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Teacher Educators' Perceptions of Schoolteacher Feedback Literacy: Implications for Feedback Training in Teacher Education Programmes

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Abstract: Few studies have empirically explored the specific elements of schoolteachers' feedback literacy in spite of its crucial role in supporting student learning in classrooms. To address this research gap, individual interviews were conducted with 20 teacher educators in Hong Kong. The interviewees were asked to explicate the mind maps of schoolteacher feedback literacy that they had previously drawn. Data analysis revealed that the participants perceived schoolteacher feedback literacy as a three-dimensional concept, comprising knowledge, competence and disposition with specifications. In addition, the participants believed that schoolteacher feedback literacy was gradually evolving from a qualified level to a fully professional level over time. In their views, understanding subject content knowledge and developing positive feedback dispositions were prerequisites for developing feedback competencies. The findings of this study enhance the understanding of schoolteacher feedback literacy from the perspective of teacher educators and offer guidance for providing effective feedback training in teacher education programmes.

Introduction

Although feedback from teachers has been identified as one of the most significant factors influencing students' learning, feedback is often ineffective in classrooms (Hattie & Clarke, 2019). In and beyond the context of Hong Kong, students have reported that teacher feedback is not always insightful and helpful but confusing and inapplicable at different levels of education (e.g., Cheung & Yip, 2004; Hatti & Gan, 2011; Lee, 2008, 2016; Small & Attree, 2016; Winstone & Boud, 2022). Students have decoding difficulties when interpreting teacher feedback, emotional resistance to teachers' negative feedback and cannot apply it to their revision due to the lack of constructive suggestions, and depersonalized and non-transferable comments (Lee, 2008; Winstone & Boud, 2022; Zhan, 2019). To provide high-quality feedback and facilitate students' productive use of it, teachers need to be equipped with adequate feedback literacy (Carless & Winstone, 2020). Higher education has recently witnessed a significant rise in the discussion of the concept of teacher feedback literacy (Boud & Dawson, 2021; Carless & Winstone, 2020; Chan & Luo, 2021; Heron et al., 2021; Jiang & Yu, 2021; Xu & Carless, 2017). In school settings, relevant discussion and empirical exploration of this concept are still lacking in spite of abundant feedback advice and research in literature (Lee, 2021).

Teacher education is important for pre-and-in-services schoolteachers to prepare for effective classroom feedback practice. This requires teacher educators to define, develop and assess schoolteacher feedback literacy. Understanding which elements of schoolteacher feedback

literacy are perceived as important by teacher educators may help to establish an operational definition of teacher feedback literacy in assessment education. In addition, exploring teacher educators' perceptions of schoolteacher feedback literacy could construct the structure and approaches of responsive training programmes. In Hong Kong, in spite of the two decades of assessment for learning reforms, schoolteachers still lack professional training in the assessment aspect (Lam, 2019). The specific attention to feedback training is even less. The exploration of Hong Kong teacher educators' perception of schoolteacher feedback literacy could be an initial effort to forward this uncharted training area.

To fill the abovementioned research and practical gaps, this study conducted mind map based individual interviews with teacher educators to explore the answers to the following two specific questions.

a)   What do teacher educators conceive of schoolteacher feedback literacy in terms of its components and structure?
b)   What do teacher educators think of schoolteacher feedback literacy development?

Teacher Feedback Literacy
Definition of Teacher Feedback Literacy

The concept of teacher feedback literacy has recently gained attention due to increasing awareness of the partnership between teachers and students in the feedback process (Carless & Winstone, 2020; Nash & Winstone, 2017; Winstone et al., 2021). By clarifying teachers' responsibilities in the feedback process, we determine how teachers can maximise the educational value of feedback. Teachers are responsible not only for transmitting information through feedback but also for "creating opportunities for students to use feedback information within supportive environments that maximise the impact of feedback" (Heron et al., 2021, p. 3). Therefore, 'teacher feedback literacy' refers to "the knowledge, expertise and dispositions to design feedback processes in ways that enable student uptake of feedback" (Carless & Winstone, 2020, p. 4).

Components of Teacher Feedback Literacy

A number of scholars have proposed that teacher feedback literacy facilitates the development of student feedback literacy and thus promotes effective feedback practices (e.g., Boud & Dowson, 2021; Carless & Winstone, 2020; Heron et al., 2021; Lee, 2021; Xu & Carless, 2017). Carless and Winstone (2020) proposed three dimensions of teacher feedback literacy, as stated below:

> *Teachers with well-developed feedback literacy design assessment environments in ways that facilitate effective feedback processes (design dimension); attend sensitively to the communicational and relational aspects of feedback with students (relational dimension); and manage pragmatic compromises in how feedback practicalities are handled (pragmatic dimension)* (p.4).

Carless and Winstone were the first to theoretically demonstrate the multiple facets of teacher feedback literacy and distinguish teachers' responsibilities from students' responsibilities in the feedback process. However, they did not specify the knowledge that teachers need to give effective feedback and paid insufficient attention to teachers' expertise in formulating feedback input (Boud & Dowson, 2021).

