).

6. Conclusion

In the feedback literature, teachers are increasingly recognized as designers of learning environments that encourage learners' active engagement (Boud & Dawson, 2023; Carless, 2022; Carless & Winstone, 2023). Accordingly, adequate task and curriculum design turn into key factors for promoting student learning (cf. Boud & Dawson, 2023, p. 159; Winstone et al., 2017, p. 24). While there are several practical suggestions for feedback designs (e.g. in the book by Winstone & Carless, 2020), teachers might not readily be able to translate them into their own teaching context. The current chapter has therefore presented an interactive feedback taxonomy that was derived from a qualitative scoping review of 135 empirical studies (Brück-Hübner & Schluer, 2023; Schluer & Brück-Hüb-

ner, 2024) and expanded through pertinent literature and practical insights from teacher education. The seven main categories and their numerous subdimensions were transformed into guiding questions that seek to inspire pre- and in-service teachers in the pedagogical planning process. By exploring the diverse design options, (student) teachers can create or modify feedback activities for specific learning environments. The feedback taxonomy not only assists in refining feedback approaches at the micro- and meso-levels of individual tasks or courses but can also contribute to curricular changes at the macro-level of degree programs. Whether consulted individually or integrated into curriculum planning courses or professional development workshops, the taxonomy may provide a framework for enhancing pedagogical feedback designs at various levels. To cultivate a learner-centered dialogue, teachers should be responsive to students' needs (see chapter 5 by Brück-Hübner in this volume) and consider feedback not as something "done to" the students (Winstone & Carless, 2020, p. 21), but as a process that is actively shaped "together with" the students. In that respect, it is hoped that the suggested taxonomy will inspire educators to explore various design options to improve feedback processes and learning outcomes.

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Acknowledgments

First and foremost, I extend my gratitude to Dr. Annika Brück-Hübner for the productive and cooperative discussions and analyses that we have had over the past two years while developing the feedback taxonomy. Moreover, I would like to thank Ezgi Irem Bekci for her assistance in creating the online version of the feedback taxonomy on Genially.