

Music-Critique Data Obtained From Professional Teachers Listening to Instrumental Performances

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Abstract

The mastery of musical-instrument playing skills is significantly shaped by individual traits and instructional methodologies. Since teachers rely on personal subjectivity and empirical knowledge in their guidance, scientifically effective teaching methods remain partially understood. Our project sought to investigate this by conducting a series of activities to examine where teachers direct their attention during performances and how they formulate critiques. This paper presents the Critique Documents (CROCUS) database, which we created for music performance. CROCUS includes musical performances for three instruments, textual comments as critiques, assessments of the critique's utility, and annotated semantic types for critique sentences.

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This comprehensive database offers a new substantial and valuable resource for researchers exploring music education and learning activities.

Keywords

musical instrument – performance data – critique data – professional teacher – audio data – textual data – Japan – relational database

1. Introduction

In the practical instruction of musical instruments, knowledge is communicated through a combination of non-verbal cues such as singing and playing melodies, and gesturing, as well as verbal instructions aimed at conveying nuances of musical expression (Dorman, 1978; Froehlich, 1995; Lehmann et al., 2007). However, the distinctive nature of such interactions complicates the externalization of the teacher's essential perspectives and teaching. Specifically, the knowledge of the types of “words” used in musical performance instruction to enhance skill and expression is not widely disseminated. Therefore, it is necessary to identify insights regarding the effective use of language in performance guidance by collecting and analyzing the language spoken and used by professional teachers.

Musical-instrument instruction has traditionally been conducted in person and was considered unsuitable for virtual learning environments. However, the COVID-19 pandemic has led to increased demand for online music tuition (Bayley & Waldron, 2020; Hash, 2021). One advantage of online music tuition is that physical space and time do not necessarily have to be shared, enabling remote and asynchronous teaching (Biasutti & Schiavio, 2021; Yalcinalp & Avcı, 2019). However, the low resolution of online video and audio communication presents a limitation in conveying non-verbal information, making it difficult to communicate complex body movements and high-quality sound performances (Matsubara et al., 2021a). Consequently, the significance of verbal information in music tuition, particularly in the critique documents of asynchronous online performance instruction, is expected to increase (Dye, 2016).

Our project sought to construct a critique format with the aim of promoting music education through the study of verbal information in performance instruction (Matsubara et al., 2021a; Matsubara et al., 2021b; Kagawa et al., 2023). This paper introduces an open database of musical performance critiques in Japanese called CROCUS (CRitique dOCUMENTS). CROCUS consists of two main subsets: performance-recording and critique respectively containing musical performances by multiple players and critiques of those performances by multiple professional teachers with a total of 635 critiques from 49 teachers for 213 instrument performances. The data are summarized in Table 1.

TABLE 1: Summary of CROCUS

Instrument	No. of Performers	No. of Critics	Performance-Recording	No. of Musical Pieces	No. of Recordings	No. of Critiques
Oboe	9 (music college students)	12 (music college teachers)	Yes	10	90	239
Piano	4 (professional players)	24 (professional teachers)	No (obtained from CrestMusePEDB)	10	40	144
Classical guitar	12 (8 students and 4 adults who have participated in competition)	13 (professional players/ teachers)	Yes	7	84	252

CROCUS also includes secondary datasets derived from the analysis of the critique dataset.

CROCUS has innovative features when compared with previous databases serving as music-knowledge resources (Salamon, 2019). Many previous databases use basic musical elements and consist of a collection of performance-recordings (Gillman et al., 2022; Goto et al., 2002) and musical scores (Foscarin et al., 2020; Hawthorne et al., 2019; Hentschel et al., 2021; Wang et al., 2020). Several databases include various other aspects such as metadata (e.g. genre, composer, lyrics, fingering, and music analysis (Goto et al., 2003; Hamanaka et al., 2018; Nakamura et al., 2020; Silla et al., 2008; Sturm, 2012)), other multimodal information (Li et al., 2016; Weiß et al., 2021), emotions (Chen et al., 2025; Choi et al., 2022; Zhang, 2018), and students’ interpretations (Hashida et al., 2008; Hashida et al., 2017; Miragaia et al., 2020; Sapp, 2007). To the best of our knowledge, CROCUS is novel in that it focuses on teaching behavior for musical performance. While there are several databases for music-listening events (Schedl, 2016; Vigliensoni & Fujinaga, 2017) created from online music services, they are not intended for students to learn performance pieces. Compared with these databases, CROCUS enables the evaluation of the relationship between the verbal information in the instructions and musical performances.

