

SOUND DESIGN AND EFFECT

Lecture 7

Finding Malaysian Sound Designers on Freelancer

In today's technological world, we use the powerful medium - internet, for almost all our needs and requirements to get the job done. We have many jobs that need this source, mainly like broadcasting houses, production companies, sound studios, gaming development, recording centers, and marketing a business that needs an audio track for their work. The one best solution for all the works related to sound management and design is to hire Malaysian Sound design freelancers from Freelancer.

Hire a Malaysian freelance sound designer from Freelancer and get the following services:

- Sound design video
- Sound design concept
- Animal sounds Sound design
- YouTube Sound design
- Short film Sound design
- Short film Sound design
- PowerPoint presentation Sound design
- Movie Sound design
- Preset Sound design

If you have any works relating to sound designing, hire a Malaysian freelance sound designer by posting your projects today at the best market online source, Freelancer.

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Task:

- Income per month?
- Job Description
- Who?

HISTORY OF SOUND

Theatre sound in the past
Changes over time
Sound today

Dramatic use of sound in history

- Sound considerations are not new
 - Greek stages were built with acoustics in mind
 - Epidaurus (350 B.C.) - reported that a match struck on stage could be heard in any of the 14000 seats
 - Hellenistic period theatre in Turkey
 - Built on a hillside where breeze from the sea would carry voices.
 - Shakespeare (1589 - 1613)
 - First folio includes stage direction for sound
 - "alarums, excursions, flourish, trumpets and drums"
 - Duke of Saxe-Meiningen (mid 1800's)
 - First person to actively make use of sound to heighten the emotional impact of drama and to reinforce mood.
 - Stanislavski (early 1900's)
 - Made use of the new technology of recording
 - Eugene O'Neil
 - Has said that in many of his plays, sound is yet another character in the play

Sound in the 20th century

- Sound Designer is a recent addition to the design team
- Sound effects were often a part of the prop or electric departments
 - Wind machines, gunshots, thunder...
 - Bells, buzzers, etc
- Sound design really began with the advent of hi-fidelity recording and playback
 - 1970's saw the synthesizer
 - Invented by Robert Moog
 - Able to reproduce many different musical sounds
 - Now we have CD, DAT, CD-ROM, hard disk recording, digital audio workstations, samplers, MP3s, etc.

With great power comes great responsibility

- Attention must be paid to this technical element
 - Modern audiences are accustomed to exceptional audio
 - Sound, like lighting should be invisible
 - <http://www.youtube.com/watch?v=9sr9-wHhtiU>
 - <http://www.youtube.com/watch?v=upbtFXdA9-Q>

SOUND IN THE THEATRE

Environments of Theatre Sound
 Skills used in each Environment
 Audio and Sound Control
 Design Example

Sound Environments

Physical and Virtual - Working Definitions

- Physical = Sound we hear
 - Physical environment of the audience / performers.
 - World of physics and acoustics
- Virtual (electronic) = Audio Systems
 - Electrical signals that are representations or facsimiles of sounds
 - Technical Environment of equipment, wires and "techie"

Sound Environments

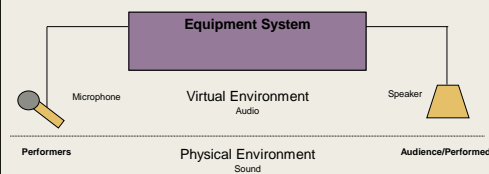
Physical and Virtual - Working Definitions

- Worlds meet at "transducers"
 - **Transducers** are devices that convert energy from one form to another.
 - In the theatre:
 - Convert sound to electrical signals. • Microphones
 - Convert electrical signals to sound. • Speakers

Sound Environments

Physical and Virtual - Working Definitions

Transducers - Link Sound and Audio Environments



Simple System Block Diagram

Skills and Environments

Psychological

- Goal of a Design
 - To advance the story by communicating with & producing "reaction" in the audience
 - Design = Choices of what, when and how sound is to be used within a production. (**Sound Design**).
 - Communication with the audience.
 - Requires "recognition" of sound by audience and acceptance of the impression/message being delivered.
 - * Sound must reach the audience's ears (**Acoustics**)
 - Usually doesn't work by itself, but reinforces, supports and/or collaborates with actions on stage.

Skills and Environments

How things fit together

- **Recognition and acceptance**
 - Requires the selection and production of the right sound for the cue
 - All telephone rings or church bells are not the same.
 - Must be in harmony with show concept

Skills and Environments

How things fit together

- **Recognition and acceptance**
 - Correct delivery of sound
 - Location of sound source needs to maintain believability.
 - Maintain focus with action - "Ears direct the eyes"
 - Placement and use of Equipment (**Audio Engineering – understanding audio and sound environments**)
 - Collaboration with Scene Designer
 - Correct timing and loudness during execution of cues.
 - Control of Cues
 - **Operation - Audio Environment**

Skills and Environments

How things fit together

- **Example - Lost in Yonkers** by Neil Simon
 - Child is uncomfortable about visiting a rich relation he has not met.
 - Parent needs to leave child with the relation so the child needs to make a good impression.
 - The parent dresses child up in borrowed suit, but the suit is too small.
 - The child meets the relation, but while sitting down, rips the seat of his pants.

Skills and Environments

How things fit together

- **Example - "Lost in Yonkers"**
 - Design choice is to reinforce "rip" with sound.
 - Why is the "rip" important?
 - Rip ruins the best impression and provides comic element.
 - What's needed to reinforce the story element?
 - What - Believable **Rip** sound
 - Where - Sound must appear to come from the direction of the child.
 - When - Timing of the cue must match the action on stage.
 - How - Cue must be loud enough to be heard but not so loud as to be obvious as a sound effect.
 - Actor should react to the rip

Skills and Environments

How things fit together

- **Example - Lost in Yonkers**
 - Physical Environment (sound) **In the house**
 - What sound will support the needed audience reaction?
 - Where should it come from?
 - On what action should it hit?
 - What loudness makes sense
 - Should the Actor hear and react to the sound?
 - Virtual environment (audio) **In the booth**
 - Acquire, process and store audio for playback.
 - Setup a speaker
 - Control when sound is played to match stage action
 - Control signal level of audio for desired loudness

Audio and Sound Control

What, Where, When, How Long, & How Loud

- What (source)
 - Sound Cue to be controlled.
 - Believable "rip" sound

Audio and Sound Control

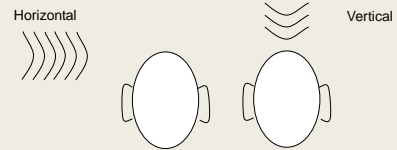
What, Where, When, How Long, & How Loud

- Where (source location)
 - Determined by the placement of transducers (speakers) or mechanical devices that generate sound.
 - Determined by audience's impression of location
 - *Impression of sound location is based upon how sound is received by each ear and processed as a location.*
 - *Perception of location = Psychoacoustics*

Audio and Sound Control

What, Where, When, How Long, & How Loud

- Where (source location)
 - Location perception - Horizontal and Vertical Planes



• Because of location of ears, sound has a more identifiable location on the horizontal left-right plane.

• Sound on the vertical plane is more location neutral

Audio and Sound Control

What, Where, When, How Long, & How Loud

- When (timing)
 - Identify the action (line, event) to reinforce
 - Figure out the time it takes to "Go"
 - (1) call of stage manager + (2) reaction time of board operator to setup & start cue + (3) physical time it takes for sound to start after "button is pressed."
 - **Manage your Liabilities** Standardization of variables leads to repeatability & reliability.
 - **Physical time** - Digital media reduces variations in cue position (when signal starts inside track, memory devices reduce mechanics of equipment (motors - how long it takes to start up)
 - **Automation** (Show control software) can eliminate steps, however more often used to improve setup time and run of complicated cues in shorter time frames.