Boud and Dowson (2021) generated an empirically derived framework for teacher feedback literacy in the university context, which includes 19 feedback competencies categorised into macro, meso and micro levels. The framework elucidates "the different

competencies required of those with different levels of responsibility from overall course design to commenting on students' work" (Boud & Dowson, 2021, p. 1). The two scholars considered the division of labour between university teachers at program, course and classroom levels and argued that the feedback literacy required of teachers who design and create feedback opportunities differed from that required of teachers who implement feedback opportunities. However, such a division of labour may not be possible in school settings. Schoolteachers need not only to design and create feedback opportunities but also to implement them for individual students. Therefore, Boud and Dowson's empirically derived framework for teacher feedback literacy must be adapted to reflect the reality of feedback practices in schools.

Lee (2021) emphasised the need to develop a framework for schoolteacher feedback literacy, as the most recent discussion has focused on teacher feedback literacy in higher education contexts. She proposed a tripartite theoretical framework for the feedback literacy of writing teachers, consisting of knowledge, skills, values and goals related to feedback, which are derived from formative assessment, sociocultural theory and language teacher competence. Teachers need to recognise that feedback is a process instead of a one-off event, and they need to be aware of the role of feedback in promoting partnerships with their students and improving learning. Teachers need to demonstrate a wide range of capabilities before, during and after feedback, such as designing appropriate writing assignments and assessment criteria, using appropriate feedback techniques, making sound judgements of student writing, critical reflection on feedback practices and managing communities of practice concerning feedback. This specification aids understanding of the requirements of feedback literacy of writing teachers in school settings. However, Lee's framework is limited to writing classrooms and lacks empirical support.

Empirical Studies of Teacher Feedback Literacy

A limited number of empirical studies have examined teacher feedback literacy, with a focus on teachers' feedback competencies and practices in higher education contexts. Xu and Carless (2017) conducted a case study to investigate Chinese university teachers' feedback-enabling practices during peer assessments of students' oral presentations. They found that to enable their students' acceptance of critical feedback, the teachers utilised various strategies to provide cognitive scaffolding (e.g., strategies to enhance students' disciplinary understanding, self-regulated practice and feedback use) and social–affective support (e.g., building trust and cultivating positive emotional responses to criticism). Jiang and Yu (2021) explored 16 college English teachers' feedback practices during the COVID-19 pandemic in Chinese universities and found that feedback-literate teachers focused on meeting students' emotional needs and designing a feedback environment conducive to learning by managing practical challenges with the aid of technology. Heron et al. (2021) analysed feedback talks in six seminars at a British university and interviewed two lecturers. They found that teachers' recognition and understanding of the role of feedback talk in developing a good teacher–student relationship supported the relational dimension of teacher feedback literacy proposed by Carless and Winstone (2020). Chan and Luo (2021) found that feedback-literate lecturers in a Hong Kong university recognised the multiple purposes of feedback and had their own 'feedback toolkit' to realise different purposes of feedback.

The above literature review reveals that research on teacher feedback literacy is still in its infancy and that theoretical frameworks for teacher feedback literacy in higher education contexts might not be suitable for school contexts. More empirical evidence needs to be collected to interpret the complexity of schoolteacher feedback literacy in terms of its

components and inner structure. As teacher educators are responsible for training schoolteachers, their understanding of schoolteacher feedback literacy, as reflected in their training programmes, inevitably influences pre-service and in-service schoolteachers' beliefs and practices regarding feedback.

Methodology

An interpretative qualitative research approach (Dörnyei, 2007) was adopted to investigate the under-explored area of schoolteacher feedback literacy from the perspective of teacher educators. This approach enabled the author to make sense of the complexity of teacher feedback literacy in the context of Hong Kong schools (Nunan, 2002) and to develop an empathetic understanding of the perceptions of teacher educators, instead of applying a pre-established framework to these perceptions (Patton, 1987).

Participants

Emails were sent to 26 teacher educators at a Hong Kong university to invite them to participate in the study. Twenty of them agreed to participate. Table 1 summarises the participants' demographic information. They were all Chinese teachers, eight of whom were born in Hong Kong. Twelve were female, and seven had received their PhD degrees overseas. Thirteen of the participants had taught teacher education programmes for more than 10 years, and 12 were assistant professors. Eleven of the participants had previously worked as schoolteachers in Hong Kong. The diversity of the participant's demographic characteristics (e.g., gender, educational background, academic position, teaching experience) maximised the scope and range of information obtained (Corbin & Strauss, 2014).

