



Collective and individual practice contexts: Goal setting, monitoring, and feedback in semi-professional and professional popular music bands

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ABSTRACT

In formal music education, teachers typically design individualised and deliberate practice to foster continuous performance improvement by setting goals, monitoring progress, and providing feedback. In contrast, popular music bands often act autonomously. This raises the question of how popular music bands approach aspects of deliberate practice in self-managed contexts. This qualitative study explores what goals semi-professional and professional popular music bands set, how they monitor their performance, and how they handle feedback—both in collective and individual contexts. A total of 39 musicians from nine semi-professional and three professional popular music bands participated in the study. The findings indicate that both groups adopt aspects of deliberate practice, albeit with differing emphases and degrees of systematicity. Semi-professional bands prioritised collective songwriting and the continuous creation of new music, often accompanied by unsystematic performance monitoring. Feedback predominantly focused on songwriting and often provided by personal networks. In contrast, professional bands reported striving for fine-grained improvements in both collective and individual performance within their existing repertoire. They regularly reflected on and analysed their performances. They also received frequent constructive feedback from one another as well as from their professional staff, such as sound engineers. This reduced their reliance on informal feedback sources. The findings suggest that professional bands in particular establish constructive self-managed approaches that benefit their collective and individual performance. These insights into learning in informal music contexts may also inform other domains, such as workplace teams, where performance and learning are shaped by the interplay between collective and individual contexts.

1. Introduction

In the context of individual practice, goal setting, performance monitoring, and the reception of informative feedback are core aspects of deliberate practice, which research on expertise has identified as essential for the development of individual skill sets (Platz et al., 2014). These components are widely recognised as fundamental to practice quality in many domains—including education, work, sports and the arts. In many of these domains, individuals do not act, learn, or perform in isolation. Instead, they are part of teams working toward shared goals—often in informal learning contexts without professional supervision. This study explores the interplay between collective and individual contexts through the example of self-managed popular music

bands, who autonomously organise their practice process. It contributes to understanding how music bands at different professional levels and their members engage in both collective and individual deliberate practice, typically associated with formal education. Specifically, it provides insights into how professional and semi-professional bands organise their practice to improve both collective and individual performance in the absence of formal instruction or supervision.

In formal education, like in music, specific qualitative aspects of deliberate practice are typically designed and facilitated by teachers. Teachers supervise the entire process of individual deliberate practice aimed at improving specific aspects of performance (Ericsson & Harwell, 2019). These include setting appropriate and challenging goals, monitoring performance, and providing feedback that addresses potential or

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obvious performance weaknesses. In popular music, however, the dominant artistic format is the band—groups of individual musicians who usually operate without formal instruction or teaching support. This raises the question of whether these three elements of deliberate practice—well-defined goals, systematic monitoring, and informative feedback—also manifest within self-managed popular music bands acting in informal learning contexts. The importance of these specific qualitative aspects is particularly salient in the collective context of popular music bands—in contrast to orchestras, which are often led by conductors playing a central role in shaping the collective practice sessions (Morrison & Demorest, 2018). Without an external authority, music bands must independently shape both their collective and individual practice to meet shared performance goals. Research on expertise suggests that professional music bands are compelled to ensure reliable performance abilities, as well as the need to apply them reliably in professional performance situations, such as live concerts. Establishing the specific qualitative aspects of deliberate practice can help to ensure a high level of performance. Similar to professionals, semi-professionals may pursue comparable goals and engage in similar activities to achieve success as a band. However, semi-professionals are not exposed to the pressure of earning a living from their music (Miell & Littleton, 2008) and other occupational stressors (King et al., 2024).

In Germany, fourteen percent of people over the age of 16 play music in a band as a hobby, and four percent do so in orchestras (Deutsches Musikinformationszentrum & Institut für Demoskopie Allensbach, 2021). Less than one percent of these musicians describe themselves as professional musicians. To gain public recognition bands must deliver a coherent collective performance that depends on precise interpersonal coordination of each member's musical contributions. This requires aligning motor elements like rhythm or note duration with expressive features, such as volume, tone, and tempo. These components must be synchronised and standardised through practice following shared musical goals (Keller, 2014; Keller et al., 2016). In the process of practicing, it is expedient for bands and their members to define collective and individual musical goals, assess their performances through collective monitoring and self-monitoring, and engage in reciprocal feedback (Davidson & King, 2004). Research in individual practice has underlined the importance of different self-regulated learning phases for musicians with differing skill levels, including goal setting, self-observation, monitoring, and evaluation, as well as their circular positive influences on each other (Dos Santos Silva & Marinho, 2025; Hatfield et al., 2017). The nature of goals popular music bands set for themselves, the strategies they use for monitoring, and the modalities of feedback they employ remain largely underexplored. Little is known about the emergence of a collective deliberate practice. From the perspective of expertise research, it is especially intriguing to explore differences between the goals pursued by professional bands compared to semi-professional bands. Furthermore, monitoring and feedback processes can also shape both their collective and individual performances. This study contributes by exploring these specific qualitative aspects of deliberate practice in the collective creative musical context.

Research in collective music settings suggests that explicit goals, self-monitoring strategies, and clear feedback are relevant to achieving a collective flow experience (Gaggioli et al., 2017). These factors influence collective musical coordination and, thus, collective performance in general (Hart & Di Blasi, 2015).

1.1. Goal setting

In the last decades, research has highlighted the impact of goal setting on performance. It has been shown that setting specific learning goals rather than performance goals is more effective for the acquisition of skills relating to complex tasks and activities. Learning goals are closely aligned with the next steps in skill development, providing clear and actionable objectives. In contrast, performance goals tend to be broader and more distant, posing greater challenges as the necessary

skills and knowledge may not yet be sufficiently developed to achieve them (Locke & Latham, 2019).