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How Long (cue length)
 - Duration of cue easily controlled with a stored audio cue. - timing needs to be known when cue is developed and edited
 - *If you know how you made it, you can adjust - **repeatability***
 - *Not as easy with practical cues*
 - Cues can either end or be terminated by operator
 - *Ends of both "**practical**" sound and audio cues can also be called by stage manager*

Audio and Sound Control

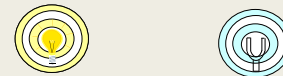
What, Where, When, How Long, & How Loud

- How Loud - Sound Environment
 - Loudness depends on how much energy is used to create the vibration
 - *How hard you hit something.*
 - *How much signal level is sent to a speaker.*
 - Loudness also depends upon "closeness" of the sound generator (transducer or mechanical device) to the listener. (Inverse square rule)
 - Also dependent upon whether listener is in the direct path of the sound.
 - *Sound will be louder for those in the direct path than those out of the path, for the same distance from the source.*

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How Loud - Focusing
 - *Light and Sound propagate in all directions*



- Directionality can be added through use of enclosure (resonator) and radiator - Level reaching target is louder/brighter on the path

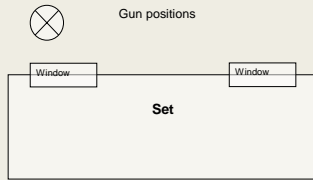


Audio and Sound Control

What, Where, When, How Long, & How Loud

■ Example of Directional Planning in Sound

Need: Audience believes man with gun is shooting outside while walking stage right and left



Audio and Sound Control

What, Where, When, How Long, & How Loud

What are the options for creating gunshots that are heard first on stage right then stage left?

- Multiple guns / rigged to trigger in order
- Blank Gun walked across the stage
- Single speaker moved across the stage
- Far upstage speaker rotating focus from stage right to left
 - Single speaker aimed first at one window and then at the other?
- Multiple speakers with balance going from right to left

Audio and Sound Control

What, Where, When, How Long, & How Loud

What are the options for creating gunshots that are heard first on stage right then stage left?

- Single speaker . . . Does not work?
 - Sound delivery is not like a hose shooting water.
 - Sound is omni directional - spreads out as it travels. It would be extremely difficult to keep it from reaching the audience as it moves across the stage.
- Could it be reflected, like light off a mirror?
 - While sound does reflect off objects, behavior of the bounce is not consistent across all frequencies of sound.

Audio and Sound Control

What, Where, When, How Long, & How Loud

■ How is a choice made?

- What impression do we want audience to get?
 - Cue heard needs to sound like real guns shooting outside windows.
 - Sound needs to be believable
 - Source of the sound must make sense.

Audio and Sound Control

What, Where, When, How Long, & How Loud

■ How is a choice made?

- Cue needs to be controllable and repeatable
 - What makes the most sense for consistently being able to control the timing, source location, length, and loudness of each cue?
 - How likely is it that the cue will be repeatable?
 - What good is it if it sounds great once every third or fourth performance? Needs to work well each night

Audio and Sound Control

What, Where, When, How Long, & How Loud

■ How is a choice made?

- A single cue does not a design make...
 - What are the other cues in the show?
 - Does one delivery method make more sense in relation to the needs of other cues?
- Any need to discuss plans with other designers?

Design Example

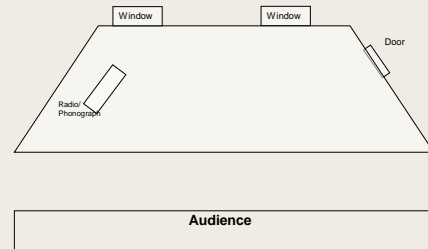
What, Where, When, How Long, & How Loud

■ Example - Design for Scene from The Foreigner, by Larry Shue

- What are the cues and their purposes
- Where do they originate from
- When are they running - any critical timing issues
- How long - Any issues
- Collaboration/interaction with other show elements

Design Example

What, Where, When, How Long, & How Loud



Design Example

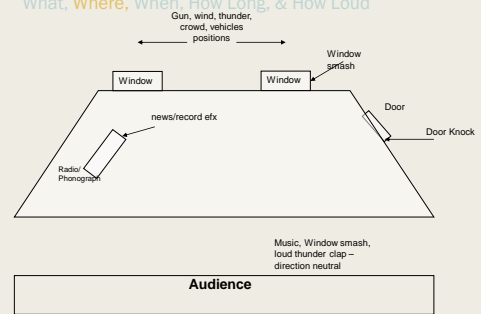
What, Where, When, How Long, & How Loud

■ Example - Design for Scene from The Foreigner

- What are the cues and their purposes
 - Rain, wind, thunder = Apprehension - isolation
 - Vehicles, crowd, gunshots = Danger approaching/ establish other "Characters"
 - Radio broadcast = Ratchets up the "suspicion"
 - Record player & record player effects = Tries to provide calm but (1) adds to actor's fear (skip at gunshot) (2) Foreshadows power being cut (title of song) (3) reinforces power being cut (slow down)
 - Window smash = Danger increases
 - Loud thunder crack / Storm = Danger has arrived
 - Music transition - Cover scene and time transition
 - Knock at the door = Reinforces "Don't know what happened"

Design Example

What, Where, When, How Long, & How Loud



Design Example

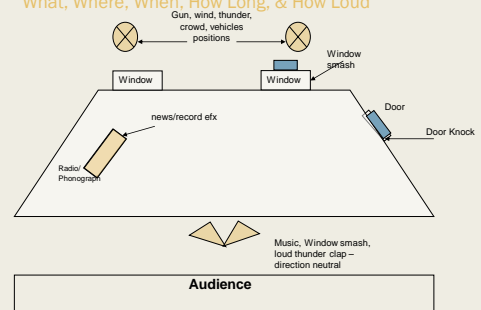
What, Where, When, How Long, & How Loud

■ Example - Design for Scene from Foreigner

- Where do the cues originate from?
 - Upstage left and right (rain, wind, thunder, vehicles, crowd, gunshots) - **Outside**
 - Prop on set stage right (radio broadcast, record player effects) - **Inside**
 - Cluster overhead Non-directional (music effects and dramatic reinforcement - window smash and loud thunder crack) * artistic license **Non-directional**
 - Isolated **specials needs**
 - at window for smash
 - at door for knock

Design Example

What, Where, When, How Long, & How Loud



Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from Foreigner
 - What are some of the critical timing needs (**When**)?
 - *Turning radio off* – actor turns off
 - *First gunshot* – actor reacts to
 - *Record player and record player effects* – actor turns on and bangs into, gets powered down to reinforce wires being cut by crowd
 - *Window smash* – must match physical action
 - *Knock* – must match actor's action

Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from Foreigner
 - Are there any issues with cue lengths (**How long**)?
 - *Radio, record player first cut and second cut* have out cues called
 - *Crowd background, storm and music transition* will probably have out called.

Design Example

Roles for each Skill - Who does what. . .

- Example - Design for Scene from Foreigner
 - *Designer* -
 - *The "Design"*
 - *Collaborate with other show elements*
 - *Cue production*
 - *Need sound that supports 1950s timeframe*
 - *Select, acquire general sounds*
 - *Need to find "Night the Lights Went Out in Georgia"*
 - *Find or record radio broadcast*
 - *Produce effects (record skip & slow down)*
 - *May have problems with window smash . . .*

Design Example

Roles for each Skill - Who does what. . .

