

CASE STUDY - NOISE LEVELS IN A CHICAGO RESTAURANT

A CREATIVE PROJECT

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ABSTRACT

CREATIVE PROJECT: CASE STUDY - NOISE LEVELS IN A CHICAGO RESTAURANT

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Noise complaints are the second most common issue in the restaurant industry, following service complaints (Spence, 2014). Excessive noise leads to customer dissatisfaction and reduces his or her likelihood of returning. Restaurants, which employ about 10% of the American workforce, or approximately 13 million people, (To, 2014), expose both employees and customers to noise levels exceeding 86 dB, equivalent to the sound of a hair dryer or vacuum (Greene, 2015). Excessive exposure to these heightened noise levels can result in ordering mistakes and frustration, especially for individuals with hearing impairments. Lowering these noise levels may result in more positively received restaurants. However, there is a lack of clear guidelines for interior designers on selecting materials to manage sound in restaurants. Current restaurant trends such as lofty ceilings and favoring the use of hard surfaces like wood, tile, and metal over carpeting and other softer materials, contribute to a higher decibel level in restaurants. Millennial and Gen Z customers are a target audience for modern

restaurants and often favor more lively and dynamic environments. These generations are attracted to vibrant and social spaces, where music and noise is a part of the ambiance. This study focuses on the noise levels of one restaurant in Chicago. After interviewing staff and customers, suggestions are provided for improving the high restaurant noise levels that may lead to happier staff and clientele.

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CHAPTER 1 INTRODUCTION

1.1 Research Background

Noise complaints are the second most common issue in the restaurant industry, following service complaints (Spence, 2014). Excessive noise not only drives customer dissatisfaction and reduces the likelihood of returning, it also impedes basic transactions such as ordering and table service. In an industry that employs about 10% of the American workforce, or approximately 13 million people (To, 2014), both employees and customers are exposed to noise levels exceeding 86 dB, equivalent to a hair dryer or vacuum (Greene, 2015). Excessive exposure to these heightened noise levels can increase communication errors, elevate stress, and disproportionately burden those with hearing impairments.

Aesthetic and operational shifts over the past two decades have intensified the problem. Louder restaurant environments began trending in 1998 when celebrity chef, Mario Batali opened a restaurant that played classic rock; the music genre that played in his kitchen was now the main music on the dining floor, a decision that appealed to younger diners and soon influenced broader design choices (Belluz, 2018). Enclosed carpeted dining areas with heavy drapery and table clothes have now been replaced with sleek, modern wood interiors with vaulted ceilings, hard surfaces, exposed kitchens, and loud music. While visually compelling and aligned with contemporary brand identities, these choices increase reverberation and amplify crowd and music noise, creating a consistently elevated sound environment.

For interior designers, this presents a persistent performance gap. Restaurants must balance brand, ambiance, and the social energy many customers such as Millennials and Gen Z diners seek, while also ensuring speech intelligibility, staff well-being, and accessibility. However, practical guidance translating acoustic principles into clear material selections and detailing strategies for restaurants remains limited. Therefore, this study addresses that gap by examining noise levels in a Chicago restaurant and pairing measured conditions with qualitative feedback from staff and customers.

1.2 Problem Statement

Restaurants need to deliver a lively brand experience and maintain speech intelligibility, service accuracy, and accessibility. However, there is a lack of clear guidelines for interior designers on material selections, surface-area targets, and placement priorities to manage sound in restaurants.

Acoustic performance is rarely specified with the same clarity as lighting power density or ventilation rates. Limited ceiling space, open-kitchen visibility, maintenance concerns and budget complicate the use of soft finishes or suspended absorbers in a restaurant. As a result, this study integrates short-form acoustic measurements with staff and customer feedback collected during typical service. Rather than pursue absolute quiet, the target is a balanced acoustic environment that preserves a good service while improving intelligibility at the table and at points of service.

1.3 Significance of Study

Recent evidence indicates that restaurant noise levels have become increasingly problematic in dining quality and operational effectiveness. In a preliminary survey of 15 Chicago restaurants, the average noise level was 79dB (Schorsch, 2024). This volume level, that equivalent of a lawnmower, necessitates patrons to raise their voices to be heard. This study discusses the importance of acoustics and sound solutions delivering evidence-backed option such as panels, diffusers, and baffles that improve inclusivity, service quality, and overall satisfaction

1.4 Research Purpose And Rationale

This study aims to determine how restaurants can maintain a lively brand ambience while preserving conversational ease at the table. Rather than advocating for silence, the goal of this study is to identify interior design strategies that sustain social communication by reducing listening effort for typical dining interactions. There are several purposeful reasons behind noisy restaurants. For example, people tend to drink more and faster when they are exposed to loud music, with noise levels above 88 dB compared to a normal range from 72-75dB (Spence, 2014). However, persistently elevated levels undermine speech intelligibility, customer inclusivity, and service accuracy. Previous research has been completed on the correlation between noisy restaurants and older customers' likelihood to return (Schorsch, 2024); this study, however, focuses on those who are primarily 50 and under (and still presumably have their full hearing ability), so that any observed communication strain reflects environmental conditions, not primarily age-related hearing loss, as many individuals

seek a balance between dining in an active setting while also engaging in conversation with their friends and family members at a table.

Research Questions:

RQ 1. What perceived-noise band (quiet/comfortable/lively-loud) supports table conversation without diminishing the desired lively atmosphere?

RQ 2. Which material sets provide noticeable gains in conversational ease during typical and peak service?

1.5 Definition of Terms

ACOUSTICAL PANELS: sound-absorbing fabric-wrapped boards designed to control echo and reverberation in a room

BAFFLES: architectural ceiling feature or device designed to mitigate sound transmission through spaces by obstructing, breaking up, or redirecting sound waves.

COFFERED CEILING: decorative ceiling design that features a series of indentations or hollows on the surface of a ceiling

DECIBELS (DB): decorative ceiling design that features a series of indentations or hollows on the surface of a ceiling

MILLWORK: refers to woodwork materials such as doors, sashes, or trims that are manufactured at a mill. It includes profiled or finished woodwork used in building construction

NRC: noise reduction coefficient. A way to measure acoustical qualities of a material from a scale of 0.0-1.0

PET: a sound-absorbing panel made from compressed polyethylene terephthalate (PET) plastic that reduces echo and noise in a space. These porous and durable panels are used in walls and ceilings across various applications in commercial spaces to improve sound quality

WINDOW TREATMENTS: interior decoration for a window or window frame

CHAPTER 2 LITERATURE REVIEW

2.1 Theoretical Background

Cognitive load theory in acoustics explains how environmental factors, such as sound, impact a person's ability to process information and make decisions. In noisy environments like restaurants, loud sounds can overload cognitive thinking, thus impairing decision-making and potentially leading to overordering or poor choices. Numerous studies have shown that excessive noise in restaurants can be frustrating, particularly for older adults, and may reduce the likelihood of customers returning to the establishment. According to Eichwald (2023), "More than two thirds (68.0%) of adults surveyed reported that a loud dining experience was somewhat or very annoying ([Table 1](#)) and nearly as many (64.8%) said it was very or somewhat likely they would avoid a noisy restaurant." This can be particularly frustrating when trying to have a conversation, especially with someone new. The inability to hear one another can be embarrassing, yet it is an avoidable issue.