For musicians, goal setting is an important strategic method to prioritize and select practice activities. Setting goals enables them to focus on musical challenges or conditions they aim to tackle and resolve through practice (Mikszta, 2015). A lack of specific goals can affect important factors for performance and practice negatively, such as motivation, self-efficacy, and focus. Musicians who organise their practice around both challenging daily goals and hierarchical long-term goals are more aware of what, how, and why they practice. Understanding practice goals helps structure practice sessions more effectively (Hatfield, 2016). Given the importance of motivation (Bonneville-Roussy & Evans, 2024) and self-efficacy for practice and performance (Zelenak, 2024), musicians who effectively set goals tend to engage more (meta)cognitively with their practice material (Concina, 2019). Compared to semi-professionals, professional musicians often adopt a more goal-directed approach, likely driven by their stronger motivation and greater self-efficacy in striving for mastery (Schmidt & Gruber, 2023). Interestingly, a study found that professionals outperformed semi-professionals in goal-setting strategies specifically within the individual practice context, but not in the collective practice context (Schmidt & Gruber, 2024).

It remains unclear what kind of goals semi-professional and professional bands set for themselves within collective and individual contexts. Ideally, musicians address their practice thoughtfully and are aware of their short-term, mid-term, and long-term goals. Setting specific goals allows for self-observation and progress monitoring. Moreover, goal setting helps to identify potential difficulties and enables reaction to challenges and adaption of practice (Dos Santos Silva & Marinho, 2025; Hatfield et al., 2017).

1.2. Monitoring

Monitoring is a metacognitive skill. It involves continuously observing one's behaviour and performance to check alignment with personal goals and performance representations. In general, research shows that monitoring one's performance is crucial for promoting adaptive strategy use and performance improvements in different domains (Guo, 2022; Layden et al., 2023). For musicians, research also revealed the benefits of monitoring strategies for improving own practice and performance (Hallam et al., 2021; López-Íñiguez & McPherson, 2024; Mikszta, 2015) as well as for general developmental trajectories (Hallam et al., 2021). While beginning musicians and music students are often lacking explicit monitoring skills and, thus, depend on teachers (Colombo & Antonietti, 2017), more advanced musicians can become capable of monitoring and regulating their practice autonomously (Concina, 2019; Hatfield et al., 2017). Musicians who learn to monitor themselves, are better equipped to give valuable feedback to others (McPherson et al., 2022).

In addition to self-observation, musicians can use technical tools like audio or video recordings to support monitoring. These tools offer an external perspective, which can help to guide both collective and individual practice—especially when no teacher is present. As a result, assessing practice to improve performance becomes easier (Boucher et al., 2020, 2021; Gaggioli et al., 2017). In a study by Vellacott and Ballantyne (2022), (classical) professional musicians reported listening to recordings of their practice sessions to search for weaknesses in their performance and eradicate errors. The study suggests professional musicians possess self-monitoring skills that help them identify weaknesses and adjust their practice accordingly. These analytical tendencies align with earlier research on expert musicians' effective practice approaches (Chaffin et al., 2010). Yet, an exploration of popular music bands' monitoring strategies in their collective and individual practice is lacking.

1.3. Feedback

In addition to monitoring, feedback provides another opportunity to diagnose weaknesses or errors in performance and to reflect on one's performance relative to established goals. Receiving immediate informative feedback is highly important for performance improvement (Ericsson & Harwell, 2019). Compared to praise, punishments, or rewards, informative corrective feedback is most effective for new skill acquisition (Wisniewski et al., 2020). Observing and imitating others during collective practice helps individuals collect passive feedback and adjust their performance accordingly (Green, 2016). Band members, as well as external agents such as managers, producers, or bookers, can be an abundant source of feedback at all stages of a semi-professional or professional career (Längler et al., 2022). However, little is known about how semi-professional and professional bands both give and receive feedback—internally and externally.

Besides giving and receiving feedback, actively seeking feedback also plays an important role. A proactive approach involves taking responsibility for assessing performance by seeking immediate feedback from internal (e.g., bandmembers) or external (e.g., producer) sources (Yan & Brown, 2017). Feedback-seeking can be defined as the conscious effort aimed at determining the correctness and adequacy of one's behaviours to achieve valued goals (Ashford et al., 2016). Several studies in various domains have found that feedback-seeking aids performance improvements (Bradley, 2022). In addition, both the extent to which feedback is actively sought and the use of multiple sources are directly and indirectly associated with enhanced creativity, particularly in generating new ideas and gaining additional perspectives on one's work (Wang et al., 2022). Five key dimensions describe different aspects of seeking feedback in organisational teams: (1) the frequency of seeking feedback, (2) the method used for seeking feedback (observing other's reactions, comparing with others or actively asking for it), (3) the timing of feedback-seeking (immediate versus delayed), (4) the source of feedback, and (5) the topic for which feedback is requested (e.g., specific aspects of performance) (Ashford et al., 2016). In classical music context, professional co-performers were found to give and seek feedback more often than music students during collective practice (Ginsborg & King, 2012). However, advanced classical music students were shown to rely less on external resources (e.g., teachers, peers, composers, specialists, materials) but more on personal resources (e.g., metacognition and monitoring) in their practice (Araújo, 2016). Whether and how semi-professional and professional music bands actively seek feedback internally and externally still is an open question.

Taken together, recent research suggests that professional popular music bands use their practice time more efficiently for collective deliberate practice and invest more time in individual deliberate practice than semi-professional bands (Schmidt & Gruber, 2023, 2024). There are, however, open questions regarding the qualitative differences between semi-professional and professional popular music bands' collective and individual deliberate practice. Building on prior research, this study goes beyond the quantitative measurement of deliberate practice and strategy use. Instead, it qualitatively explores the self-managed approaches to goal setting, monitoring, and feedback in semi-professional and professional popular music bands.

1.4. Aim and research questions

This study aims to explore approaches of semi-professional and professional popular music bands regarding the facets of deliberate practice in both collective and individual contexts, including goal setting, monitoring, in-band feedback, external feedback, and internal and external feedback seeking. The following research questions were addressed:

- 1) How do semi-professional and professional popular music bands approach collective and individual goal setting?

- 2) How do semi-professional and professional popular music bands collectively and individually approach monitoring?
- 3) How do semi-professional and professional popular music bands approach feedback in collective and individual contexts?

2. Method

2.1. Design

The study used an exploratory cross-sectional qualitative design. Semi-structured interviews focused on goal setting, monitoring, and feedback in both the collective and individual practice context of semi-professional and professional bands. A demographic questionnaire collected key background information about the participating popular music bands (see [Supplementary material A](#)).