- Example - Design for Scene from Foreigner
 - *Any Engineering issues?*
 - Define/design equipment system
 - *Looks like 5 speaker locations*
 - *Looks like 4 audio cue devices*
 - *Operations?*
 - *Work during rehearsal to establish timing, setup and level for each cue*
 - *Control cues so each is delivered correctly and consistently.*

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - *What interactions with other design elements need to occur?*
 - Scenic
 - *Speaker locations back stage*
 - *Timing for transition between scenes*
 - Properties
 - *Speaker inside radio/record player cabinet*
 - *Timing of window break with cue*
 - *Crash box?*

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - *What interactions with other design elements need to occur?*
 - Actors and direction
 - *Review of design and collaboration on needs*
 - *Actors have to hear and react to most real sounds, and in particular, the items noted under the critical timing section*
 - *Actors need to initiate door knock? (or be there for it)*
 - Lighting
 - *Lightning to go with thunder*
 - *Simultaneous transition for scene transition*

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - What interactions with other design elements need to occur?
 - Stage Management.
 - Identify cue locations and call requirements
 - Timing on the call
 - Production
 - Schedule
 - Funding / Rights to "Night the Lights Went Out in Georgia"

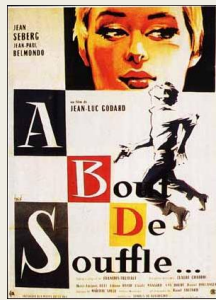
Lecture 7: Film Sound and Music



Professor Aaron Baker

Previous Lecture

- What is Film Editing?
- The Dimensions of Film Editing
- Continuity Editing
- Discontinuity Editing and *Breathless* (1960)



45

This Lecture

- A Brief History of Sound
- The Three Components of Film Sound
 - Dialogue
 - Sounds Effects
 - Music



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A Brief History of Sound



The Jazz Singer (1927)
Directed by Albin Crossland

Lesson 7: Part I

47

No "Silent" Films

- Contrary to popular opinion, movies were never "silent."
- Though early films were not accompanied by a **soundtrack** as we know it today, they were often accompanied by a variety of sounds, including live narration, musical accompaniment and/or sounds effects machines.
- Some early films such as *Birth of a Nation* (1915) had their own scores and were show with a live orchestra.

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Synchronized Sound

When movies were first shown to audiences there was no recorded sound to **synchronize** with the image, though innovators worked to synchronize pre-recorded sound with images for decades.

In the late 1920s, Vitaphone's "sound-on-disc" system was developed, a process in which sound was recorded and played on separate discs.



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Standardizing Sound

By 1929, 75% of Hollywood films included pre-recorded sound.

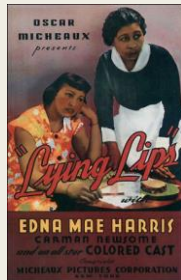
By 1930, studios had agreed on a standardized sound technology, with sound-on-film systems replacing sound-on-disc.

The high cost of sound film hit independent producers particularly hard because it became more difficult to compete with better-financed, **vertically-integrated** studios.

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Other Negative Effects of Sound

- Oscar Micheaux, one of the most important black independent filmmakers, tried to compete with his own sound productions but lost his audiences – even African Americans – to studios.



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In the late 1930s, the practice of re-recording, or **post-synchronization**, freed sound from the idea that everything seen on the screen must be heard on the soundtrack.

Re-recording allowed filmmakers to manipulate sound and to experiment with the relation of sound to image.



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The Freedom of Independence

Now almost all commercial films, even those whose aim is realistic depiction of conversation, use dialogue recorded in **post-production**.

The freedom engendered by post-synchronization has allowed filmmakers to transform film sound into a vital component of cinematic expression, no longer subordinate to a film's visual information.

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Sound Technology

Repeatedly, advances in film sound technology – such as multi-channel soundtracks, surround sound, multi-track recording, and Dolby noise reduction – have promised greater fidelity and a heightened sense of audio realism.



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Sound in Contemporary Film

Today, film sound is digitally recorded and edited.
 In fact, film sound went digital long before film images did.
 As recently as the 1980s, it was common for a film's soundtrack to be put together from 20 tracks of sound elements.
 Today a soundtrack of 200 or more tracks is the norm.

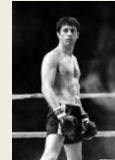
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Complex, Layered Sound

In *Spiderman 2*, 100 separate tracks made up the sound of Doc Ock's tentacles alone.

Clip #1 from *Raging Bull*.

Listen for all the sounds that contribute to representing the intense experience of a prizefight.



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Complex, Layered Sound

Fight scene from *Raging Bull*:

Inside Jake's head
 Own breathing
 TV announcer voice over
 Crowd noise
 Punches



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Enjoying a Total Sonic Experience

"Sound in cinema has never been better than in the contemporary period. One cannot make similar claims for cinematography, editing, or many other elements of cinema structure. In this regard, sound is making a uniquely improved aesthetic contribution to cinema. Viewers today are privileged to enjoy a total sonic experience that was not available to moviegoers in earlier periods."

– Stephen Prince, "Principles of Sound Design"

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Important Sound

- In these scenes from *Ocean's Eleven* (2001) consider how important the music is in introducing the George Clooney and Brad Pitt characters.
- Clip #2



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Cool Music and Door Sounds

- Clooney and Pitt defined by cool music
- Clang of door as Clooney exits jail and goes to casino and Pitt enters nightclub



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The Three Components of Film Sound



The Piano (1993)
Directed by Jane Campion

Lesson 7: Part II

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What Makes up Film Sound?

- The three components that make up film sound are:
 - *Dialogue* (speech and voice-over narration)
 - *Sound effects*
 - *Music* (*diegetic* and *non-diegetic*)
- To illustrate movie sound, we will use the Oscar-winning New Zealand film *The Piano* (1993), directed by Jane Campion.
- As you watch the film, pay attention to how the three components work together.

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Dialogue

Since synchronous sound became a feature of the movies, two primary kinds of dialogue have been employed in the cinema.

Speech is delivered by characters on screen usually in conversation with one another.

Voice-over narration typically is provided by an omniscient, detached narrator or by a character in the story, usually reflecting back on the events on screen.

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Functions of Dialogue

- Dialogue forwards the narrative, giving voice to the character's aspirations, thoughts and emotions, often making conflicts among the characters evident.
- Dialogue plays an important role in establishing character. It can also be used to emphasize setting or a character's cultural background, age, class, education, and so on.

[Pause the lecture and watch clip #3 from *The Piano*.](#)

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Sound Qualities of Dialogue

The human voice has four qualities that invest words with depth:

- *Volume*
- *Pitch*
- *Speech characteristics*
- *Acoustic qualities*



My Dinner with Andre (1981)
Directed by Louis Malle

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Volume

Volume reflects the level and the type of a person's engagement with her surroundings.

Generally the volume of dialogue suggests the emotional vigor. Consider Marlon Brando's famous impassioned cry of "Stella!"



A Streetcar Named Desire (1951)
Directed by Elia Kazan

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Pitch

A sound's **pitch** refers to its frequency, or its position on a musical scale. In music, the lowest (or deepest) pitch is bass and the highest pitch is soprano.

Pitch is often associated with character – Darth Vader's deep voice signifies villainy, for example.



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Speech Characteristics

The way a character speaks does more to define his or her individual persona than perhaps any other characteristic of the human voice. Aspects of speech include:

- *Accent and dialect*
- *Diction (choice of words)*
- *Vocal tics*



Laurence Olivier as Hamlet

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The Limey (1999)

- *In this clip from The Limey (1999), Terrance Stamp's character Wilson has a very particular way of speaking that defines him as from a working-class, English background.*

- [Clip # 4](#)



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Acoustic Qualities

Manipulating the acoustic quality of the human voice can help filmmakers convey perspective and details about the surrounding environment.

The way voices sound can suggest the distance between characters, or the mood, aura or atmosphere of a place.

The quality of a sound's movement through space can help define how that space feels.

Voice Over Narration

While used infrequently today, voice-over narration in earlier periods was an essential part of certain genres.

In the '40s and '50s, many films noir – such as *Out of the Past* (1947) and *The Killers* (1946) – told stories through flashbacks accompanied by voice-over narration.

Other famous uses of voice-over occur in *Sunset Boulevard* (1950), *Apocalypse Now* (1979), and *Stand by Me* (1986).

Function of Voice Over Narration

Voice-over narration encourages audience identification on the screen.

They often function as a character's meditation on past events.

Voice-overs can allow audience immediate access to character thoughts.

In *The Piano*, voice-over is used to deliver the inner thoughts of the character of Ada, who is mute.

[Pause the lecture and watch clip #5 from The Piano.](#)

Dialogue Overlap

- When filmmakers edit conversations in shot/reverse shot, they often use a **dialogue overlap** to smooth down the visual change of a shot and make it less choppy. In the dialogue overlap, the filmmaker continues a line of dialogue across a cut.
- This is also known as a **sound bridge**.