Demographic information		Number of teacher educators
Birthplace	Hong Kong	9
	Mainland, China	11
Gender	Male	8
	Female	12
Institutions of the highest academic qualification	Hong Kong	12
	Overseas	7
	Mainland, China	1
Years of teaching in higher education	>15 years	2
	10-15years	11
	<10 years	7
Academic positions	Associate professor	4
	Assistant professor	12
	Senior lecturer	4
Teaching experiences in Hong Kong schools	Yes	11
	No	9

Table 1: Demographic information on participating teacher educators

Data Collection

Mind map based individual interviews were conducted to collect data. First, the participants created mind maps in which they sketched out their understanding of schoolteacher feedback literacy according to their teaching experiences and school visits. By

giving participants a creative means of engagement, mind maps enable researchers to probe the participants' experiences and perceptions (Hathaway & Atkinson, 2003). These maps were drawn either by hand or by a word processing program. Figure 1 shows a mind map drawn by a participant that has a web-like structure; branches with nodes radiate out from the central concept of schoolteacher feedback literacy. To obtain relatively open-ended and unsolicited data, the participants were, as much as possible, given autonomy in drawing their mind maps.

Whilst participant-generated mind maps enable the identification of concepts and connections, subsequent data collection methods such as interviews, surveys or focus groups can "allow for the participant-generated framework to be tested, explored, and further detailed and delineated" (Wheeldon & Faubert, 2009, p. 73). Of these three options, individual interviews were chosen to elicit richer data. The interview questions were specifically designed based on the participant-generated themes in the mind maps. The participants were asked to elaborate on the nodes in their mind maps and to elucidate the rationales behind their ideas. During the interviews, the participants were also allowed to add new items or revise the items in their mind maps. In addition, they were invited to express their ideas about the dynamic relationships among different components of schoolteacher feedback literacy considering the priority of development and potential approaches. The interviews took place online via Zoom, with screen sharing of each participant's mind map. The interviews were conducted in Chinese and recorded. The average duration of the interviews was approximately one hour.

Original version
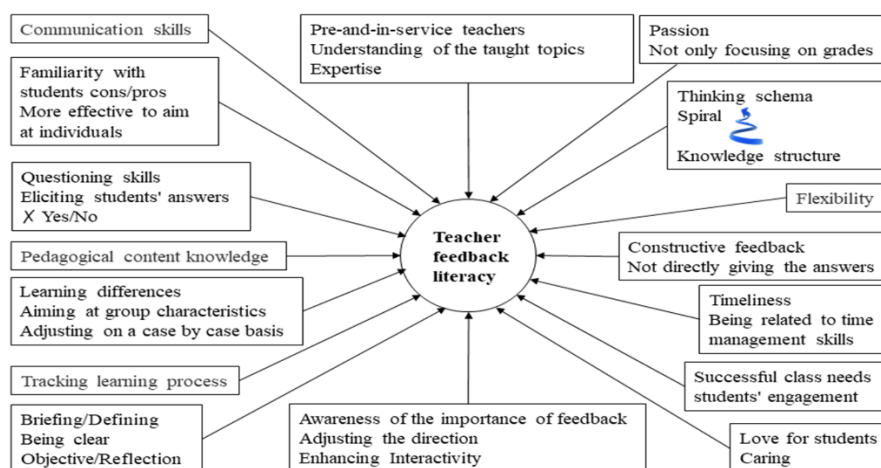
Translated version

Figure 1: A mind map of schoolteachers' feedback literacy drawn by one teacher educator

Data Analysis

The interview data were the main object of data analysis. Inductive thematic analysis was used to analyse the interview data because of its flexibility and potential to provide a rich complex account of patterns in data and to generate unanticipated ideas (Braun & Clarke, 2006). The mind maps drawn by the participants were taken as a starting point for the author to search for codes and categories within the interview data (Wheeldon & Faubert, 2009). The analysis of the mind maps created 45 codes, such as 'questioning skills', 'understanding of the taught subject', 'communication skills', 'debriefing skills', 'awareness of values' and 'passion', which were compared with the initial codes obtained from the interview data using NVivo 12 to assess their consistency. When inconsistencies were spotted, the participants were invited by email or telephone call to double-check the information. Next, the author categorised the initial codes into larger categories which were further condensed into three

subthemes namely 'knowledge', 'competence' and 'disposition'. The three subthemes were finally subsumed into the overarching theme of 'schoolteacher feedback literacy'. All of the potential codes, categories and subthemes were examined against the coded extracts and the entire dataset, and their names were clearly defined through ongoing analysis and linking them back to the research questions and the literature. The frequencies with which the finalised codes had been mentioned by the participants in their interviews were calculated by dividing the number of participants who had mentioned each code by the total number of interviewees.

Findings

Table 2 illustrates 27 elements of schoolteacher feedback literacy identified from the data analysis, having been categorised into three dimensions: knowledge, competence and disposition. Elements that were mentioned by fewer than one-third of the participants are not listed in the table. Each dimension and element as well as their development has been elaborated on in the following sections.