2.2. Participants

Twelve Austrian and German popular music bands (nine semi-professional, three professional) with a total of 39 band members (31 semi-professional, 8 professional) from the genres pop, folk, and rock participated in the study. All bands composed their music and regularly performed in public. All band members were male. No band employed a teacher or a mentor. Both semi-professional and professional bands had extensive instrumental and band experience of at least 10 years on average. Semi-professionals had a mean age of $M = 25.79$ ($SD = 2.88$) years and played 13.5–55 concerts per year. Professionals had a mean age of $M = 31.08$ ($SD = 8.76$) years and played 60–85 concerts per year. To compare participating bands in terms of their professional level, the item of the questionnaire 'Can you make a living from the band's income?' and statements related to their professional background during the interview were used to differentiate between the two contrastive groups. In addition, self-reported monthly income from band activities was considered to support and validate the group assignment. Additional indicators related to the participating bands and their members are presented in detail in [Table 1](#).

2.3. Instruments

A questionnaire gathered demographic data of the band members (e.g., age, years of experience of the bands, years of experience with band instrument) and key data of the bands (e.g., number of released songs, number of concerts per year, living from the band's income, monthly income of the band; see [Supplementary material A](#)). A theory-driven, semi-structured interview guide was developed based on the three previously described aspects of deliberate practice that self-managed popular music bands might adopt: well-defined goals, systematic monitoring, and informative feedback. The interview guide comprised four sections: (1) entry questions about the band background, (2) goal setting, (3) practice and monitoring, and (4) feedback (see [Supplementary material B](#)).

2.4. Procedure

The bands were contacted via their management or social media. Bands were only included in the study if at least half of the band members agreed to participate. The participating band members completed the questionnaire before individual interview appointments were scheduled. Three individuals (from the bands B, G, and L) did not provide questionnaire data. Written informed consent was ensured beforehand. Ethical guidelines of the American Psychological Association were applied. Participation was voluntary, and no participant withdrew. All interviews lasted $M = 37.76$ ($SD = 11.65$) minutes, ranging from 20 to 60 min (24.54 h in total). Interviews were conducted online in German, recorded, and transcribed verbatim.

Table 1

Background information of participating bands based on a questionnaire.

Band	Number of bandmembers/ interviews/ questionnaires	Professional level	Years of existence	Experience of band ¹	Collective practice hours per week ¹	Prominence	Experience of band members	Individual practice hours per week ¹
A	4/4/4	S	5–6	15 released songs, 55 concerts per year, regional to Europe-wide	2.75	3891 monthly Spotify listener, 967 Instagram follower	Playing instrument in band for 5–18 years, band members for 5–6 years, have been active in 1–7 bands	4.75
B	6/3/2 ²	P	6	36.5 released songs, 60 concerts per year, Europe-wide	4.00	43,654 monthly Spotify listener, 6320 Instagram follower	Playing instrument in band for 15–32 years, band members for 6 years, have been active in 9–10 bands	11.00
C	5/3/3	S	5–7	20 released songs, 40 concerts per year, regional to Europe-wide	7.00	883 monthly Spotify listener, 1595 Instagram follower	Playing instrument in band for 6–17 years, band members for 5 years, have been active in 2–6 bands	2.00
D	4/2/2	S	7	29.5 released songs, 15 concerts per year, Europe-wide	3.13	395 monthly Spotify listener, 8495 Instagram follower	Playing instrument in band for 11–20 years, band members for 7 years, have been active in 3–4 bands	3.25
E	4/2/2	P	10	55 released songs, 85 concerts per year, world-wide	12.5	101,038 monthly Spotify listener, 16,300 Instagram follower	Playing instrument in band for 20 years, band members for 10 years, have been active in 1–3 bands	10.00
F	6/5/5	S	6–8	19 released songs, 45 concerts per year, Europe-wide	1.00	90,452 monthly Spotify listener, 14,400 Instagram follower	Playing instrument in band for 5–27 years, band members for 6–8 years, have been active in 2–7 bands	4.00
G	4/3/2 ²	P	11	57.5 released songs, 60 concerts per year, world-wide	0.00	71,956 monthly Spotify listener, 6525 Instagram follower	Playing instrument in band for 9–24 years, band members for 4–11 years, have been active in 5–8 bands	12.50
H	4/3/3	S	8	10 released songs, 15 concerts per year, national	5.00	61,947 monthly Spotify listener, 956 Instagram follower	Playing instrument in band for 13–21 years, band members for 8 years, have been active in 1–5 bands	12.00
I	4/2/2	S	10	7.5 released songs, 27.5 concerts per year, world-wide	4.50	395 monthly Spotify listener, 711 Instagram follower	Playing instrument in band for 17–24 years, band members for 5–10 years, have been active in 2–9 bands	4.00
J	4/4/4	S	4–5	8.5 released songs, 35 concerts per year, Europe-to world-wide	4.75	550 monthly Spotify listener, 1440 Instagram follower	Playing instrument in band for 10–17 years, band members for 2–4 years, have been active in 2–5 bands	9.25
K	5/5/5	S	7	15 released songs, 30 concerts per year, world-wide	0.10	6246 monthly Spotify listener, 1328 Instagram follower	Playing instrument in band for 10–14 years, band members for 2–7 years, have been active in 1–5 bands	0.15
L	6/3/2 ²	S	4	8.5 released songs, 13.5 concerts per year, national	4.00	67,433 monthly Spotify listener, 1310 Instagram follower	Playing instrument in band for 9–12 years, band members for 4 years, have been active in 5 bands	21.25

Note. ¹Medians are based on values of the data of respective individual band members, ²Questionnaire data from one bandmember are missing; S: Semi-professional, P: Professional.