Direct Sound and Looping

Even when the sound effects are recorded on location, called **direct sound**, they are remixed and remastered.

Dialogue can be replaced during post-production using a process called **ADR** (automatic dialogue replacement) or **looping**.

In this process, actors re-read their lines as they watch footage of the scene that needs to be reworked.

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Sound Effects

Sound effects are the sounds – not speech and not music – heard as part of the action and the physical environment onscreen.

They include **ambient sound**, such as wind in trees and city traffic.

They also include the sounds produced by specific actions in a scene, such as footsteps the rumble in a spaceship, an explosion, the roar of a dragon or the sound of a kiss.

The Function of Sound Effects

Sound effects play an important role in shaping the audience's understanding of space and in characterizing an environment.

They can:

- *Define a location*
- *Lend mood to an environment*
- *Portray the environment's impact on characters.*

Pause the lecture and watch clip # 6 from The Piano.

Write down each separate sound effect that you hear.

Foley Artists

Sound effects are seldom recordings of the actual events the audience is being shown.

Rather, almost all sound effects in a contemporary film are the result of post-production manipulation.

Foley artists produce many of a film's sound effects by creatively manipulating various materials and recording the resulting sounds.

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Foley Artists at Work

Here, two women create sounds to match movement onscreen of the final cut of *Star Wars: Episode I*. Like musicians in an orchestra playing a film's score, they take their cues from the flickering images.



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Example of Foley Art

- Comparing the sound of punches being thrown in *Rocky*, *Raging Bull* and *Fight Club* illustrates how filmmakers conceive of sound differently, even when the effects are linked to a similar visual event.
- These sound effects do not recreate the noise of punches that one would actually hear at a boxing match or a street fight. Instead the filmmakers choose the sound effects for the emotional effect.

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Music

Most narrative films rely on music, the third component of a film's soundtrack, to engage the audience, yet the same music threatens to make the artificiality of films obvious.

The composer's charge is usually to add soundtrack music that compliments the imagery on screen without calling attention to itself.

Purpose of Film Music

In many cases, the only purpose of a score is to provide background music, which sustains audience attention and lends coherence to a scene as it moves from shot to shot.

But like other elements of a film, music can establish motifs and parallels and it can evolve with narrative context.

Functions of Film Music

Film music can also:

- Define character
- Shape emotional tenor
- Set the scene/ historical context
- Shape space
- Create continuity between scenes
- Emphasize climaxes



Two Kinds of Film Music

- Diegetic** music includes any music playing within the world of the story, such as songs in bars or car radios or music at a wedding.
 - Non-diegetic** music is music that the characters in the world of the film's story can't hear or experience, such as an orchestral score, or pop, rock or rap songs from the soundtrack.
 - Both kinds of music are used prominently in *The Piano*.
- [Pause the lecture and watch clip #7 from The Piano.](#)

Adding Music to the Soundtrack

Music is also recorded separately from a film's soundtrack.

This is true of the musical score and other non-diegetic music that the characters don't hear.

But it is also true of music featured within the world of the movie, even songs being sung by the characters, such as the numbers in musicals.

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Creating Movie Music

The production of movie music involves five distinct steps:

- **Spotting**, during which the composer consults with the filmmakers to determine where in the film music is needed.
- **Preparation of a cue sheet**, which contains a detailed description of each scene's action requiring music plus the exact timing to the second of that action.
- Using the cue sheet and the video of the film, the **composer** writes the **score**.

Creating Movie Music (Continued)

Once the music has been composed, the next step is **performance** and **recording** of the score on a sound stage while the film is being projected on a large screen.

The final stage is the process of **mixing**, which is the blending of the various sound tracks, effects, music and dialogue.

Recording the Score



Howard Shore conducts the orchestra as it records the score for *The Lord of the Rings: The Fellowship of the Ring* (2001).

Variety of Film Music

Typically, most films from Hollywood's classical era through the 1960s used symphonic scores written by composers.

In the 1960s and '70s, pop music began to make up some soundtracks, such as *The Graduate* (1967) and *Mean Streets* (1973)

Contemporary films – such as *Batman* (1989) or *Titanic* (1997) often use a mix of symphonic scores and pop music, including rock and roll, jazz, and rap and hip-hop.

The Business of Film Music

Today film music is a key part of the movie business and its **ancillary** sales.

Studios market films using contemporary music supplied by popular bands and singers and rely on sales of movie soundtracks for supplemental revenue.

Some movie soundtracks have gone on to be among the bestselling albums ever, including those for *Dirty Dancing*, *Saturday Night Fever*, *Purple Rain* and *Titanic*.

Studying Sound in the Cinema

- Sound can be difficult to study because we are used to sounds being in the backgrounds of both life and the movies.
- You also can't pause and isolate a bit of sound for analysis the way you can with a frame of film or a string of frames.
- Sound can achieve quite powerful effects and yet be virtually unnoticeable.
- This is why studying sound is partially about learning how to **listen** to film.

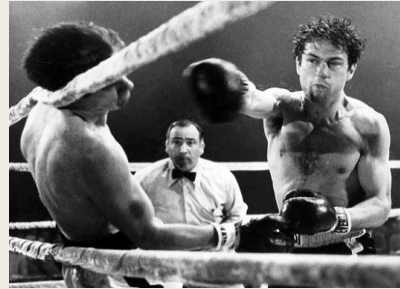
Author's Final Point

"Though moviegoers may not be explicitly aware of sound design, its contribution to film cannot be overstated. The next time you watch a favorite movie on television, turn off the sound and see how impoverished the pictures become. Without sound a movie loses much of its emotional impact.

- Stephen Prince, "Principles of Sound Design"

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End of Lecture Seven



Next Lecture: Acting in the Movies and *Raging Bull* (1980)

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AND SOUND DESIGN FOR THE STAGE

Development of Background Sound and Special Effects for a Live Performance

Sound

Sound is a unique and central part of human experience.

- *In the modern world we are constantly surrounded by sound of some kind, even though the constant drone of motorways, airplanes, computers, electric lights and central heating often become so ingrained in our daily experience that we forget the full significance of sound to the formation of mood, self, identity and community*

Beginnings of Theatrical Sound

Tribal Gatherings, Rituals and Ceremonies

- Use of drum, rattles, and flutes
- Sound to add emphasis to the event

Medieval Drama

- Use of specialized devices to illusion
- Thunder, Rain, Explosions, other effects.

Thunder Machine

SHAKESPEARE

- In Elizabethan Theatre music functioned to create atmosphere and to effect transitions.
 - Sound was a necessary element in these works.
 - Many scripts had references to off-stage sounds or "noises off" (sounds made offstage intended for the ears of the audience): Bells, whistles, chimes, thunder, baying hounds, crash of armor, the clash of swords, etc.

Thornton Wilder's *Our Town*

- Wilder offered an opportunity (in 1938) for a company of actors to create a complete soundscape with live effects.
- The first production used no recorded sounds.
- It's deceptively simple.
 - *a celebration of small-town life set between 1901 and 1913.*

Thornton Wilder's *Our Town*

Opens with the women making breakfast for their families. At the start of the 20th century, it's a seriously labor-intensive effort. They have to pump water, light their stoves, grind coffee beans and carry bottles of milk inside, among other chores.

The actresses have to get all of those individual tasks across using only their bodies - there are no props, and, aside from a table apiece, no set.

The show has approximately 500 sound cues.

Live Radio Theatre

- Grew in popularity from the 20's through the 40's.
 - *Radio Drama even impacted Television programming.*
- Use of live sound effects and some pre-recorded effects.

Pre-Recorded Sound

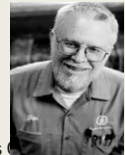
- Limited until the mid-1930's
- Sound effects recording became more readily available.
- By the 1950's tape recorders began to replace record players as the main source of sound and sound effects (although often considered unreliable).

Broadway and the 1950's

- Directors with "Hollywood" backgrounds (Garson Kanin and Arthur Penn) were the most innovative.
 - *They tried to emulate the sound of cinema.*
- Tapes and records were unreliable and the sound quality was often poor.
- Often the first time a sound cue was heard in rehearsal was during the 1st Tech.

