



# Hearing Is Fundamental

BY DENNIS FLEISHER

A musician's "ear" is the sine qua non of musicianship, the hallmark of a God-given gift of musical talent. How well we hear sounds in a musical context is an indicator of musical aptitude, for hearing is the foundation of what we do and how we do it as musicians. Hearing is the most common first step in music making: Even before we learned to read music, our first musical sounds were likely produced when we tried to imitate something we heard. This same developmental action is also the basis of many musical forms, particularly the call-and-response and, more pertinently, the dialogic elements of the Mass. Hearing is fundamental in music.

If we study music seriously, we develop our listening skills further in ear training classes. But even without formal training, our musical hearing develops through attentive listening and collaborative music making with other musicians. Ideally, this sharply honed hearing acuity becomes an intrinsic part of our musicianship. We don't have to think about it: We just do it.

## What We Hear Matters

In pastoral music, what we hear matters, and it matters for many of the same reasons that it matters in other musical arenas. It enables us to produce music with accurate intonation, precise rhythms, and effective dynamics—the musical characteristics of quality—and *quality matters in liturgy*. Using our musical gifts in the sacred liturgy glorifies our Creator and gives voice to the Body of Christ. Unlike performative music, however, excellence

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in pastoral music is not for entertainment or to elicit praise, though we are inspired to excel through the affirmation of a responsive and participating assembly—liturgical actions that we help foster. Making music for liturgy with precision and beauty, with quality and appropriateness, is, ideally, transparent: The music is foremost, not the performance or the performer.

The selection of appropriate music is important in our ministry, but so too is the quality of our music making because both the music itself and the way it is rendered can effect or encourage participation. Playing music poorly can be distracting and alienating; playing well can be engaging and inspiring. Our effectiveness in engaging the rest of the worshiping assembly can be strongly influenced by basic elements of musical sound including intonation, accuracy, pleasing tone, and tempos. To some extent most of these things can be heard within the space shared by the music ministry, but we need to realize that what we hear among the musicians is quite different from what the rest of the assembly hears.

These musical elements—pitch, rhythm, and dynamics—and the need to hear them clearly and accurately are common to all types of music making: They are largely intra-ensemble<sup>1</sup> in that the key interaction is from musician to musician. There is, however, another important facet of musical hearing that is less often addressed and more complex: the one between the musicians and the listeners. In the performance world that

means the interaction between the stage and the audience; in the liturgical world it means the interaction between the music ministry and the rest of the assembly. This is the *other* part of music making that matters: What *they* hear matters.

Of all the musical elements listed so far, there is one that gets less attention than other elements in musical formation: dynamics. It's usually not until we have facility in *making the notes* that we add dynamics. As a music student and educator, I encountered many exercises in music theory and ear training related to pitch and rhythm but few (if any) for dynamics. This may be because pitch and rhythm can be quantified and measured: Pitches are measured in frequency (vibrations per second), while tempos and rhythms are gauged by time, usually in seconds. Dynamic levels, however, are highly subjective, and though there is a *decibel* scale in acoustics to quantify loudness precisely, there are no commonly used loudness scales in music.<sup>2</sup>

Of all the musical elements in the control of pastoral musicians which can have significant impact on liturgy, dynamics is one of the most important though one of the most overlooked, particularly at the upper extreme of the dynamic range: excessive loudness. Our ability to hear how loud we are in the assembly is a critical but challenging aspect of our music making and pastoral priorities. Let's examine the challenges and the means to overcome them in using dynamics effectively to support and encourage—not hinder and frustrate—the singing assembly.



## Factors for Hearing Our Own Sound

When the music ministry is too loud, so overpowering that it renders the rest of the assembly's voice superfluous or unnecessary, our music is counter-liturgical. We need a clear perception of how loud we sound to the rest of the assembly to prevent this. (First we'll consider only unamplified sounds; we'll add the complicating factor of amplification later.)

In all but the smallest ensembles, we are physically distributed and spread out, perhaps just a foot or two from our nearest neighbor and as much as twenty or thirty feet from the member of the ensemble farthest from us. We can hear those nearest to us far better than those at a greater distance. If a chorister is two feet from the piano, that instrument may sound uncomfortably loud; at twenty feet (the far end of the choir), that same level is probably quite comfortable. Distance and loudness relationships exist for the assembly too, but to a much smaller degree. The nearest assembly member may be fifteen feet from the music ministry, the farthest probably well under one hundred feet. Without delving into the math and science, the difference in loudness from the nearest to farthest parishioner is only about half what it is from the nearest to farthest music minister.