2.5. Analysis

The analysis of the interview data followed the content analytical procedure by Mayring (2022) consisting of three main steps: deduction, induction, and a group comparison of semi-professionals and professionals. All data were scanned and segmented for analysis. Single words and sentences served as units of meaning for the analysis. In a first

step, a deductive analysis identified seven main categories (collective goal setting, collective monitoring, individual goal setting, individual monitoring, in-band feedback, external feedback, feedback seeking), and 26 subcategories were built based on themes that were derived from literature (see Appendix A). As a second step, an inductive analysis identified further main categories (feedback culture, feedback consequences) and subcategories (see also Appendix A). Statements from

band members regarding collective categories (e.g., collective goal setting or collective monitoring strategies) were used as indicators of the bands' collective approaches. Collective categories were checked for contradictory statements within the bands. In bands A, J, and K, one semi-professional member in each case reported contradictory statements opposed to other band members by rejecting performance goals (J and K) or monitoring strategies (A). No further data triangulation was applicable. Individual statements of band members for individual categories (e.g., individual goal setting or individual monitoring strategies) served as indicators of individual approaches. Afterwards, two coders individually coded the data and validated categories by analysing about 30 % (13 interviews) of the interview data (two semi-professional bands, two professional bands). A two-level researcher triangulation gathered different perspectives to ensure validity. On the first level, the codes of both coders were compared and adapted to achieve overall consensus. On the second level, adapted codes were discussed with the second authors until mutual agreement was reached. All interview data were reanalysed using the updated category system. Subsequently, all codes and categories were reviewed and discussed again with the second author to further aggregate and specify the categories resulting in the final category system (see [Appendix A](#)).

In a third step, the distribution and frequencies of categories and related codes were analysed in terms of the professional level of the participating popular music bands. To ensure comparability between both groups despite their unequal sizes, relative rankings based on frequencies of statements were used (see [Appendices B, C, and D](#)). Both professional levels were compared for differences and communalities in their collective and individual measures of the facets of deliberate practice. [Appendix B](#) provides a complete overview of all categories and subcategories with respective statement frequencies and relative frequencies, which served as an analytical tool for addressing the research questions.

3. Results

In the following, the results highlight the most distinct differences and important commonalities in the facets of deliberate practice between semi-professional and professional popular music bands. The differences and communalities are described based on the relative rankings of the frequencies within the main categories (***bold italics***) and the respective subcategories (*italics*). Semi-professional bands (A, C, D, F, H, I, J, K, L) and professional bands (B, E, G) are represented by letters, with each band member illustrated by a unique number (see also [Table 1](#)). Additionally, group allocation is indicated for semi-professional (SP) and professional (P) bands. [Table 2](#) presents all categories and subcategories (see also [Appendix B](#) for exemplary quotes).

3.1. Approaches of semi-professional and professional popular music bands to collective and individual goal setting

3.1.1. Collective performance goals

For their *music performance*, only semi-professional bands aimed to fulfil performance goals according to subjective standards (SP-K4: "To achieve a minimum standard and not so much perfection"). Both, semi-professional and professional bands similarly aimed for an errorless performance. In contrast, all professional bands and more compared to semi-professional bands reported setting goals regarding synchronicity of their collective music performance (SP-L1: "everyone is where they belong", referring to the synchronicity of their performance). Furthermore, more professional bands aimed for fluent musical performance (P-E2: "play together blindly").

Goals for *improvement* regarding writing better songs and having an idiosyncratic music style were similarly set by both semi-professional and professional bands. In contrast, more professional bands stated the goal of raising the performance benchmark ever higher. Another professional band (compared to no semi-professional) stated the aim of

Table 2

Final category system with deductive categories (in *italics*) and inductive categories.

Main categories	Subcategories
<i>Collective goal setting</i>	Music performance Synchronicity Errorless performance Fluent musical performance Subjective performance standards
<i>Collective performance goals</i>	Improvement Writing better songs Idiosyncratic music style Setting an ever-higher performance benchmark Integrating elements of different genres Live performances Rejection of performance goals Specific activities Jamming/Warming up with bekknown songs Vocals Elaborate selected songs Showing and reenacting songs Rhythm exercises Loops/repetition Basics Consistent practice schedule Individual preparedness Structuredness More structure/discipline Effectiveness Openness for individual creativity Goal-orientation on demand New musical material Produce new material Jamming Intense work on new material Upcoming demands Playing music material Live segues Choreography Sound/technical settings Usability of click tracks Restructure/rearrange songs for unplugged show
<i>Individual goal setting</i>	Music performance Physical fitness Rhythmic accuracy Performance safety Fluent musical performance Subjective performance standards Fulfil own part in band Errorless performance Keeping up with band Savouring playing ability Know own song parts Maintain performance Improvement Instrumental skills Vocal skills Creative expression Idiosyncratic style Vocal diversity Prioritize songwriting skills Rejection of improvement Live performance New content Learning new techniques Listening to music Technics Produce new material Songwriting Experimenting with songwriting Exploring other musical services Band material Practice familiar songs Practice new songs Mental practice
<i>Individual performance goals</i>	
<i>Individual practice goals</i>	

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Table 2 (continued)

Main categories	Subcategories
<i>Collective monitoring</i>	Simultaneous instrumental and vocal practice
	Basics
	Constant practice
	Following practice plan
	Learning focused practice
	Specific activities
	Goal-driven approach
	Practice with metronome
	Imagine live situation
	Using multitrack playalongs
	Transcribe scores
	Practice for fun
	Reenact familiar songs
	Improvisation
	Indifference
	Controlling strategies
	Practicing with a metronome
	Self-recordings for songwriting
	Digital song library
	In-ear monitoring
	Non-systematic comparing to recordings
	Score library
	Click-tracks for live shows
	Deep familiarity of others' playing
	Setting deadlines
	Testing synchronicity
	Dependence on bandmember's feedback
	Observation strategies
	Noticing errors
	Regular meetings
	Observe flow/energy
	Observe others' performance
	Analysis
	Analysing audio/video recordings
	Reflecting on improvements
	Comparing different song versions
	Analysing other music genres
	Including external views
	No active monitoring
	Self-controlling strategies
	Non-systematic comparing to former recordings
	Controlling self-recordings
	Meet subjective standards
	Controlling collective recordings
	Practicing to the metronome
	Counting recording takes
	Preproduction songwriting library
	Self-discipline
	Practice schedule
	Practice diary
	Controlling mechanisms
	Self-observation strategies
<i>Self-monitoring</i>	Perceive feelings regarding performance
	Satisfaction by cognitive freedom
	Room for improvements
	Self-analysis
	Reflect on individual improvement potential
	Analysing of collective recordings
	Analysing of individual recordings
	Openness
	Setting challenges
	Going beyond routine
<i>Feedback culture</i>	Knowledge about inspirational strategies
	No active self-monitoring
	Imagining band members as feedback references
	Knowledge about playing styles
	Anticipating feedback
	Appreciation of feedback
	Mutuality of feedback
	Directness of feedback
	Open and direct
	Harsh feedback
	Predominantly positive
	Regular band exchange/debriefing
	Centralized feedback