The First Theatrical Sound Designer

- Dan Dugan credited as the first "designer".
 - *Worked at the American Conservatory Theatre in San Francisco in the late 1960's*
- Broadway productions of *Hair* and *Jesus Superstar* also listed sound designers
 - *Bob Kernan & Abe Jacob respectively*
- By the early 1980's reel-to-reel tape recorders, cassette decks, midi sampling keyboards and the like were common in professional theatres.





End of the 20th Century

1990's brought CD's, mini-disk players, DAT recorders, samplers, and the desktop computer.

- As the cost of this equipment came down its accessibility for smaller theatre operations went up.
- Advances in software (computer controlled sound systems) allowed the Sound Designer to gain the same level of control that the Lighting Designer.



Sound Design Today

- Once theatre directors and designers realized the impact of sound and sound effects in the cinema it was quickly adopted by the stage.
 - *Where once pre-recorded music was only used for pre-show and curtain call; now entire performances are underscored with music and ambient sound.*
- Innovations in technology continue to effect sound and sound applications for live performance.

http://www.youtube.com/watch?feature=player_detailpage&v=QAXbR1_RD6s

HISTORY OF SOUND

WHERE WE WERE AND WHERE WE ARE

Theatre sound in the past
Changes over time
Sound today

Dramatic use of sound in history

- Sound considerations are not new
 - *Greek stages were built with acoustics in mind*
 - Epidarus (350 B.C.) – reported that a match struck on stage could be heard in any of the 14000 seats
 - Hellenistic period theatre in Turkey
 - *Built on a hillside where breeze from the sea would carry voices*

- Shakespeare (1589 – 1613)
 - *First folio includes stage direction for sound*
 - “alarums, excursions, flourish, trumpets and drums”
- Duke of Saxe-Meiningen (mid 1800's)
 - *First person to actively make use of sound to heighten the emotional impact of drama and to reinforce mood.*
- Stanislavski (early 1900's)
 - *Made use of the new technology of recording*

- Eugene O'Neil
 - *Has said that in many of his plays, sound is yet another character in the play*

Sound in the 20th century

- Sound Designer is a recent addition to the design team
- Sound effects were often a part of the prop or electric departments
 - *Wind machines, gunshots, thunder...*
 - *Bells, buzzers, etc*
- Sound design really began with the advent of hi-fidelity recording and playback

- 1970's saw the synthesizer
 - Invented by Robert Moog
 - Able to reproduce many different musical sounds
- Now we have CD, DAT, CD-ROM, hard disk recording, digital audio workstations, samplers, MP3s, etc.

With great power comes great responsibility

- Attention must be paid to this technical element
 - *Modern audiences are accustomed to exceptional audio*
 - *Sound, like lighting should be invisible*
 - <http://www.youtube.com/watch?v=9sr9-wHhtIU>
 - <http://www.youtube.com/watch?v=upbtFXdA9-Q>

SOUND IN THE THEATRE OVERVIEW - PART

Environments of Theatre Sound
Skills used in each Environment
Audio and Sound Control
Design Example

Sound Environments

Physical and Virtual - Working Definitions

- Physical = Sound we hear
 - Physical environment of the audience / performers.
 - World of physics and acoustics
- Virtual (electronic) = Audio Systems
 - Electrical signals that are representations or facsimiles of sounds
 - Technical Environment of equipment, wires and "techie"

Sound Environments

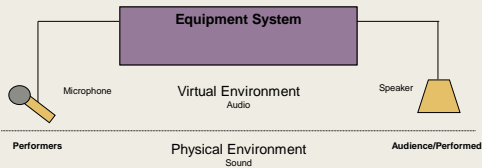
Physical and Virtual - Working Definitions

- Worlds meet at "transducers"
 - **Transducers** are devices that convert energy from one form to another.
 - In the theatre:
 - *Convert sound to electrical signals.* • Microphones
 - *Convert electrical signals to sound.* • Speakers

Sound Environments

Physical and Virtual - Working Definitions

Transducers - Link Sound and Audio Environments



Simple System Block Diagram

Skills and Environments

Psychological

■ Goal of a Design

- To advance the story by communicating with & producing "reaction" in the audience
 - Design = Choices of what, when and how sound is to be used within a production. (**Sound Design**).
 - Communication with the audience.
 - Requires "recognition" of sound by audience and acceptance of the impression/message being delivered.
 - * Sound must reach the audience's ears (**Acoustics**)
 - Usually doesn't work by itself, but reinforces, supports and/or collaborates with actions on stage.

Skills and Environments

How things fit together

■ Recognition and acceptance

- Requires the selection and production of the right sound for the cue
 - All telephone rings or church bells are not the same.
 - Must be in harmony with show concept

Skills and Environments

How things fit together

■ Recognition and acceptance

- Correct delivery of sound
 - Location of sound source needs to maintain believability.
 - Maintain focus with action - "Ears direct the eyes"
 - Placement and use of Equipment (**Audio Engineering - understanding audio and sound environments**)
 - Collaboration with Scene Designer
 - Correct timing and loudness during execution of cues.
 - Control of Cues
 - Operation - Audio Environment

Skills and Environments

How things fit together

■ Example - Lost in Yonkers by Neil Simon

- Child is uncomfortable about visiting a rich relation he has not met.
- Parent needs to leave child with the relation so the child needs to make a good impression.
- The parent dresses child up in borrowed suit, but the suit is too small.
- The child meets the relation, but while sitting down, rips the seat of his pants.

Skills and Environments

How things fit together

■ Example - "Lost in Yonkers"

- Design choice is to reinforce "rip" with sound.
- Why is the "rip" important?
 - Rip ruins the best impression and provides comic element.
- What's needed to reinforce the story element?
 - What - Believable **Rip** sound
 - Where - Sound must appear to come from the direction of the child.
 - When - Timing of the cue must match the action on stage.
 - How - Cue must be loud enough to be heard but not so loud as to be obvious as a sound effect.
 - Actor should react to the rip

Skills and Environments

How things fit together

- **Example - Lost in Yonkers**
 - **Physical Environment (sound) *In the house***
 - What sound will support the needed audience reaction?
 - Where should it come from?
 - On what action should it hit?
 - What loudness makes sense
 - Should the Actor hear and react to the sound?
 - **Virtual environment (audio) *In the booth***
 - Acquire, process and store audio for playback.
 - Setup a speaker
 - Control when sound is played to match stage action
 - Control signal level of audio for desired loudness

Audio and Sound Control

What, Where, When, How Long, & How Loud

- What (source)
 - Sound Cue to be controlled.
 - Believable "rip" sound

Audio and Sound Control

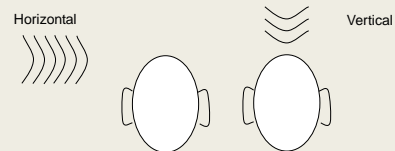
What, Where, When, How Long, & How Loud

- Where (source location)
 - Determined by the placement of transducers (speakers) or mechanical devices that generate sound.
 - Determined by audience's impression of location
 - *Impression of sound location is based upon how sound is received by each ear and processed as a location.*
 - *Perception of location = Psychoacoustics*

Audio and Sound Control

What, Where, When, How Long, & How Loud

- Where (source location)
 - Location perception - Horizontal and Vertical Planes



•Because of location of ears, sound has a more identifiable location on the horizontal left-right plane.

•Sound on the vertical plane is more location neutral

Audio and Sound Control

What, Where, When, How Long, & How Loud

- When (timing)
 - Identify the action (line, event) to reinforce
 - Figure out the time it takes to "Go"
 - (1) call of stage manager + (2) reaction time of board operator to setup & start cue + (3) physical time it takes for sound to start after "button is pressed."
 - **Manage your Liabilities** Standardization of variables leads to repeatability & reliability.
 - **Physical time** - Digital media reduces variations in cue position (when signal starts inside track, memory devices reduce mechanics of equipment (motors - how long it takes to start up)
 - **Automation** (Show control software) can eliminate steps, however more often used to improve setup time and run of complicated cues in shorter time frames.