2. Dataset Overview

CROCUS contains two main subsets created during our study, forming the basis for the majority of our research. These datasets are the “performance-recording” dataset, which contains audio recordings of instrumental

performances by players at various levels, and the “critique” dataset, which contains professional teachers’ textual comments for each performance-recording. These datasets were collected for each of the three instruments: oboe, piano, and classical guitar.

The selection of these instruments, participants and pieces was guided and supervised by the authors with expertise:

- For the oboe dataset, the selection was supervised by I. Tsuji, a professional oboe player and teacher at a music university, and T. Hirano, a horn player with research expertise in wind and string instruments.
- For the piano dataset, M. Matsubara and R. Kagawa, who have backgrounds in music informatics and performance analysis—the same field as the organizers of CrestMusePEDB with whom they collaborate—oversaw the curation process.
- For the classical guitar dataset, H. Takeda, an expert in informatics, and N. Iino, a professional classical guitar player and teacher, guided the selection.

We attempted to ensure both musical authenticity and research rigor in the dataset creation through this multidisciplinary expertise, combining professional performers, music educators, and informatics researchers.

It is important to note that data collection is ongoing, and the current datasets reflect the results gathered so far, with further refinement and expansion planned as the study progresses.

All procedures were approved by Institute of Library, Information and Media Science Research Ethics Review Committee, University of Tsukuba (approval number: 20–22 and 21–67), Kunitachi College of Music (approval number: 2007), and Senzoku Gakuen College of Music. All procedures were followed in accordance with all relevant guidelines and regulations. Informed written consent was obtained from all participants for each set of activities.

3. Participants

This project aims to understand what learners find valuable in critiques rather than to create a definitive guide to effective comments on performance. To achieve this, the focus was on exploring a range of perspectives, recognizing that evaluations can vary depending on the recipient. The goal is to develop a personalized “preferred guide” that reflects the diversity of both teachers and learners, rather than establishing a single “correct” approach to instruction.

The participants involved in creating these datasets were divided into two categories: performers and critics, with performers mainly consisting of students or musicians, and critics being individuals primarily engaged in teaching (see Table 1). Participants were recruited through the professional networks of

the authors, so that we could access qualified participants while maintaining ethical standards through approved review boards at each institution.

The performers for each instrument represented different skill levels appropriate to the pedagogical context:

- Oboe: nine undergraduate students (years 1–4) from a music college, representing developing musicians at various stages of their formal training.
- Piano: four professional performers whose recordings were obtained from the CrestMusePEDB database, representing advanced performance standards.
- Classical guitar: 12 performers comprising both students and adults. The student group consisted of eight participants (from junior high school to graduate) who had competed in domestic competitions in Japan, with skill levels ranging from intermediate to advanced competition winners. The adult group consisted of four participants who had competed in amateur competitions in Japan.

This diversity in skill levels was intentional, allowing us to capture critique patterns across different stages of musical development.

The critics who provided feedback were selected based on their teaching experience and professional expertise at the time of this study. Especially, we carefully selected a diverse group of teachers, including both professional performers and active educators, ensuring they had: (1) active engagement in music education and (2) familiarity with standard pedagogical repertoire.

- Oboe: 12 instructors currently affiliated with, or previously affiliated with, renowned domestic music universities, orchestras, or wind ensembles.
- Piano: 24 professional teachers with established teaching practices.
- Classical guitar: 13 individuals active as professional performers and teachers.

All participants were native speakers of Japanese and provided written informed consent to take part in the study and received a participation fee.

4. Performance-Recording

The performance-recording dataset was created as an audio resource for the teacher to critique. Note that only audio recordings were collected. This decision was made to ensure a fair critique and to protect participants' privacy, as including video would have posed challenges. To collect performances, the procedure was conducted in a manner similar to an online lesson (asynchronous class) due to the COVID-19 pandemic. For the oboe and classical guitar, the recordings were carried out by mailing an integrated circuit recorder (Roland R-07) to each performer's home, which was then returned after recording. Along with the recorders, an experimental instruction, a consent form issued by the university, and registration form for the transfer of gratuities

were also sent. The recordings were conducted after they signed consent. For the classical guitar performers who were high school students or younger, as mentioned above, parental consent was also obtained.