Table 2 (continued)

Main categories	Subcategories
<i>In-band feedback</i>	Feedback frequency
	High feedback frequency
	Middle feedback frequency
	Low feedback frequency
	Harmonic communication culture
	Desire for ongoing improvement in feedback culture
	Negative attitude towards feedback
	Delayed corrective
	Performance
	Immediate corrective
	Performance
	Songwriting
	Immediate positive
	Performance
	Immediate negative
	Performance
	Delayed corrective
	Performance
	Immediate corrective
	Performance
	Songwriting
	Announcements
	Vocals
	Immediate positive
	Performance
	Songwriting
	Announcements
	Lyrics
	Immediate negative
	Performance
	Songwriting
	Behaviour on stage
	Lyrics
	Corrective
	Technical contacts
	Organizational contacts
	Other
	Positive
	Technical contacts
	Organizational contacts
	Other
	Negative
	Organizational contacts
	Other
	Unspecific external feedback
	Technical contacts
	Organizational contacts
	Other
	Delayed active prompt
	Immediate active prompt
	Immediate observation of others' reaction
	Immediate comparing with others
	Active prompt
	Technical contacts
	Organizational contacts
	Other
	Comparing with others
	Active prompt
	Technical contacts
	Observation of others' reaction
	Comparing with others
	Changes induced by feedback
	Motivation through corrective feedback
	Motivation through positive feedback
	Motivation through negative feedback
	Motivate and instruct others to practice individually
	Practice harder and more focussed
	Acceptance of feedback
	Negative consequences of feedback
	Rejection of feedback in case of dissent
	Taking feedback personally
	Feedback can lead to dispute
	Demotivated by very negative feedback
	Assessment of feedback
	Reflecting on meaning of feedback
<i>External feedback</i>	
<i>Feedback-seeking</i>	
<i>Internal</i>	
<i>External collective</i>	
<i>External individual</i>	
<i>Feedback consequences</i>	

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Table 2 (continued)

Main categories	Subcategories
	Evaluating feedback in light of sender attributes
	Evaluating feedback according to own consensus
	Reflecting on feedback implementation
	Evaluating feedback according to own skills
	Evaluating feedback according to others' validation
	Collective constructive solutions of feedback
	Indifference

integrating elements of different genres into new songs to be written (P-E1: "Never try to write the same song twice and always incorporate new influences").

While there was no difference in goals for the amount of playing *live performances*, only semi-professional bands *rejected performance goals* (SP-J1: "Nothing at all, in my opinion, I'm completely satisfied with the way we do it").

3.1.2. Collective practice goals

With respect to goals for *specific practice activities* in collective practice, more semi-professional bands mentioned vocals. Furthermore, only semi-professional bands stated showing and reenacting songs as a collective practice goal. Only small or no differences were reported regarding jamming/warming up, doing rhythm exercises and loops/repetitions. In contrast, all or more professional bands reported working on elaborating selected songs during collective practice.

Related to *basics* for their collective practice, only semi-professional bands explicitly aimed to guarantee effectiveness, whereas more semi-professional bands, compared to professional bands, prioritised maintaining a consistent practice schedule. In addition, only semi-professional bands wished to bring more structure and discipline to their collective practice. One semi-professional band stressed goal orientation on demand (SP-A1: "You also have to make sure that you bring in discipline and proceed methodically, especially when it comes to recording an album"). Both, semi-professional and professional bands equally underlined individual preparedness as an important prerequisite for collective practice. In contrast, all or more professional bands mentioned guaranteeing a high structuredness as a collective practice goal.

With regard to *new music material*, more semi-professional bands stated the goal to produce new material. In contrast, all professional bands and more compared to semi-professional bands reported aiming to use their time in collective practice for jamming. More professional bands had the goal of intensively working on new material.

Facing *upcoming demands*, such as recordings or live performances, all semi-professional bands and more compared to professional bands had the goal of playing through their music material, mostly with the help of a setlist. No differences occurred for practicing a choreography. In contrast, more professional bands reported practicing the live segues for their performances.

3.1.3. Individual performance goals

Concerning *music performance*, only semi-professionals stated to aim for fluent musical performance, for subjective performance standards, for keeping up with the band, and for errorless performance. Goals of physical fitness, rhythmic accuracy, performance safety, and of fulfilling one's part in the band were equally reported by both. In contrast, only one professional reported having the goal of savouring his playing ability (P-E2: "I [...] enjoy being proficient at an instrument. It's a gratifying pursuit.") or maintaining performance (P-G3: "To keep the craftsmanship on the instrument working smoothly").

Regarding *improvement* goals, only semi-professionals stressed an idiosyncratic style and prioritised songwriting skills. Goals, such as instrumental skills, vocal skills, and creative expression, were common to semi-professionals and professionals. In contrast, only professionals reported aiming for vocal diversity.

Furthermore, only semi-professionals expressed a *rejection of improvement* (SP-K1: "It [*improvement*] is not even a big issue anymore. You feel like you have reached a level to be content with what you have achieved"). Both semi-professionals and professionals equally stated the goal of a satisfying *live performance* for the audience.

3.1.4. Individual practice goals

Differences according to *new content* could be detected, as only semi-professionals stated listening to music and aiming at clarifying technical issues. In contrast, more professionals reported aiming to learn new techniques, such as new drum patterns.

Goals regarding *producing new material*, such as songwriting and experimenting, were equally important for semi-professionals and professionals. Only one professional stated the aim of exploring other musical services, like arranging scores for movies or documentaries.

For their *band material*, only semi-professionals aimed at practicing new songs or instrumental or vocal simultaneity. Semi-professionals and professionals resembled each other in having the goal to practice familiar songs and mental practice (SP-A3: "I am constantly thinking about singing or my bassline").

Regarding *basics*, one semi-professional wanted to follow a practice plan or learn to practice in a focused fashion. In contrast, more professionals aimed at guaranteeing constant practice.

Only semi-professionals were *indifferent* regarding practice goals. No clear differences between semi-professionals and professionals were mentioned regarding the goals of *specific activities* and *practicing for fun*.