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How Long (cue length)
 - Duration of cue easily controlled with a stored audio cue. - timing needs to be known when cue is developed and edited
 - *If you know how you made it, you can adjust - **repeatability***
 - *Not as easy with practical cues*
 - Cues can either end or be terminated by operator
 - *Ends of both "practical" sound and audio cues can also be called by stage manager*

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How Loud – Sound Environment
 - Loudness depends on how much energy is used to create the vibration
 - How hard you hit something.
 - How much signal level is sent to a speaker.
 - Loudness also depends upon “closeness” of the sound generator (transducer or mechanical device) to the listener. (Inverse square rule)
 - Also dependent upon whether listener is in the direct path of the sound.
 - Sound will be louder for those in the direct path than those out of the path, for the same distance from the source.

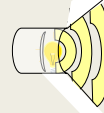
Audio and Sound Control

What, Where, When, How Long, & How Loud

- How Loud – Focusing
 - Light and Sound propagate in all directions



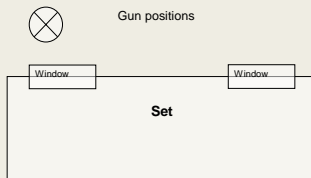
- Directionality can be added through use of enclosure (resonator) and radiator – Level reaching target is louder/brighter on the path



Audio and Sound Control

What, Where, When, How Long, & How Loud

- Example of Directional Planning in Sound
 - Need: Audience believes man with gun is shooting outside while walking stage right and left



Audio and Sound Control

What, Where, When, How Long, & How Loud

What are the options for creating gunshots that are heard first on stage right then stage left?

- Multiple guns / rigged to trigger in order
- Blank Gun walked across the stage
- Single speaker moved across the stage
- Far upstage speaker rotating focus from stage right to left
 - Single speaker aimed first at one window and then at the other?
- Multiple speakers with balance going from right to left

Audio and Sound Control

What, Where, When, How Long, & How Loud

What are the options for creating gunshots that are heard first on stage right then stage left?

- Single speaker . . . Does not work?
 - Sound delivery is not like a hose shooting water.
 - Sound is omni directional – spreads out as it travels. It would be extremely difficult to keep it from reaching the audience as it moves across the stage.
- Could it be reflected, like light off a mirror?
 - While sound does reflect off objects, behavior of the bounce is not consistent across all frequencies of sound.

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How is a choice made?
 - What impression do we want audience to get?
 - Cue heard needs to sound like real guns shooting outside windows.
 - Sound needs to be believable
 - Source of the sound must make sense.

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How is a choice made?
 - Cue needs to be controllable and repeatable
 - What makes the most sense for consistently being able to control the timing, source location, length, and loudness of each cue?
 - How likely is it that the cue will be repeatable?
 - What good is it if it sounds great once every third or fourth performance? Needs to work well each night

Audio and Sound Control

What, Where, When, How Long, & How Loud

- How is a choice made?
 - A single cue does not a design make...
 - What are the other cues in the show?
 - Does one delivery method make more sense in relation to the needs of other cues?
 - Any need to discuss plans with other designers?

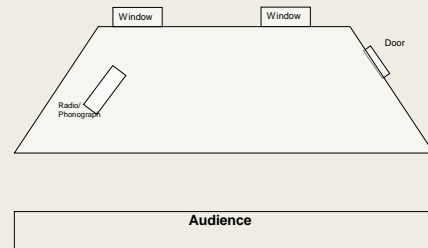
Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from The Foreigner, by Larry Shue
 - What are the cues and their purposes
 - Where do they originate from
 - When are they running- any critical timing issues
 - How long - Any issues
 - Collaboration/interaction with other show elements

Design Example

What, Where, When, How Long, & How Loud



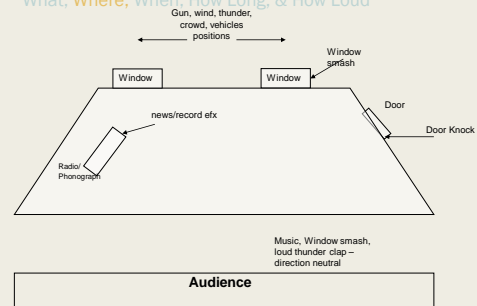
Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from The Foreigner
 - What are the cues and their purposes
 - Rain, wind, thunder = Apprehension - isolation
 - Vehicles, crowd, gunshots = Danger approaching/ establish other "Characters"
 - Radio broadcast = Ratchets up the "suspicion"
 - Record player & record player effects = Tries to provide calm but (1) adds to actor's fear (skip at gunshot) (2) Foreshadows power cut (title of song) (3) reinforces power being cut (slow down)
 - Window smash = Danger increases
 - Loud thunder crack / Storm = Danger has arrived
 - Music transition - Cover scene and time transition
 - Knock at the door = Reinforces "Don't know what happened"

Design Example

What, Where, When, How Long, & How Loud



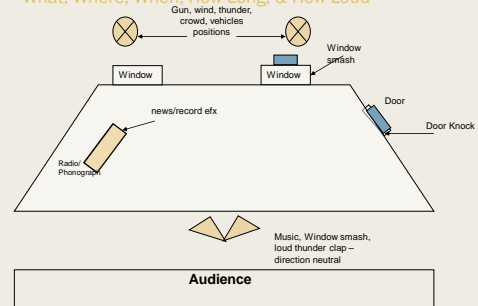
Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from Foreigner
 - **Where** do the cues originate from?
 - Upstage left and right (rain, wind, thunder, vehicles, crowd, gunshots) - **Outside**
 - Prop on set stage right (radio broadcast, record player effects) - **Inside**
 - Cluster overhead Non-directional (music effects and dramatic reinforcement – window smash and loud thunder crack) * artistic license **Non-directional**
 - Isolated **specials needs**
 - at window for smash
 - at door for knock

Design Example

What, Where, When, How Long, & How Loud



Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from Foreigner
 - What are some of the critical timing needs (**When**)?
 - Turning radio off – actor turns off
 - First gunshot – actor reacts to
 - Record player and record player effects – actor turns on and bangs into, gets powered down to reinforce wires being cut by crowd
 - Window smash – must match physical action
 - Knock – must match actor's action

Design Example

What, Where, When, How Long, & How Loud

- Example - Design for Scene from Foreigner
 - Are there any issues with cue lengths (**How long**)?
 - Radio, record player first cut and second cut have out cues called
 - Crowd background, storm and music transition will probably have outs called.

Design Example

Roles for each Skill - Who does what. . .

- Example - Design for Scene from Foreigner
 - Designer -
 - The "Design"
 - Collaborate with other show elements
 - Cue production
 - Need sound that supports 1950s timeframe
 - Select, acquire general sounds
 - Need to find "Night the Lights Went Out in Georgia"
 - Find or record radio broadcast
 - Produce effects (record skip & slow down)
 - May have problems with window smash . . .

Design Example

Roles for each Skill - Who does what. . .

- Example - Design for Scene from Foreigner
 - Any Engineering issues?
 - Define/design equipment system
 - Looks like 5 speaker locations
 - Looks like 4 audio cue devices
 - Operations?
 - Work during rehearsal to establish timing, setup and level for each cue
 - Control cues so each is delivered correctly and consistently.

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - What interactions with other design elements need to occur?
 - Scenic
 - Speaker locations back stage
 - Timing for transition between scenes
 - Properties
 - Speaker inside radio/record player cabinet
 - Timing of window break with cue
 - Crash box?