Dimensions	Elements		Percentage (No.) of teacher educators
Knowledge	Knowledge of good feedback		85% (17)
	Knowledge of students (on a case-by-case basis*)		60% (12)
	Subject content knowledge		55% (11)
Competence	Planning	Assessment designing skills	65% (13)
		Debriefing skills regarding assessment criteria and tasks	30% (6)
		Predicting skills*	30% (6)
	Implementing	Evaluative judgment	90% (18)
		Skills for making suggestions	65% (13)
		Communication skills	65% (13)
		Ability to cater to learner diversity *	60% (12)
		Adaptability*	55% (11)
		Questioning skills to elicit higher-order thinking*	45% (9)
		Emotion management skills	45% (9)
		Workload management skills *	35% (7)
	Following- up	Monitoring skills	35% (7)
		Technology skills	30% (6)
		Re-assessment skills	30% (6)
		Reflection skills*	45% (9)
Disposition	Appreciation of feedback formative values	Improving rapport	45% (9)
		Enhancing learning	40% (8)
		Adjusting teaching	30% (6)
	Readiness to communication	Encouraging	55% (11)
		Approachable	45% (9)
		Open-minded	35% (7)
	Commitment to facilitation	Patient	45% (9)
		Empathetic	45% (9)
		Altruistic	35% (7)

Table 2: Teacher educators' perceptions of three dimensions of schoolteacher feedback literacy

Three Dimensions of Schoolteacher Feedback Literacy
Knowledge Dimension of Schoolteacher Feedback Literacy
Knowledge of Good Feedback

Seventeen participants acknowledged the importance of understanding what constitutes good feedback in becoming a feedback-literate schoolteacher. They highlighted six features of good feedback that schoolteachers had to understand, which are listed in Table 3; they are arranged in decreasing importance according to the frequency of mentioning.

Features of good feedback	Interview extract
Dialogical feedback	Good feedback is a conversation between a teacher and a student. Through conversation, students can avoid misinterpretation of teacher comments and enhance their understanding (Participant 17)
Cognitively challenging feedback	Good feedback aims not to correct students' errors but to activate their higher-order thinking like critical thinking (Participant 2)
Feedback as teaching	Feedback is a good chance of reteaching something that students have not mastered (Participant 15)
Process-oriented feedback	Good feedback focuses on the process of solving maths problems instead of the results (Participant 18)
Transferable feedback	Good feedback not only targets a specific learning task but also guides students' subsequent learning (Participant 4)
Feedback including both praise and criticism	Good feedback balances praise and criticism (Participant 11)

Table 3: Good feedback features which are realised by feedback-literate schoolteachers from teacher educators' perspectives

Knowledge of Students

Twelve participants mentioned that a feedback-literate schoolteacher needed to understand students' cognitive and psychological development, learning styles and needs, personalities and family backgrounds. They believed that such an understanding enabled schoolteachers to adjust their feedback strategies according to individual characteristics and to increase students' engagement with the feedback, as illustrated in the following extract.

> *For example, primary school students enjoy thinking via images. If teachers know this characteristic of primary school students, they could give children feedback in a multimodal way, such as by awarding stickers to vividly convey praise.* (Participant 10)

Subject Content Knowledge

Eleven of the participants claimed that a grasp of subject content knowledge was crucial for schoolteachers to make sound judgements and to make transferable suggestions in their feedback practices. These participants emphasised that if schoolteachers mastered the structure of the subject content, they could predict what would occur when students became stuck at some point in the learning process. In this way, schoolteachers could give effective feedback that affected students' subsequent learning as well as their current learning. The following extract shows this point of view:

> *Schoolteachers had better build up a solid subject knowledge base for judging students' performance. They are good at the subject's structure and logical connections among a variety of knowledge. This is like having mind maps of subject knowledge. This enables teachers to guide students to make progress*

step by step, using feedback to overcome learning obstacles before they get stuck. (Participant 3)

Competence Dimension of Schoolteacher Feedback Literacy

The data analysis showed that 15 competencies were mentioned by at least one-third of the participants, which were categorised by the author according to the three stages of the feedback process: planning, implementing and following up. The participants mentioned more competencies related to the implementation stage than related to the planning and following-up stages.

Planning Competencies

The participants believed that schoolteachers needed at least three competencies when planning their feedback practices. Skills in designing assessment tasks were most frequently mentioned by the participants (n = 13). Some participants believed that schoolteachers had better acquire the skills to set up assessment goals that aligned with teaching objectives. Such constructive alignment in assessment design could help teachers to provide helpful feedback to students.

Some participants also highlighted schoolteachers' ability to link class and unit assessment tasks with final summative assessment. The metaphor of 'making a ladder' (Participant 9) was used to vividly describe this ability. Some of the participants believed that if schoolteachers designed assessment tasks that helped students succeed in later summative assessment, students would pay more attention to their feedback.

In addition, some of the participants said that designing peer assessment and self-assessment was an important ability of schoolteachers. They believed that if students played active roles as assessors, they were better at understanding the assessment criteria and developing their own evaluative judgement. As Participant 20 said, 'Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime'. Such assessment skills could help schoolteachers promote their students' feedback literacy on a long-term basis.