Each performer played all designated pieces (shown in Table 2) in a quiet environment at home, positioning themselves approximately one meter away from the recording device. These pieces were adjusted to fit within two minutes by omitting repetitions or selecting only certain phrases. For the classical guitar, each of the 12 performers played seven pieces, resulting in a total of 84 recorded performances. For the piano, the audio data we used were obtained from CrestMusePEDB (Hashida et al., 2008), a database covering classical Western music, particularly piano pieces performed by well-known professional players.

Table 2 lists the pieces for each instrument, selected by the expert authors with input from selected critics who had expertise in the respective instruments, ensuring both research objectives and pedagogical relevance. During the selection process, three key considerations were identified: (1) instrument-specific pedagogical traditions differ, (2) the technical and musical challenges vary fundamentally across instruments, and (3) the pieces needed to be playable by performers of various skill levels. Therefore, we relied on specialist expertise to ensure that the pieces represent what is actually played and taught in real educational settings, rather than applying uniform selection criteria across fundamentally different instruments.

The resulting selections reflect established pedagogical practices:

- Oboe: 10 pieces were selected from standard orchestral studies considering the balance of difficulty level, musical style, and historical period. These orchestral excerpts span from the Classical period (Beethoven, 1803) to the Modern period (Prokofiev, 1936) and represent the core repertoire that oboe students encounter in professional training and auditions.
- Piano: 10 pieces were selected to balance technical development and musical expression, following conservatory curriculum standards. The selection includes fundamental technical studies (Bach Inventions), core classical repertoire (Beethoven and Mozart Sonatas), and expressive works from the Romantic and Impressionist periods (Chopin, Schumann, Debussy).
- Classical guitar: seven pieces were selected following the typical progression used in guitar pedagogy, from technical etudes (Sor, Carcassi) to concert pieces (Tárrega, Sagreras). This selection reflects the standard curriculum structure in classical guitar education, progressing from foundational exercises to performance repertoire.

Such expert-driven selection ensures that the dataset captures authentic teaching scenarios and the diverse range of technical and musical challenges that teachers address in actual pedagogical practice.

TABLE 2: List of Musical Pieces

Instrument	ID	Composer	Piece
Oboe	n01	L. v. Beethoven	Symphony No. 3 in E flat major “Eroica”, Op. 55
	n02	G. A. Rossini	“La Scala di seta” Overture
	n03	F. Schubert	Symphony No. 8 in B minor, D.759 “Unfinished”
	n04	J. Brahms	Violin Concerto in D major, Op. 77
	n05	P. I. Tchaikovsky	Symphony No. 4 in F minor, Op. 36
	n06	P. I. Tchaikovsky	“Swan Lake”, Ballet Suite, Op. 20a
	n07	N. Rimsky-Korsakov	“Scheherazade”, Symphonic Suite, Op. 35
	n08	R. Strauss	“Don Juan”, Symphonic Poem, Op. 20
	n09	M. Ravel	Le Tombeau de Couperin I. Prelude
	n10	S. Prokofiev	“Peter and the Wolf”, Symphonic Tale, Op. 67
Piano	n01	F. Chopin	“Tristesse”, Op. 10, No. 3
	n02	F. Chopin	“24 Préludes”, Op. 28, No. 7
	n03	J. S. Bach	Invention No. 1 in C major, BWV 772
	n04	J. S. Bach	Invention No. 15 in B minor, BWV 786
	n05	L. v. Beethoven	Sonata No. 8, Op. 13, 2nd Mov.
	n06	L. v. Beethoven	Sonata No. 8, Op. 13, 3rd Mov.
	n07	R. Schumann	“Traumerai”, Kinderszenen No.7, Op. 15
	n08	W. A. Mozart	Sonata No.11 in A major, K. 331
	n09	C. Debussy	La Fille aux cheveux de lin
	n10	C. Debussy	Rêverie
Classical guitar	n01	F. Sor	Etude Op. 31, No. 1
	n02	F. Sor	Etude Op. 35, No. 22
	n03	M. Carcassi	Etude Op. 60, No. 3
	n04	Anonymous	Romanza
	n05	F. Tárrega	Lágrima
	n06	L. Walker	Kleine Romanze
	n07	J. S. Sagreras	Maria Luisa

The recorded data were checked by an acoustic expert to ensure the absence of any extraneous noises (such as traffic or air conditioning) when the volume was low, the absence of mistakes in the recorded musical piece, and the absence of poor recording conditions. Some data had low volume, with a

sampling rate lower than 96Hz/24bits, or contained background noise. Data with such problems required adjustments as they could potentially influence the critics during their review. Therefore, before sending the data to the critics, the expert fine-tuned and resampled the sound pressure while eliminating noise from the recorded files. As a result of these processes, no issues or concerns were raised by the critics regarding the data.