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - What interactions with other design elements need to occur?
 - Actors and direction
 - Review of design and collaboration on needs
 - Actors have to hear and react to most real sounds, and in particular, the items noted under the critical timing section
 - Actors need to initiate door knock? (or be there for it)
 - Lighting
 - Lightning to go with thunder
 - Simultaneous transition for scene transition

Design Example

Roles for each Skill - Collaboration

- Example - Design for Scene from Foreigner
 - What interactions with other design elements need to occur?
 - Stage Management.
 - Identify cue locations and call requirements
 - Timing on the call
 - Production
 - Schedule
 - Funding / Rights to "Night the Lights Went Out in Georgia"

SOUND DESIGN

The total sonic experience

* Diegetic Sound

- The sounds in a movie that the characters **CAN** hear
- Examples: Dialogue, Natural Sounds, Sound Effects
- [Inception, Christopher Nolan \(2010\)](#)

* Non-Diegetic Sound

- The sounds in a movie that the audience hears, but the characters DO NOT
- Example: The score, soundtrack, voiceover narration
- **Used to set the mood and evoke emotion [Example](#) [Example 2](#)

*Voiceover

A voice whose source is neither visible in the frame nor implied to be offscreen; it typically narrates the film's images

[Sunset Boulevard, Billy Wilder \(1950\)](#)

*Overlapping Dialogue

- Mixing characters' speech simultaneously
- Many times the background sound is turned down, so the viewer can concentrate on the dialogue between the two main characters.
- Used to achieve realism or to distract the audience (causes the audience to have to listen and pay closer attention)

**Score

- The music written for a movie or play

CH7. SOUND

WHAT IS SOUND?

- At its most basic level, the perceptual phenomenon we call "sound" is created by *variations in air pressure*.
- Sound operates on both physical and psychological levels.
- Sound, in narrative films, provides cues to help us form expectations about "meaning".
- A sound film can emphasize silence.

Sound Bites

"the eye sees better when the sound is great"

Steven Spielberg

Sound is an integral storytelling device

Since the 1970's (Dolby Stereo, 1976) breakthroughs in sound have been among the industry's most important technical and creative innovations.

Digital playback revolutionized the art of film sound

Today we have several competing multi-channel digital sound formats including: **Dolby Digital**, **Digital Theater Systems (DTS)** and **Sony Dynamic Digital Sound (SDDS)** as well as **THX Certified Theaters**.

Cinema is now oddly unbalanced. In sound, it is fully three dimensional, but its picture remains two dimensional.*

*Digital 3-D is making significant inroads!

Sound Production Phases

1. Design
2. Recording
3. Editing
4. Mixing

Sound Design I

- A state-of-the-art concept pioneered by director Francis Ford Coppola and film editor Walter Murch, combining the crafts of **editing** and **mixing** and, like them, involving both theoretical and practical issues.
- In essence, sound design represents advocacy for movie sound.

Sound Design II

- Sound design, or the creating of sound for a film, has in the past been the responsibility of a sound crew who recorded, edited, and mixed a soundtrack.
- Today's digital filmmaking involves making a sound track consisting of a digital code placed on a digital recording medium.
- Sound may be recorded with a complex system such as Dolby requiring a theater to have a Dolby playback system.

Sound Design III

The contemporary concept of **sound design** is based upon:

1. Sound should be integral to all three phases of film production and not just added in post.
2. A film's sound is potentially as expressive as its images.
3. Image and sound can create different worlds.
4. Image and sound are co-expressible.

Sound Design IV

- According to Tomlinson Holman (the creator of Lucas film's THX technology):
- *“Sound design is the art of getting the right sound in the right place at the right time”.*
- Sound is not subordinate *to image*.

Sound Recording I

The history of recording movie sound has evolved from *optical* and *magnetic* to the digital systems used today.

Of the various types of film sound, *dialogue* is the only type typically recorded during production. Everything else is added in the *editing* and *mixing* stages of postproduction.

Sound Recording II

- The recording of production sound is the responsibility of the production sound *mixer/recordist*, a *boom operator*, and *gaffers* in charge of power and cabling.
- **Double-system recording** is the standard technique of recording film sound on a medium separate from the picture.

PRODUCTION MIXER

- The sound department has the most eccentric reputation of all on the production. They sit behind a little tape deck and slightly adjust the volume of a single microphone during a take. Sound people are insufferably finicky techies. But they are serious bon vivants with personal cappuccino makers, and an encyclopedic knowledge of exotic vacation destinations. Recording sound is the easiest job on the crew because so many takes are **MOS (without sound)**

Boom Operator

The person who holds the microphone, which is suspended at the end of a long pole (**boom**) over the actor's heads and moves it during a take, following the action, so that the lines are always delivered as close to "on mic" as possible.

It is actually one of the most difficult jobs on the set. The best operators are tall and have sturdy arms and must keep the "**fish pole**" out of sight of the camera yet as close to the talent as feasible. {inverse square law}

Sound Department Assistants

- The third person on the sound team is the **cable puller**. The mic/boom package is connected to the recorder by one or more cables. Someone must glide those cables around the crew, camera, lights and other equipment as the boom operator moves around to follow the action.

Sound Playback Operator

- Required on music videos and musical films, this person plays back sync sound playback of music for dancers or singers to "lip sync" to. This position speeds along production of these specialty shoots.

Sound Editing I

The editor is responsible for the overall process of editing and for the sound crew (sound editors, sound mixers, Foley artists, music composer, music supervisor).

Filmmakers first screen the **dailies** (or **rushes**) which are synchronized picture/sound work prints of a day's shooting.

Select the usable individual shots from the **outtakes** (footage not used) and decide which dialogue needs rerecording.

Sound Editing II

- **Rerecording** of sound first recorded on the set due to ambient or other noises (sometimes called *looping* or *dubbing*) is most likely done today with a computer through a process called **automatic dialogue replacement** (ADR)

Sound Mixing

- **Mixing** is the process of combining different sound tracks onto one composite sound track synchronous with the picture.
- Each type of sound occupies an individual sound track. The term also can refer to a compilation of movie music released on CD or DVD-audio.
- The ideal result of "audio mise en scene" is a clear and clean soundtrack.

Describing Film Sound

- When writing or talking about a movie's sound, you should be able to describe a sound in terms of its:
 1. Perceptual Characteristics: (*pitch, loudness, quality, fidelity*)
 2. Its Source (*where it comes from*)
 3. Its Type (*vocal or musical*)

Connections Between the Perceptual and Physical Characteristics of Sound

Perceptual Characteristics (what we perceive in sound) →	Physical Characteristics ← (what constitutes the sound)
Pitch → (or level) Described as high or low .	← Frequency (or speed-that is, the number of sound waves produced per second)
Loudness → (or volume or intensity) Described as loud or soft .	← Amplitude (or degree of motion within the sound wave)
Quality → (or timbre, texture, or color) Described as simple or complex	← Harmonic content (or texture resulting from a single sound wave or mix of sound waves)

Movie Sound Slang

- **Source**: the implied location from which a sound originates.
e.g. the sound of footsteps-most likely done in Foley
- **Fidelity**: the faithfulness or unfaithfulness of a sound to its source.
e.g. **The Ice Storm (1997)**-faithful reminder of the power of nature

Buzz Words: Sources of Film Sound

- **Diegetic sound**- originates from a source within a film's world
- **Nondiegetic sound**- comes from a source outside the film's world

Buzz Words: Sources of Film Sound

- **Onscreen sound-** emanates from a source that we can see.
- **Offscreen sound-** which can be diegetic or nondiegetic, derives from a source that we do not see.

Buzz Words: Sources of Film Sound

Internal sound- whenever we hear the thoughts of a character within a scene.

External sound- comes from a place within the world of the story and we assume that it is heard by the characters in that world.

Sources of Movie Sound

	Diegetic Sound	Nondiegetic Sound
Spatial and Temporal Awareness		
produces spatial awareness	X	
produces temporal awareness	X	X
Source of Sound		
Internal	X	
External	X	
Onscreen	X	X
Offscreen	X	X
Simultaneous	X	
Non-simultaneous	X	X

Types of Film Sound

1. Vocal Sounds
 - a. Dialogue
 - b. Narration
2. Environmental Sounds
 - a. Ambient Sound
 - b. Sound Effects
 - c. Foley Sounds
3. Music
4. Silence

Vocal Sounds: Dialogue

- Dialogue is recorded during production or re-recorded during post production.
- **ADR-re-recording** done via computer-a faster, less expensive, and technically more sophisticated process than re-recording that is done manually with actors.
- Dialogue is a function of plot and character development.
- Dialogue is usually ordinary speech, but it can be highly artificial.
- e.g. 1930's Screwball Comedies like Hawks's *Bringing Up Baby* (1938)

Dialogue II

- Movie speech can take forms other than dialogue.

e.g. Alain Resnais's characters reveal stream of consciousness through intertwining strands of *interior monologue* in *Providence*(1977)

- >**Interior Monologue:** A variation on the mental, subjective POV of an individual character that allows us to see that character and hear that character's thoughts in his or her own voice, even though the character's lips don't move.