Predicting skills and debriefing skills were also mentioned as competencies required for the planning phase. Some of the participants believed that experienced teachers were good at predicting students' learning difficulties and mistakes and figuring out corresponding solutions when designing assessment tasks. Other participants thought that schoolteachers' debriefing skills in relation to assessment tasks and criteria helped them share the assessment criteria with students in a clear and comprehensible way. The debriefing skills included selecting exemplars of student work, making a step-by-step guidance sheet of assessment tasks, performing demonstrations of tasks and organising question-and-answer sessions or group discussions concerning assessment criteria.

Implementing Competencies

Eight competencies were mentioned by the participants as necessary for schoolteachers to effectively implement feedback in schools. The most important competency was evaluative judgement, followed by skills in making suggestions, communication, catering to learner diversity, adaptability, questioning, emotion management and workload

management. Table 4 summarises the above-mentioned competencies, along with interview extracts to illustrate the participants' perceptions of these competencies.

Competencies involved in the phase of implementing feedback	Interview extract
Evaluative judgment	Teachers need to make professional judgements of students' work and consistently use the same criteria to assess different students (Participant 1)
Skills for making suggestions	Teachers are skilful in giving concrete, focused and transferable suggestions to improve students' learning (Participant 20)
Communication skills	Teachers had better acquire communication skills like listening skills and appropriate language use (Participant 6)
Ability to cater to learner diversity	Teachers need to give feedback addressing individual learning needs (Participant 15)
Adaptability	Feedback takes place in concrete classrooms and specific subject-teaching contexts, so teachers need to be able to adapt their feedback practices accordingly (Participant 12)
Questioning skills to elicit higher-order thinking	In oral feedback, teachers must be good at asking questions which lead students to think about their answers or others' answers in an in-depth way (Participant 7)
Emotion management skills	Teachers are able to manage students' possible negative emotional reactions to criticism (Participant 13)
Workload management skills	Teachers need to set priorities and areas of focus when giving feedback to decrease their workload (Participant 16)

Table 4: Competencies required of schoolteachers to implement effective feedback practices, as perceived by teacher educators

Following-up Competencies

The participants thought that schoolteachers had at least four competencies to follow up on students' uptake of teacher feedback. Teachers' monitoring skills were regarded as the most critical. The participants gave specific examples of monitoring skills, such as making individual learning contracts, using e-portfolios, doing self-assessment, subdividing revision processes and observing students' subsequent learning. These examples reflected the participants' belief that schoolteachers were expected to take the role of facilitators in the revision process, providing reminders for students. In this way, 'students could take over the responsibility of monitoring their revision or subsequent learning eventually' (Participant 16).

Reassessment skills (n = 6) and technology use skills (n = 6) were also mentioned as necessary competencies of schoolteachers in following up on students' uptake of feedback. Teachers were 'skilled in designing tasks that do not bore students and give them second chances to demonstrate their learning growth' (Participant 5). In addition, given the 'anytime, anywhere' learning opportunities offered by technology, some participants noted that feedback-literate schoolteachers knew how to use technology to swiftly follow up on students' uptake of feedback.

Last but not least, schoolteachers were expected to have the skills to reflect on the feedback they gave to their students. Feedback-literate schoolteachers could critically analyse whether their feedback achieved the expected outcomes. If not, they were able to identify the reasons for its failure and determine what would be adjusted or revised in the next round of giving feedback. For example, Participant 6 pointed out that reflection skills were 'growth

skills that can prepare schoolteachers to give better and better feedback in the long term and facilitate teacher professional development in assessment'.

Disposition Dimension of Schoolteacher Feedback Literacy

The data analysis revealed the participants' perceptions of schoolteachers' "attitudes and willpower to overcome challenges and strive to develop productive feedback processes for students" (Carless & Winstone, 2020, p. 4). Schoolteachers were expected to be aware of the formative values of feedback and to be ready to communicate with students and committed to facilitating students' uptake of feedback.

Appreciation of Feedback Formative Values

The participants mentioned at least three formative values of feedback that schoolteachers had better realise: improving rapport between students and teachers, enhancing learning and adjusting teaching. Improving rapport was most frequently highlighted by the participants; they believed that feedback enhanced interaction between the teacher and students and reduced the social distance between them, which was especially important in the current COVID-19 environment. The participants also said that schoolteachers' awareness of the role of feedback in enhancing learning and adjusting teaching made them more willing to engage in feedback practices to improve their teaching and students' learning.

Readiness to Communication

Many of the participants thought that if schoolteachers were ready to communicate with students concerning the given feedback, students would engage more with feedback. They believed that demonstrating readiness to communicate with students required schoolteachers to be encouraging (n=11), approachable (n=9) and open-minded (n=7). "Teachers are not so harsh and can find students' best qualities" (Participant 9), "They are friendly and available for talk if students need feedback" (Participant 20) and "they welcome different opinions on assignments and are open to further discussion" (Participant 18).