3.2. Approaches of semi-professional and professional popular music bands to collective and individual monitoring

3.2.1. Collective monitoring

With regard to using *controlling strategies* for monitoring their collective practice and performance, more semi-professional bands reported practicing with a metronome, making self-recordings for songwriting, and using a digital song library. Furthermore, only semi-professional bands compared their performance to collective practice recordings in an unsystematic manner, that is, without a planned approach to monitor their practice (SP-L3: "You often come across old recordings or videos on your phone and think, wow, I did not realise how much we have progressed since then"). No differences occurred for the use of in-ear monitoring, score library, click-tracks for live shows, and deep familiarity with others' playing.

More semi-professional bands reported playing their songs and noticing errors as *observation strategies*. Both, semi-professionals and professionals stated to equally observe their flow/energy (P-E2: "(...) then a truly beautiful magic emerges, a wonderful spell that spreads when we play") and others' performances. In contrast, more professional bands scheduled regular meetings about performance and next steps (P-G3: "We also have regular phone calls (...) to discuss how and what we will do next").

For the *analysis* of their performance, both equally reported analysing their audio and video recordings. In contrast, all professional bands and more compared to semi-professional bands stated to reflect on changes and improvements of their performances, while only one professional band compared different song versions or analysed other music genres.

Only semi-professional bands reported taking *external views* into account. Another semi-professional band indicated *no active monitoring* of their performances.

3.2.2. Individual monitoring

Only semi-professionals reported using *self-controlling strategies* to monitor their individual performance, such as non-systematic comparison to former recordings, controlling collective recordings, using a practice diary, and practicing with a metronome. Both semi-professionals and professionals controlled their self-recordings and

their performances for their subjective standards equally (SP-K4: “There is a certain standard that simply must be met. Certain notes need to be played. And I try to achieve that.”) or used a practice schedule.

More semi-professionals indicated *self-observation strategies* in terms of perceiving their feelings regarding their performance. Both showed communalities of being satisfied by cognitive freedom when performing (P-B1: “Whether I can develop an ease in playing (...) know it well enough to fully immerse yourself, hear what the others are playing, and no longer focus on yourself. That’s when you know you have reached a sufficient level of progress”) and observing room for improvements in their performance.

In terms of *self-analysis*, collective recordings were mentioned to be analysed equally by both. More professionals reported reflecting on their individual improvement potential. Similarly, only professionals analysed their individual recordings of their practice sessions.

Different facets of *openness* were favoured by both groups, as only semi-professionals reported going beyond routine, both set challenges for themselves equally, and only one professional stated to know strategies to inspire himself in unproductive times.

Both, semi-professionals and professionals equally *mentioned imagining band members as feedback references* during individual practice. Only semi-professionals reported *no active self-monitoring* of their practice and performance.

3.3. Approaches of semi-professional and professional popular music bands to feedback in collective and individual contexts

3.3.1. Collective feedback culture

Only semi-professional bands reported a *directness of feedback* characterized by openness and clarity, but also by occasional harshness (SP-J4: “Very direct, very – we are also rough with each other (...)”). In addition, only semi-professional bands reported predominantly giving positive feedback. Furthermore, only semi-professional bands had a *negative attitude towards feedback*. Both semi-professional and professional bands likewise reported *appreciation for receiving feedback, giving mutual feedback*, and distinct band members being *central for feedback processes* in particular. Furthermore, both groups claimed to have a *regular exchange* within the bands, striving for a *harmonic communication culture*. All professional bands and more reported the highest *feedback frequency*. Only professional bands reported wishing for *ongoing improvements in feedback culture*.

3.3.2. In-band feedback

Only semi-professional bands reported giving immediate positive or negative *collective feedback* regarding their performance. No systematic differences could be detected for immediate corrective feedback about performance and songwriting, while only a professional band stated giving delayed corrective feedback about performance.

In terms of *individual feedback*, more semi-professional bands gave immediate positive feedback about performance or songwriting. More semi-professional bands gave immediate corrective feedback about songwriting. Furthermore, only semi-professional bands gave immediate negative feedback about performance, while there was no difference related to songwriting between the groups. In contrast, only one professional stated giving delayed corrective feedback about performance, while all or more professional bands reported giving immediate corrective feedback about performance.

3.3.3. External feedback

Differences in external feedback resources occurred mainly for *corrective external feedback*. Organisational contacts and other contacts, such as family and friends, served as *corrective feedback resources* only for semi-professional bands. In contrast, technical contacts were important for all professional bands and more compared to semi-professional bands. While organisational contacts and other contacts were equally important for both groups regarding *positive feedback*,

other contacts often gave *negative feedback* to more semi-professional bands.

In general, and regarding unspecific feedback (without possible categorisation as corrective, positive, or negative), other feedback contacts were mentioned by more semi-professional bands. Organisational contacts were equally mentioned. Technical contacts, however, were reported as important feedback resources by all professional bands and more compared to semi-professional bands.

3.3.4. Feedback seeking

The most mentioned form of *internal feedback seeking* by both groups was an immediate active prompt. No differences occurred in the other and delayed forms of feedback seeking, like observation of others’ reactions and comparing with others. For *external collective feedback seeking*, more semi-professional bands named other contacts as a resource for active prompts. Both groups equally used active prompts for feedback from organisational contacts, while all professional bands and more compared to semi-professional bands mentioned technical contacts. No systematic differences were found in *external individual feedback seeking*. However, only professionals stated to use active prompts for feedback from technical contacts.

3.3.5. Feedback consequences

In terms of *changes induced by feedback*, receiving positive and negative feedback was experienced as equally motivating by both groups. Both also mentioned motivating and instructing others as a consequence. More professionals emphasised being motivated by corrective feedback leading to practicing harder and more focused. Both groups claimed to *accept the feedback* they received. Only semi-professionals, however, indicated *negative consequences of feedback*, such as rejecting feedback and disputing feedback. Furthermore, more semi-professionals stated taking feedback personally, while only professionals stressed to be demotivated by very negative feedback. Only semi-professionals mentioned *assessments of received feedback*, such as evaluating feedback in light of sender attributes and according to their consensus or skills. Both equally reported reflecting on the meaning and implementation of feedback. Only semi-professionals also stated that they were *indifferent* about the feedback they received.