Unamplified musical sounds have dynamic ranges that vary significantly from instrument to instrument and from singer to singer. Some of this is in the nature of the sound-producing mechanism (vocal chords, stretched strings, reeds, and so on), and some is because of the physical strength or talent of the player. These differences are evidenced in the makeup of instrumental groups. Orchestras will typically have twenty to thirty violins but only three trumpets: The number of players in each section is related to the inherent loudness of specific instruments. The piano projects sound differently in different directions, particularly with the lid open.

Depending on where we are situated with respect to certain instruments, therefore, the loudness of those instruments can overwhelm other sounds, even most of the other singers and instruments in the ensemble. But sounds from all instruments tend to spread out over distance, and by the time unamplified sounds reach the congregation, these dynamic differences are greatly reduced.

As musicians we realize that what we hear in our own personal region of music production may be far different from what is heard in other areas of the music ministry. Extending this line of thinking, we can realize that what we hear in the space that contains the music ministry is far different

from what is heard in the space for the rest of the assembly, particularly with regard to volume. Given this condition, what can we do to avoid excessive loudness that would overwhelm and discourage the whole assembly's participation?

The multiplicity of hearing factors indicates a complicated situation. Sound amplification adds to—and possibly multiplies—the complexity and difficulty. With unamplified sounds we can generally develop a sense of our own loudness by the level of effort we expend. This is particularly true for winds, brass, strings, and vocalists, where loudness is closely correlated to physical exertion—how strongly we blow, the speed and pressure of bow movement, etc. Amplification reduces—practically eliminates—any association between effort and loudness.

In most music ministries, we now have more than acoustic instruments and vocalists. We've added microphones and speakers and electronic instruments (keyboards and guitars), some of which produce most of their sound locally, while the sounds for others come from remotely located loudspeakers, projecting sound primarily to the congregation and to a much lesser degree to the music ministry. It's no wonder, then, that we often feel that we've lost control of our music making, particularly our sound quality and loudness.

Audio technology offers wonderful opportunities to improve the situation, but along with this promise comes an array of challenges. Some technologies put a layer of separation between us and the assemblies we serve; others produce conditions that would never occur without amplification. For instance, an unamplified twenty-voice choir can produce a strong, full sound, but it can't drown out a full singing assembly. Add microphones, amplifiers, and speakers to those twenty voices, and they can easily overpower the largest and most enthusiastically singing assemblies. We know this intellectually, but given the limitations of hearing conditions within the music area, we don't always have the aural cues to remind us of that possibility.

As we become aware of these problems (often not through our own perception but from comments and critiques by our pastors and parishioners), we often try to overcome them with more technology: "If we just had more mics, then each singer could control the individual sound." "With more speakers our sound would be more evenly distributed." But, often we sense that we've opened Pandora's Box and that we need to seek other means to bring us back to a more controlled situation, enabling us to hear what our assemblies hear, giving us the audible cues we need.

## Tools for Aural Unity

The roots of these hearing difficulties stem from reforms in the liturgy, evolving styles and expressions of pastoral music, the use of technology, and the sizes of our worship spaces. These factors are not likely to change soon, so we need to find new strategies, resurrect past wisdom, and perhaps find ways to draw on the wisdom and experience of musicians in other faith traditions. There are several things we can do to control excessive loudness, but the most important involve having an accurate impression of sound in the assembly.

**Rehearsals.** Regular and effective rehearsals are essential, particularly for part-time and occasional musicians. (Professional musicians spend far more time in rehearsals and practice than in performance.) We should rehearse in the same space in which we perform and do so under the leadership of a conductor, and that conductor should listen to the sound of the music ministry from various locations in the congregation's seating area. We should sing with full voice, play at normal playing levels, and have the sound

system operating as if the full assembly were present. With no assembly present, the acoustics of the worship space will be different (in many cases dramatically different), yet playing in the empty church can establish a baseline to be compared to occupied conditions.

As vital as rehearsal in the worship space is, it is not an accurate representation of the sound at the Sunday celebration. Nonetheless, this can be an important component of pastoral musicians' "ear training," as the ensemble learns what it sounds like in the empty church. Then, as often as seems practical, a leader or conductor could move discretely to the assembly seating area during a Mass to develop a correlation between the music ministry's sound with and without the congregation present. The fact of the matter is that we simply cannot hear our own sound—particularly our own dynamic level—from within the music ministry itself. We need to get a pair of ears "out there" and allow sufficient time and opportunity for those ears to be trained for this particularly challenging task.