Commitment to Facilitation

A number of participants mentioned that unless teachers were committed to facilitating students' uptake of feedback, feedback would be ineffective for students. They believed that despite schoolteachers' heavy workload and common resource constraints, they were expected to be patient (n=9), empathetic (n=9) and altruistic (n=7) when following up on feedback. They claimed that a feedback-literate teacher might "not lose their temper when students repeat their mistakes" (Participant 7), "tend to understand the learning situation from student perspectives" (Participant 14), and "even sacrifice their free time and make a great effort to support students if needed" (Participant 17).

Development of Schoolteacher Feedback Literacy

Interestingly, almost all of the participants interpreted schoolteacher feedback literacy as gradually evolving from a qualified level to a fully professional level over time. Thus, the requirements differed between novice teachers and experienced teachers. For example, Participant 20 said:

The requirements of teacher feedback literacy for novice and experienced teachers need to be different. This is similar to language proficiency. For example, if you want to be a teacher in mainland China, there is a minimum language proficiency requirement for Mandarin, but if you want to be a Chinese teacher, the language proficiency requirement must be higher than that for other subject teachers.

This participant believed that experienced teachers needed to be more feedback-literate than novice teachers.

Table 2 highlights the knowledge and competencies that the participants regarded as challenging for novice teachers to acquire with the icon of *. Novice teachers need more time and experience to gain and develop such knowledge and competencies. Some participants believed that although it might be easy for novice teachers to understand students' cognitive and psychological development from what they had learned in books and training workshops, it might be difficult for them to gain practical and real-world knowledge of their students because of students' complicated family, cultural backgrounds, different personality and diverse learning needs. In addition, certain feedback competencies associated with planning, implementing and following up, such as predicting skills, workload management skills, questioning skills to elicit higher-order thinking, adaptation skills, catering to learner diversity and reflection skills, were regarded as more advanced, because they required teachers to accumulate teaching experience and familiarise themselves with specific teaching contexts. The following extract shows this point of view:

Teachers are able to predict the mistakes that are likely to be made by students and guess the possible reasons when planning feedback practices. This skill is demanding for novice teachers because it requires teaching experience.
(Participant 8)

When being asked about which dimension of schoolteacher feedback literacy was a priority to develop, fifteen participants thought that schoolteachers' dispositions were primarily to develop, as to establish a base for feedback competence development. For example, Participant 17 said:

I believe that we need to develop teachers' dispositions regarding feedback first. This is a prerequisite because if teachers are willing and eager [to implement feedback practices], they will figure out different ways to improve their feedback quality.

Another primary aspect of schoolteachers' feedback literacy development in all of the participants' eyes was a solid foundation of subject content knowledge, as this enabled schoolteachers to design appropriate assessment tasks and make accurate judgements. Participant 4 used the metaphor of building a house to describe schoolteachers' subject content knowledge as the ground on which their feedback competencies could be built.

Most of the participants highlighted the importance of embedding feedback training in teacher education programmes to cultivate feedback-literate schoolteachers. They believed that it would be better to connect such training with subject teaching which enabled pre-and-in-service schoolteachers to understand the specific disciplinary context where feedback opportunities were exploited. In addition to teacher education programmes, more than half of the participants mentioned experiential learning as a powerful approach to developing teacher

feedback literacy. Participant 15 used the metaphor of "learning how to swim by swimming in the pool" to describe it. The practice opportunities include a practicum in schools and giving feedback in a real classroom setting. Schoolteachers were strongly suggested to reflect on their feedback practices with the purpose of developing their feedback literacy, as illustrated below.

> *Practice makes perfect. However, without reflection, feedback practice would be in vain for feedback literacy development. Therefore, schoolteachers can write reflective logs or do self-assessments of their feedback literacy after feedback practice.* (Participant 11)

Discussion

From the perspective of teacher educators, as revealed by this study, schoolteacher feedback literacy is a three-dimensional concept. A tripartite concept of teacher feedback literacy has also been described by other scholars (e.g., Carless & Winstone, 2020; Boud & Dawson, 2021; Lee, 2021). Carless and Winstone (2020) proposed that teacher feedback literacy consists of design, relational and pragmatic dimensions; their framework emphasises teachers' role in supporting students' engagement with feedback and dynamic interdependencies between students and teachers in the feedback process within a given cultural context. Boud and Dawson (2021) identify teacher feedback competencies at the macro, meso and micro levels. The framework of schoolteacher feedback literacy generated from the current study is more closely related to Lee's (2021) framework, which considers a broader competency that consists of knowledge, skills, values and goals regarding feedback.

The author identified 15 feedback competencies that were mentioned by at least one-third of the participants and classified them according to the three stages of the feedback process: planning, implementing and following up. This classification is similar to Lee's (2021) categorisation of the feedback competencies required of teachers before, during and after feedback. The feedback competencies identified in this study resemble those proposed by other scholars (e.g., Boud & Dawson, 2021; Carless & Winstone, 2020; Jiang & Yu, 2021; Lee, 2021; Xu & Carless, 2017).