4. Discussion

Thrilling the audience by playing live on stage or releasing recordings is probably one of the main motives of popular music bands, regardless of whether they make music semi-professionally or professionally. To do so, collective and individual practice are decisive elements of preparing for these live performances or recordings. Based on the crucial importance of practicing, this study explored how semi-professional and professional music bands approach their collective and individual practicing. We explored those practice processes related to the implementation of distinct self-managed facets of deliberate practice: setting goals, monitoring, feedback culture, in-band feedback, external feedback, feedback seeking, and feedback consequences.

4.1. Collective and individual goal setting

In terms of their collective goals, semi-professional bands tend to emphasise musical output, particularly through the continuous creation of new songs with the aim of improved quality. This focus on compositional activities may be especially relevant at this stage of a career, as new music material is essential for live performance and increasing publicity, but can present challenges for semi-professionals (Bennet, 2012). Consequently, improving the skills in producing better music material is crucial. However, in preparation for upcoming demands, such as concerts, their collective practice tends to primarily consist of playing through their material rather than refining specific performance aspects. Indeed, professional bands also follow the collective goal of

producing new and better songs, such as jamming collectively to create musical ideas or motifs. However, in line with [Ericsson and Harwell \(2019\)](#), professional bands appear to place a strong emphasis on continuous engagement with their repertoire, guided by more clearly defined images of performance goals. In addition, structured practice on specific weaknesses and possible areas of improvement was perceived as relevant. While some semi-professional bands also pursue specific performance goals and engage deeply with improving specific songs, others seem to lack a clearly defined image of their performance. For these bands, performance in general may hold less significance, and meeting their standards may be considered sufficient. Nevertheless, with individual preparedness for collective practice sessions as an objective, maintaining a constant collective practice schedule remains essential for semi-professionals. This necessity is reflected in practice goals such as teaching other's songs through showing and reenacting. Furthermore, it is underlined by the goal for more structure and discipline in their collective practice.

Having individual performance goals is less a priority compared to collective goals for both semi-professional and professional band members, as they may identify themselves with their bands to a great extent. Although semi-professionals pursue individual goals, such as improving instrumental skills and practicing familiar songs, professional band members seem to attach a greater importance to the individual practice context than semi-professionals. For instance, professionals emphasised consistency as a foundation for their practice and getting in touch with new practice content to constantly expand their musical horizon—an approach that may indirectly support their collective performance context. This aligns with recent research indicating that members of professional popular music bands dedicate more time to individual deliberate practice and adopt a more goal-directed approach compared to semi-professionals ([Schmidt & Gruber, 2024](#)).

4.2. Monitoring of collective and individual performance and practice

In line with [Volioti and Williamon \(2017\)](#), semi-professional bands employ various conscious strategies to monitor their collective performance and practice, such as using a metronome to control for synchronicity or self-recordings to assess songwriting and performance. However, reliance on a metronome in collective practice may also indicate deficiencies in keeping the tempo or insufficient individual preparation. In addition, prevalent collective monitoring strategies, such as noticing errors by playing through their songs, appear rather unsystematic and require respective skills as a prerequisite to recognise mistakes. Professional bands seem to monitor their practice and performance rather systematically and constantly through a deliberate analysis of their performance, discussion, and reflection on potential improvements. Strategies such as using a metronome may be less important at this career stage ([Schmidt & Gruber, 2024](#)), as a collective and shared rhythmical understanding has already evolved, or individual tempo and rhythmic performance have been ensured through individual practice. Therefore, an external beat to harmonise with each other may no longer be necessary.

A significant number of semi-professionals appear to rely on their feelings when evaluating their performance, use recordings unsystematically, or do not consciously engage in monitoring at all. Professionals rather trust in an analysis of and reflection on their performance. Thus, the monitoring strategies of professional popular musicians align with the emphasis they place on individual (deliberate) practice, as demonstrated in research in music expertise and professional development ([Bonneville-Roussy & Bouffard, 2015](#); [Schmidt & Gruber, 2024](#)). Furthermore, monitoring strategies along with the importance professional popular musicians attach to individual practice contrasts with Creech et al.'s (2008) findings, which suggest that non-classical musicians prioritise (collective) practice for fun over individual (deliberate) practices.

4.3. Approaches to feedback

In general, an appreciation of feedback within a harmonic communication culture seems to encourage band musicians to mutually provide and actively seek feedback from their band members. However, specific band members play a particular role in directing band activities by giving feedback in both semi-professional and professional bands, which may indicate them as band leaders. Although the acceptance of feedback is similarly pronounced in both groups, some semi-professionals also assess feedback beforehand, remain indifferent, or dismiss it entirely. Moreover, accepting mutual feedback within bands may present challenges to some, mostly semi-professional band members. Their direct to harsh feedback style may cause the mentioned personal affection and partial rejection of feedback and influence future feedback processes ([Peterson & Befahr, 2003](#)), as semi-professional bands reported less frequent feedback than professional bands. Furthermore, band members may have different role assignments and expectations, which can lead to difficulties on an emotional level, resulting in conflicts (e.g., bonding as a friend, giving and accepting criticism in the form of constructive and negative feedback). In contrast, a teacher or mentor as an external person with a less profound emotional connection might be more easily seen as a reasonable critic of one's performance. Consequently, predominantly positive or negative feedback within the individual performance context—or less feedback in general compared to professionals—might be expressed by semi-professionals within the band. Moreover, semi-professionals might lack relevant social skills and musical knowledge to provide respectful, factual feedback. In contrast, corrective feedback within the collective performance context may be expressed, as it is less personal and directed at the band as a whole instead of a specific individual. Semi-professionals' individual corrective feedback, therefore, seems to be more related to personal taste in creative processes, like writing new songs. The prevalent directness of feedback within some semi-professional bands, which may appear unobjective, unreasonable, and less socially acceptable, can lead to the avoidance of individual performance critique in the form of corrective or negative feedback. Instead, predominantly positive feedback might have been cultivated in these bands. This may partly explain why semi-professionals are mostly motivated through positive feedback. Professional bands, by contrast, primarily provide corrective feedback within the individual performance context (as well as the collective performance context). Such feedback not only serves as a source of motivation but may also support their individual performance and, by extension, enhance the bands' collective performance. The ability to respond constructively to corrective or negative feedback may contribute to explaining the high levels of motivation observed among professional musicians ([Appelgren et al., 2019](#); [Schmidt & Gruber, 2023](#)).

