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Kairos Worship—
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What Did He Say?

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This question is asked many times in the minds of churchgoers during Sunday morning sermons everywhere. The issue of sound system optimization and the problem of speech intelligibility that is so common in houses of worship today is a real problem. Why does this problem persist?

The problem lies in one (or is a combination) of three common scenarios.

1. Church leaders are not aware of the scope of the problem and that there is a solution.

2. Technical skills of volunteer sound technicians are underdeveloped.

3. Poorly designed or improperly calibrated sound systems and poor acoustics are the culprits.

Poor speech intelligibility exists in some churches in the same way some people have chronic fatigue syndrome. It's generally accepted as having no cure or is not really bad enough to spend much time (or money) on finding a cause and a cure.

Sound problems can be frustrating, but don't give up hope. There is a cure! Before addressing the cure, I would like to challenge you to try the following three experiments. The purpose of the experiment is to stress the importance of communication through the spoken word.

Experiment 1. Watch and listen to the news on TV at a normal level.

Experiment 2. Cover or close your eyes for five minutes, eliminating the visual aspect of the experience, and focus only on what you hear. By eliminating the visual, notice how your brain becomes acutely tuned to the information it is receiving.

Experiment 3. Mute the volume and attempt to read the announcer's lips for five minutes. In this stage of the experiment, the average person will receive little information.

Of the three, which approach was the most rewarding, and which was the most challenging? Which succeeded in communicating the message, and which failed? The answers should be obvious without even trying the experiment, but actually doing the experiment will drive the point home that the spoken word, delivered clearly, is the most effective way of receiving a large amount of information in a short amount of time. Additionally, it's not just the words spoken that communicate the information; the inflections, the tone, and the rhythm of the one speaking those words bring the message to life.

Let's now address those three most common problems I mentioned earlier.

Church leaders are not aware of the scope of the problem or that there is a solution. How important is the message you want to convey to your congregation? That's a question only you can answer. If in fact it is important, then it is worth doing everything you can to make sure the message is delivered in a manner that is clear and transparent.

The sound system is the most important asset your church owns. When your sound system suffers, everything else in your church suffers. Attendance goes down, giving goes down, and those who remain benefit little from the experience of being in the service.

The technical skill set of volunteer technicians is underdeveloped. What good is a great worship

leader, praise band, or sermon that is held hostage by a sound engineer who does not possess a fully developed skill set to do his job correctly? All too often feedback, poor equalization settings, missed cues, and bad mixes ruin a good worship service. But this does not have to be the case! It's one thing to know how to get the system working from week to week, but to operate it effectively requires a skill set that is not acquired by accident.

Those who work the sound system should hire a professional sound engineer or get appropriate training. Contacting your local system integrator or live sound company is a great place to start for some professional advice and training.

You will also find great resources on the Web for volunteer sound system operators seeking to hone their skills. All you have to do to find them is spend some time looking for them. Much like a musician, a good sound engineer will spend the necessary energy it takes to get better at this craft.

Poorly designed or improperly calibrated sound systems and poor room acoustics are the culprits. How does a church obtain a properly designed sound system? The answer is really simple. But before going any further, I need to tell you how *not* to approach this endeavor.

1. Never allow anyone not qualified in system configuration and acoustics to design your system.

2. Never allow anyone not qualified in system design and acoustics to choose or purchase sound equipment for the church.

3. Never buy equipment from the newspaper classifieds. Even if you feel you are getting a great deal based on the price, that gear may not be the right pieces for the application.

4. Don't buy based on price. Unfortunately the good stuff costs more, but the long-term payoff is worth the extra cost up front.

What is the key to obtaining a sound system with the capability to deliver high speech intelligibility, low noise, big dynamic range, and overall great sound? Hire a professional system designer and integrator to engineer and install a system that is properly designed for the room!

A proper system design includes acoustical room treatments along with pro-level system components. To achieve great sound you have to have a properly

designed system, installed in a properly designed environment that has been tuned and calibrated for that environment.

A common complaint in churches is that "the music is too loud!" In some instances this may be the case. Every room has a physical limit as to how much sound pressure level (SPL) it can handle before the decibel level becomes overwhelming and uncomfortable for the listener. One way to combat this is to buy a decibel (db) meter and monitor the SPL levels throughout the service.

Every room has a sweet spot for intelligibility, loudness, feedback control, and dynamic range. Finding the SPL sweet spot will take experimentation; but once discovered, the only way to maintain that level is by monitoring it with a db meter.

Another reason it may seem too loud is improper calibration of the system's main EQ. If frequencies are present that are abnormally loud, especially in the 1k–6k range, the sound will be harsh and piercing and perceived as being too loud. Feedback will be difficult to control. The solution is to calibrate the room frequencies using a pink noise generator, a real-time analyzer, and a dedicated main system equalizer. Once these frequencies are equalized, that elusive sweet spot will be easily within reach. Intelligibility will go up, feedback will reduce, and the overall fidelity will improve dramatically. System calibration is a process that is ideally performed by a skilled technician.