Stage 1: Planning feedback activities
- designing assessment tasks that are appropriately chained, as well as peer and self-assessment activities;
- debriefing assessment criteria and tasks in students' language and via examples;
- Predicting students' difficulties and mistakes usually occurred in performing an assessment task

Stage 2: Implementing feedback activities
- making an accurate judgement of student work;
- providing constructive feedback;
- communicating with students
- questioning students to elicit higher-order thinking instead of focusing on low-level error correction;
- catering to learner diversity by providing individualised feedback;
- managing the workload of feedback practices
- managing students' negative emotions arising from feedback practices;
- adapting feedback practices to concrete contexts;

Stage 3: Following up on feedback
- monitoring students' revision process;

- reassessing students by designing similar assessment tasks
- using technology to enhance students' feedback engagement and uptake; and
- reflecting on feedback practices for subsequent improvement.

In addition, this study identified the dispositions that feedback-literate schoolteachers had to develop from the participants' perspectives. They believed that schoolteachers needed to be aware of the formative value of teacher feedback for students' learning, such as improving rapport between teachers and students, enhancing learning and refining teaching. Lee (2021) also highlighted the importance of using feedback to enable learners to become better writers. In addition to the appreciation of formative values of teacher feedback, the participants in this study highlighted schoolteachers' readiness to communicate with students concerning the given feedback by being encouraging, approachable and open-minded. This finding recalls the relational dimension of feedback literacy proposed by Carless and Winstone (2020, p. 9), who claimed that teachers "show supportiveness, approachability and sensitivity to how feedback is shared".

However, few papers have mentioned teachers' commitment to facilitating students' uptake of feedback, which was emphasised by the participants in this study. Schoolteachers were expected to be patient, empathetic, and altruistic when following up on their feedback. This reflects the Chinese traditional perceptions of teachers as altruistic and self-sacrificing professionals (Gao, 2008) and teaching is a "heart-consuming" labour (Yin & Lee, 2012, p.56).

The participants also identified knowledge as a component of schoolteacher feedback literacy, which has not been elaborated on in previous work. The participants believed that feedback-literate schoolteachers understood at least six features of good feedback (i.e., dialogical, cognitively challenging, process-oriented, transferable, integrating with teaching and including both praise and criticism). The participants' understanding of good feedback reflects the recent paradigm shift from feedback as a product to feedback as a developmental process, with an emphasis on informative and dialogical feedback (Carless, 2015; Dawson et al., 2019; Molloy & Boud, 2013; Nicol, 2010; Winstone & Carless, 2019). In addition, the participants underscored the need for subject content knowledge, which was believed to be a basis for schoolteachers' sound judgements of students' work (Lee, 2021). They also believed that schoolteachers' mastery of subject content knowledge, especially the structure of subject content, was a prerequisite for creating a feedback chain for students to learn sustainably. Last, the participants believed that a good understanding of their students enabled schoolteachers to provide appropriate and effective individual feedback; such an understanding must be obtained not only from training programmes but also from teaching experience. Knowledge of students has not previously been mentioned as a specific attribute of feedback-literate teachers.

More interestingly, most of the participants regarded schoolteachers' subject content knowledge and dispositions towards feedback practices as a basis for the development of their feedback competencies. They also distinguished elements of teacher feedback literacy that were challenging for novice teachers to acquire, such as understanding students on a case-by-case basis, predicting skills, workload management skills, questioning skills to elicit higher-order thinking, adaptability, the ability to cater to learner diversity, and reflection skills. These findings have not been discussed in the literature and enhanced our understanding of schoolteacher feedback literacy as a dynamic construct.