Semi-professionals may benefit from organisational contacts, such as producers or managers, when focusing on their career development. However, they seem to rely predominantly on personal contacts, such as friends and family, giving mostly negative or positive external feedback. In contrast, professionals often have a permanent technical staff as another external feedback resource at their concerts, such as sound or light engineers, who may possess considerable musical knowledge. Professionals notably benefit from these contacts by getting mainly corrective feedback, which extends the findings on network support by [Längler et al. \(2022\)](#). In general, important external contacts constitute opportunities for both semi-professionals and professionals to actively solicit feedback. Notably, this feedback was primarily sought with regard to the bands' collective performance rather than individual performance context. This may highlight the popular musicians' identification with their band as a collective entity, but also points to an underutilised potential for feedback seeking on individual performance.

4.4. Interplay of goal setting, monitoring, and feedback in collective and individual contexts

Taken together, semi-professional bands and their members appear to place a greater emphasis on the collective performance and practice context—manifested through adherence to a consistent rehearsal schedule—than on the individual practice context. Furthermore, pending or emerging questions and problems were rather monitored and attempted to be solved and discussed together during the collective rehearsal sessions. Professional bands emphasise both practice contexts with a specific focus on their performance and improvement. Both contexts seem to be intertwined with goal setting, monitoring strategies and frequent feedback. In addition, consistency is the basis for professionals' individual practice context.

Nevertheless, semi-professionals also incorporate deliberate practice facets, but with a stronger emphasis on creative processes in the collective practice context, such as writing new songs. Consequently, goals for improvement, monitoring, and feedback processes focus on these creative processes. Thus, semi-professional bands and their members provide less constructive or corrective feedback on their performances than on their creative processes. Effective monitoring strategies like the use of a metronome or recording analysis (Hallam et al., 2012) together with a constant collective practice schedule might be particularly important in partially compensating for the lack of individual practices. Observing and noticing one's feelings serves as a rather unsystematic and ineffective strategy to control collective and individual performance. Concerning semi-professional popular music bands, the results align with previous research by Creech et al. (2008), suggesting a focus on the collective practice among non-classical musicians.

Professional bands tend to focus their goals on distinct performances, specific improvements, and an elaborate practice approach, both within collective and individual practice contexts. Thus, an analysis of performances and contemplation on improvements serve as monitoring strategies, which are consolidated in regular exchange. To reach their goals, professional bands may have established a vibrant feedback culture with an emphasis on their performance. Their feedback behaviour appears to be grounded in collective reflection on potential improvements, including aspirations to further refine processes such as mutual feedback. Consciously delaying feedback may provide the necessary time for reflection to frame it appropriately and sensitively. In this respect, professional bands also benefit from the professional staff they employ. However, weaknesses in these self-managing skills cannot be generally excluded for highly advanced and professional musicians. This result reinforces the advantage of promoting these skills in music education from the bottom up (Dos Santos Silva & Marinho, 2025).

Although this study focuses on a specific group within the domain of music, its findings may nonetheless be transferable to other domains with regard to key aspects of collective and individual learning. These may include the alignment of collective and individual goals for mutual benefit; performance monitoring grounded in thorough analysis and reflection; a transparent feedback culture with opportunities for feedback seeking—characterised by informative, constructive, and respectful feedback. Additionally, the importance of external perspectives embedded within professional networks may prove relevant to both collective and individual learning across a range of domains.

4.5. Limitations and future research

This study provides insights into a special sample of twelve active, music-producing popular music bands. Through its explorative and qualitative design, the study obtained detailed data on the bands' approaches to facets of deliberate practice in both collective and individual contexts. Simultaneously, the chosen design and specific sample composition also entail certain limitations, affecting the generality of the study's findings. The findings rely on self-perception and self-reports regarding the explored deliberate practice facets. The interplay of these

facets could only be discussed ostensibly at the group level, as explicit, valid relationships could not be identified in our data. Thus, the quality and effectiveness of interacting approaches cannot be differentiated for semi-professional or professional bands, although such differences may exist. Specific approaches, such as feedback, may be driven by underlying factors, including a lack of required skills and knowledge to adequately recognise errors or improvement potentials. Other approaches, such as corrective feedback or reflecting, may become increasingly important with increasing performance aspirations and especially valuable once certain skill levels are mastered. Furthermore, considerable variation was detectable within the semi-professional subgroup. In addition, distribution across gender and professional subgroups was imbalanced. Consequently, insights into professionals' implementation of the described facets of deliberate practice were less comprehensive. These limitations could be addressed by future research using longitudinal research designs incorporating observational data. Videography of collective practice situations may offer a valuable method for deepening insights. For instance, observing individual behaviour and interaction directly can help further explore the interplay of self-managed deliberate practice facets and to investigate the quality of their deliberate practice, including quantitative and qualitative measures of practice and performance. However, the increased obtrusiveness of such methods poses challenges, particularly in gaining access to and ensuring the willingness of a (scarce professional) sample. Beyond that, future research could further investigate the characteristic circumstances and reasons for the variance in the semi-professional subgroup. Some semi-professionals might be more ambitious than playing in a band as a hobby. Instead, they might aim at climbing the next levels in their musical career by consciously taking more ambitious goals for their performance and practice, monitoring their development, and using feedback also as a corrective tool to transform their performance to more advanced levels. In line with Pundt (2021), collective creative processes with underlying individual skills in writing and producing music may be interesting for future research, especially from an expertise perspective when examining the conditions for the development of both collective and individual creative skills. Building on Debatin et al. (2023), investigating the degree of individualisation as well as content-related aspects of goal setting, monitoring, and feedback processes when striving for collective coherence may represent a critical determinant distinguishing performance and/or professional levels. Thus, future research could explore how ambitious semi-professional and professional bands—or music groups in general—design their collective and individual practices. This research could also extend the individualised, strategic, and adaptive behaviours music groups employ.

CRedit authorship contribution statement

Simon Schmidt: Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Helen Jossberger:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Conceptualization. **Hans Gruber:** Writing – review & editing, Validation, Supervision.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used ChatGPT in order to improve readability and to support the translation of participants' statements. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declaration of Competing Interest

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.lecon.2025.100018](https://doi.org/10.1016/j.lecon.2025.100018).

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