5. Critique

The critique dataset was created to externalize and acquire the insights and perspectives of professional teachers in musical education through written text. The dataset creation followed the same process as that of the performance-recording dataset. Initially, USB drives containing a part of the recordings and critique entry sheets were mailed to each teacher. They then wrote critiques and returned them. To obtain consent, each teacher was asked to sign and return the consent form issued by the university.

The instructions for writing critiques were provided as follows: “Please assume you are at a lesson site. Listen to the performance-recordings provided on the enclosed USB drive and offer critiques for each performance. The performance piece is from any of the listed compositions, and the performer’s information is anonymized. Due to the impact of COVID-19, please note that recording environments may vary for each performer. There is no need for overly formal critique narratives; grammatical accuracy is not essential. You may use a conversational tone. Critique documents will be anonymized and provided as comments to the performers.”

The total number of critiques for each instrument is shown in Table 1. Each teacher wrote one textual comment for one performance-recording and each teacher in total wrote 6 (for piano), 20 (for oboe), and 20 or 19 (for classical guitar) textual comments. For the classical guitar, each of the 13 teachers provided critiques for either 19 or 20 performances, resulting in a total collection of 252 critique data points. For the oboe, one piece of critique was lost during the collection process.

6. Data Description

The performance-recording data collected from performers are publicly available without restrictions through the following repositories:

- Oboe: <https://zenodo.org/doi/10.5281/zenodo.4748243>.
- Piano: Available through CrestMusePEDB (<http://www.crestmuse.jp/pedb/>) with registration.
- Classical guitar: <https://zenodo.org/doi/10.5281/zenodo.7778922>.

The critique data collected from critics are available on the following Zenodo repositories:

- Oboe: <https://zenodo.org/doi/10.5281/zenodo.4748243>
- Piano: <https://zenodo.org/doi/10.5281/zenodo.7753364>
- Classical guitar: <https://zenodo.org/doi/10.5281/zenodo.7778922>

These DOIs represent all versions, and will always resolve to the latest one. Readme files are included with the oboe data to describe the particular structure of the data. The score files (PDF) are also included in oboe and classical guitar repositories.

Additionally, all critique data can be accessed from CROCUS via <https://masaki-cb.github.io/crocus/#/>. For English translations, you can click on “Translate on Google” at the bottom of the “Critique document” to be directed from CROCUS to the Google Translate site to check the automatically translated results. In oboe and classical guitar, CROCUS visualizes the relationships among performance-recording and critique data in an easy-to-understand manner.

Along with the main datasets (performance-recording and critique), CROCUS includes secondary information on critique document evaluation. It can be found in the “List of Critique Documents” on the aforementioned site. The details of this dataset can be viewed by selecting a row, and multiple sorting is possible with the shift key. Furthermore, the critique-document-type dataset can be visually represented by color by clicking on “display tags” under “Critique document”.

7. Concluding Remarks

The CROCUS dataset represents a significant advancement in the study of music education by enabling an in-depth exploration of critique ways among professional music instructors. This resource provides an unparalleled opportunity to analyze how verbal feedback contributes to musical skill development across diverse instruments. Key insights include the role of subjective and objective feedback in enhancing instructional quality, the variation in critique styles across instruments, and the potential for this dataset to guide the creation of tailored teaching methodologies.

By focusing on the linguistic dimensions of teaching rather than solely on non-verbal interactions, this approach challenges traditional pedagogical theories that undervalue the role of verbal communication in music instruction. The integration of critique evaluation metrics, such as those assessing utility and clarity, demonstrates a practical framework for improving the effectiveness of teaching practices. The dataset’s accessibility on platforms such as Zenodo ensures its utility as a foundational resource for future investigations into the intersection of music, language, and pedagogy.

Author Contributions

Nami Iino: data collection for classical guitar, writing.

Rina Kagawa: methodology, data collection for oboe and piano, data curation, resources, supervision.

Hideaki Takeda: data collection for classical guitar, review and editing.

Isao Tsuji: data collection for oboe.

Takeshi Hirano: data collection for oboe.

Masaki Matsubara: conceptualization, methodology, data collection for oboe and piano, data curation, resources, supervision.

All authors reviewed the manuscript.

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