Conclusion, Implications and Limitations

To summarise, the findings of this study reveal teacher educators' perceptions of teacher feedback literacy in the school context, which has seldom been discussed in the literature. A framework for schoolteacher feedback literacy emerged from teacher educators' mind maps and narratives, revealing the complexity of the concept. This framework shares many features of teacher feedback literacy identified in higher education contexts (Boud & Dawson, 2021; Carless & Winstone, 2020), but it operationalises specific aspects situated in school settings and extends previous frameworks by adding the knowledge dimension of teacher feedback literacy. Figure 2 demonstrates three correlated dimensions of schoolteacher feedback literacy including disposition, knowledge and competence. The disposition dimension is the priority to develop. The findings of the study highlight the need to distinguish between the feedback literacy of novice teachers and that of experienced schoolteachers. Therefore, schoolteacher feedback literacy is dynamic and developmental over time. As mentioned by the participants, experiences of learning or doing feedback practice really matter in the development of teacher feedback literacy. Figure 2 also lists out the contexts including teacher education programmes, classrooms, and schools where schoolteachers might accumulate their feedback experiences. Although the participants did not explicitly mention the broad context of a society in this study, society is included in the framework due to its potential social-cultural influence on teacher feedback experiences and feedback literacy development (Lee, 2008; Tai et al., 2021; Zhan, 2019). However, empirical data should be further collected to support such contextual influence.
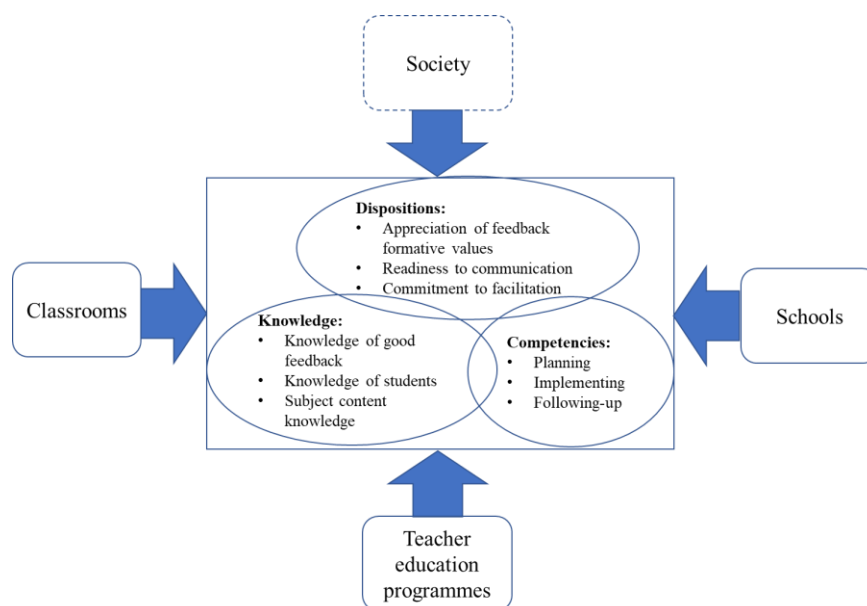

Figure. 2: A framework of schoolteacher feedback literacy from teacher educators' perspectives

The framework for schoolteacher feedback literacy proposed in this study has important implications for feedback training in teacher education programmes. Formal learning opportunities designed to develop future teachers' assessment literacy are often scarce in teacher training programmes (Schneider & Bodensohn, 2017). Let alone the learning opportunities specifically designed for teacher feedback literacy development. The proposed framework would provide a valuable reference to translate feedback literacy into practice. It supports teacher educators and teacher education programs in examining the meaning of teacher feedback literacy in a specific educational context, the components of

teacher feedback literacy that need to be addressed and the developmental paths to follow to better inform feedback practice. Such examination can be done in various ways. For instance, in designing feedback programmes, the framework could help teacher educators to design a needs assessment that results in a prioritised list of learning targets for teacher feedback literacy and practice. In addition, the framework could inform teacher educators to revise the current assessment curriculum to ensure adequate attention to teacher feedback literacy.

Furthermore, the development of teacher feedback literacy needs time. Lee (2021, p. 11) claimed that "one-shot professional development activities do not suffice". The development of schoolteacher feedback literacy is a continuous and dynamic process. Teachers' experience with feedback really matters and this situates in different learning contexts. Formal training in disciplinary teaching programmes could help teachers to realise different feedback purposes and types (Chan & Luo, 2021) and develop positive feedback dispositions (Singh & Mueller, 2021). Experiential learning is a powerful way to cultivate schoolteachers' feedback literacy since it could enable them to "take up an active, analytical and reflective role" (Gao, 2015, p. 435). Teacher educators should make use of experiential learning to create concrete feedback contexts and guide pre-and-in-service teachers to critically reflect in and on feedback practice (Yu, 2021).

Despite the significance of this study, it has some limitations. The sole usage of teacher educators' perspectives on schoolteacher feedback literacy may have led to an idealised and prescriptive framework that fails to consider schoolteachers' own needs regarding feedback practices. Therefore, schoolteachers' perspectives could be elicited in future studies to complement and triangulate teacher educators' perspectives when designing a framework for schoolteacher feedback literacy. Interviews and classroom observations could be conducted with the schoolteachers whose feedback practice is effective and welcomed by students to generate a more comprehensive understanding of teacher feedback literacy in school settings. In addition, when the participants in this study were asked about their conceptions of schoolteacher feedback literacy, they majorly considered schoolteachers as feedback givers who are responsible to facilitate students' uptake of teacher feedback. However, it should be remembered when teachers give feedback to students, they are also receiving feedback from their students about the effectiveness of their teaching. Therefore, the concept of schoolteacher feedback literacy is needed for further exploration and refinement.

Feedback literacy has been acknowledged as a key component of the professionalism of 21st-century schoolteachers (Ayalon & Wilkie, 2020). This study has conceptualised teacher feedback literacy as a tripartite and dynamic construct situated in Hong Kong school settings from teacher educators' perspectives. It will stimulate interpreting and enacting this important concept in other contexts and from other stakeholders' perspectives. The conceptual enrichment of schoolteacher feedback literacy will further inform responsive training programmes in teacher education.

Declarations

Conflict of interest: The author declares no competing interests.

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