Narration

- **Narration:** commentary spoken by either offscreen or onscreen voices, is frequently used in narrative films, where it may emanate from an omniscient voice or from a character in the movie.

e.g. *The Killing* (1956)

Badlands (1973)

The Magnificent Ambersons (1942)

Double Indemnity (1944)

Environmental Sounds

- **Ambient Sound:** sound that emanates from the background of the setting, either recorded during production or added during post. It must not include unintentional noises (e.g. *footsteps, car noise*).
- **Sound Effects:** includes all sounds artificially created for the soundtrack that have a definite function in telling the story.
- **Wild Recording:** any recording of the sound not made during synchronous shooting of the picture.

Buzz Word: Foley

- ▶ A special category of sound effects invented in the 1930's by **Jack Foley**, a sound technician at Universal Studios. Whereas sound effects are recorded "wild" and are often taken from a library of prerecorded effects, Foleys are recorded in sync with the picture and are *unique*, specially-crafted sounds.

FILM MUSIC

- **Film music** (like film sound generally) can be diegetic or nondiegetic.
- Diegetic music comes from the story world: a character turns on a radio, e.g., or performs, as when the classic rock and roller Buddy Holly (Gary Busey) plays his songs during concerts in Steve Rash's *The Buddy Holly Story* (1978).
- Nondiegetic music comes from beyond the story world, enhancing the viewer's appreciation and even understanding of the story but not representing a literal part of the characters' lives. It is recorded at the end of the editing process so it can be matched to the images.
- It is "*music...dramatically motivated and composed... to interact with specific facets of the filmic medium, particularly the narrative*".

..... Royal S. Brown

Author: Reading Film Music, U of Calif.Press, 1994, 13

FILM MUSIC II

- Music may be composed by those who specialize in film music scores like: **Bernard Herrmann**, who worked often with **Alfred Hitchcock**, **Leonard Rosenman** who composed for **Kazan** and **Kubrick** and by **John Williams**, who works often with **Steven Spielberg**.
- It may also be written by contemporary composers who are rock or pop musicians such as: **Danny Elfman**, **Randy Newman**, **Bob Dylan**, **Rage Against the Machine**, **Devo**.

FILM MUSIC III

- Music can help tell a story, whether it pertains to plot, action, character or mood.
e.g. Q. Tarantino's use of a carefree rock song "Stuck in the Middle..." underplays a nihilistic, sadistic cop torture scene.
- Action movies like *Bourne Supremacy* (2004) contain a mix of ambient sounds + John Powell's score mixed with Russian folk music + techno.

FILM MUSIC IV

- Musical themes are frequently associated with individual characters.
e.g. In *Titanic(1997)*-Rose's theme by composer **James Horner**.
- Film music may emanate from sources within the story.
e.g. *Black Hawk Down(2001)*composer **Hans Zimmer** used diegetic music from soldier's radios, street musicians, mosques- a mix of Western and African music.
- With sound designer **Jon Title**, **Zimmer** created a "seamless entity".

Silence

- **Silence** can be a sound.
- With careful interplay between sound & silence, a filmmaker can produce a new rhythm for a film-one that calls attention to the characters' perceptions.
e.g. In Kurosawa's "The Blizzard Episode" from *Dreams(1990)* the sound track is limited to wind, the ethereal woman and limited consciousness.

Types of Sound in Spielberg's *War of the Worlds(2005)*

- A case study of this film will show that sound designer **Richard King's** sound effects help render *fright* as the heart of the story.
- **John Williams's** musical score includes atonal music, soft, muted horns and is assigned a secondary role in this particular film.

Functions of Film Sound I

- Sound helps the filmmaker tell a movie's story by reproducing and intensifying the world that has been partially created by the film's visual elements.
- A good soundtrack can make the audience aware of the spatial and temporal dimensions of the screen, raise expectations, create rhythm, and develop characters.
- Sounds that work directly include: dialogue, narration, sound effects (often Foley Sounds) that call attention to on or off-screen events.

Functions of Film Sound II

1. Audience Awareness.
2. Audience Expectations.
3. Expression of Point-of-View.
4. Rhythm.
5. Characterization.
6. Continuity.
7. Emphasis.

Audience Awareness

1. Sound can define sections of the screen.
2. Sound can guide our attention to between these sections.
3. Sound can influence our interpretation.
e.g. The tapestry of sounds that underscores the opening of *Once Upon a Time in the West(1968)*defines its cinematic space.

Audience Expectations

- Sounds create expectations.

e.g. In Ridley Scott's *Alien* (1979); sound Jim Shields) sound plays an impressive role in helping to create and sustain the suspenseful narrative.

e.g.2: The juxtaposition of the familiar "meow" sounds made by Ripley's pet cat are played against the alien beast.

Film Slang

- **Bridge (music)**- music (or sfx) used to link two or more scenes. Often used to enhance continuity.
- **Asynchronous sound**- sound that comes from the source apparent in the image but is not precisely matched temporally with the actions occurring in that image. e.g. **Alfred Hitchcock's 39 Steps (1939)**

A landlady discovers a body and screams and as she opens her mouth we hear a train whistle and cut to a speeding train leaving tunnel-an **asynchronous sound bridge**.

Expression of POV

Alfred Hitchcock is a master of expressing his point of view through sound.

In *Psycho* (1960) the staccato violins of composer and sound designer **Bernard Herrmann** accent the grisly murder in the famous shower scene.

In *The Birds* (1963) one of the few of his movies that does not have background music **Hitchcock** uses electronic bird sounds (by Remi Gassmann and Oskar Sala) to express the POV of human chaos.

"In The Birds, screeches are even more important than visual techniques for terrorizing the audience during attacks. Indeed bird sounds sometimes replace visuals altogether...If in Psycho music sounds like birds, in The Birds bird sounds function like music. Hitchcock even eliminates music under the opening titles in favor of bird sounds."

..... Elizabeth Weis (Authority on Film Sound)

Rhythm

- Sound can add rhythm to a scene, either by accompanying or juxtaposed against movement on the screen.
- e.g. In the *The Sweet Hereafter* (1997) two conversations overlap, joined in time, but separated in onscreen space.
- A *montage* of sounds can be orchestrated to create rhythm as in the opening scene of Mamoulians's *Love Me Tonight* (1932)

Characterization

- All types of sound-dialogue, sound effects, music-can function as part of characterization.
- Musical themes often identify characters.

e.g. In Sam Mendes's *American Beauty* (1999) an original theme helps identify Lester's (Kevin Spacey) longing for a different life.

Continuity

- Sound can link one shot to the next, indicating that the scene has not changed in either time or space.
- **Overlapping** sound carries the sound from a first shot over to the next before the sound of the second shot begins.

e.g. Joel Coen's *The Man Who Wasn't There* (2001) has 13 of 15 shots linked by overlapping, non-diegetic bits of a Beethoven piano sonata.

Emphasis

- A sound can function as a punctuation mark-when it accentuates and strengthens the visual image. It does not have to be a sledgehammer.

e.g. In Peter Weir's *Truman Show*(1998), Truman Burbank (Jim Carrey) hears a distinct sound of a sail piercing a dome.

This memorable sound creates the realization that the horizon is fake.

Sound in *Citizen Kane*

(1941)

- The 1930's were the first decade of sound in the movies.
- During that decade, Orson Welles approached sound by *experimenting and making things different*.
- Welles, film's first sound designer, created a *deep focus sound* for Kane.
- Welles created a sound Mise-en-Scene

Analyzing Sound

- Sound is manufactured creatively for the purpose of telling a story.
- What you hear in a film results from choices made by directors and their collaborators during and after production.
- You should be able to describe how sound in any movie either complements or detracts from the visual elements portrayed onscreen.