**Sound Checks.** There is a closely related sound balancing exercise practiced in many churches, known popularly as a "sound check." This involves checking loudness levels (in some situations making tonal adjustments) of instruments and microphones to get an even balance. This is vitally important, but it requires some discipline and cooperation in having all or

most of the musicians present sufficiently before Mass to run this check. This is not an appropriate thing to do, of course, while parishioners are coming in, many hoping for some quiet time to pray and transition to the worship environment. And, since this check is not done with full or normal occupancy in the space, the levels and balance may be quite different once the full assembly is present. It is key to realize, therefore, that performing a sound check is not a foolproof technique. There will almost certainly be a need for readjustment, and that readjustment is best done with informed ears—finding an opportunity to get a musician or director into the assembly area often enough to train those ears and develop some level of correlation between sound check conditions and active liturgy conditions.

**Monitors.** In recent years the use of music monitor speakers has become ubiquitous in Catholic music ministries. It is often supposed that monitor speakers can—or are intended to—provide the music ministry with a representation of what the rest of the assembly hears. This is not necessarily the case. While we tend to eschew performance models in pastoral music, it is highly likely that our use of monitor speakers came about through their common use in performance settings from nightclubs to performing art centers to late-night TV shows. And since this concept is borrowed from the performance environment, it is informative to take a



The praise band at Lakeway Church (non-denominational) in Lakeway, Texas, uses microphones and sound monitors.



closer look at how and why these devices are used by professional performers and entertainers and compare that with how and why we use them. Might they or can they be an asset in our quest to hear what the rest of the assembly hears?

The common use of monitor speakers in the professional performance setting is to enable a musician to (1) hear himself or herself, (2) hear the other instrumentalists and vocalists in the group, and (3) selectively single out whatever other instrument(s) the musician judges to be most important for the playing or singing that he or she is doing at any particular time. (For example, the drummer may want more bass for tight rhythm section work but more sax for sax solos.)

Note that in such situations, the monitor “mix” is a separate and different mix from the house “mix.” In the most “professional” situations, there is a totally independent mixing console for the monitors, and the monitor mixer is located on stage or backstage, so that the monitor-mix operator has a better sense of what the musicians are hearing on stage. There are more factors in the professional use of monitors in performance settings, but even with just this much information, it should be clear that monitors may not fulfill a common notion among pastoral musicians, i.e., that they can give us a representation of what the assembly hears.

**Real-Time, Hands-On Sound Operation.** Once we realize that excessive loudness in worship is caused almost exclusively by electronic sound reinforcement, and that the use of such sound equipment needs careful monitoring,

then the most effective way to control the music ministry’s loudness *and* put a pair of musically attuned, liturgically aware ears in the assembly is to locate the sound operator and mixing console in the assembly. This is surely not a panacea: It calls for an operator with an extraordinary combination of gifts and abilities. More significantly, it introduces a technological presence evocative of the performance world into a sacred space. In the majority of Catholic churches, this is not yet an acceptable option. Nonetheless, it is, from a sound standpoint, the most effective option and about the only viable response to some of the problems and suggested solutions outlined here. I’m not yet ready to go on record as an advocate for “in-house” mixing: I am as uncomfortable with the concept as most Catholics I know. Yet when and if it becomes clear that its benefits for liturgy outweigh the disadvantages, it may be appropriate to revisit this idea. There are some precedents for Catholic parishes, notably the Basilica of the National Shrine of the Immaculate Conception in Washington, DC, which uses such mixing. But it appears that its presence there has not persuaded other parishes around the country to follow suit.

### A Fundamental Goal

A fundamental goal of pastoral music is to create an aura of sonic unity, an audible and motivational expression that we are one in worship, praise, and celebration. As musicians, how we listen, what we listen for, and how we adjust to what we hear

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### We need to find ways to hear better what the congregation hears.

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and what the rest of the assembly hears are essential elements in achieving that unity. We need to find ways to hear better what the congregation hears to serve this ideal. Being more aware of the challenges to such unity is the first step. The solutions will rely on the experience and creativity of the music ministers in individual parishes and, often, the solutions will be different from music group to music group within the same parish. In acknowledging that what we hear as musicians is important, that there are challenges in the hearing conditions in most churches, and that we need to find ways to overcome the limitations and to hear better what our brothers and sisters in the Body hear, we can move toward more effective pastoral ministry.

#### Notes

1. Throughout this article, the term “ensemble” refers to *all* members of the music ministry, vocalists and instrumentalists alike.
2. The common musical “meter” for tempo is the metronome; for pitch the tuning fork, pitch pipe, or electronic tuner. There is no analogous device commonly used in music to measure dynamics. While most of us are familiar with getting a tuning note before the beginning of a performance, I know of no situation where a dynamic level is set. We ask for an “A” but not for a “mezzo forte.”