



CONCLUSION

As shown throughout the book, in addition to the nature of games and the requirements of game audio in its functions (commercial, anticipatory, structural, spatial, and so on), game sound can be seen as the product of a series of pressures from technological, economic, ideological, social, and cultural spheres. The first few chapters addressed some of these aspects within the historical context of games, with a particular focus on the technological constraints imposed by an emerging form, which have to a considerable extent now been overcome. Game composers and sound designers no longer rely on synthesis chips to create ambience, sound effects, dialogue, or music, but instead have at their disposal as many sounds and instruments as can be imagined. As such, game audio has grown beyond fulfilling functions to becoming an art form in its own right. Nevertheless, the nature of video games as nonlinear, participatory media continues to create many interesting challenges of a technological and aesthetic nature.

Chapter 5 discussed the processes of game audio's development, and it became clear that audio decisions are a series of negotiations with a team of people, who must work together on these challenges in order to create the best possible result from their individual audio assets. In particular, mixing is an area of games in which a constant negotiation between the aesthetic output and the functional processes of the sound is undertaken. Although such difficulties certainly exist in linear forms of audiovisual media, the additional challenge of unpredictable timings means that intermingling sound assets must constantly be judged in terms of priority in any given sequence of play, throughout the entire game.

The added commercial pressures placed on game composers by the influx of linear licensed music into the game development industry were discussed in

chapter 6. This influx has meant that there has been an increased attention paid to promoting their craft as critical to the overall impact of a game. The incorporation of unplanned or replaceable licensed music is unlikely ever to replace specially composed music in games, since licensed music, unless very carefully planned, will often fail to fulfill the many functions required of sound in games (as shown in chapter 7). Licensed music also offers interesting possibilities in terms of potentially leading to new playback devices, user-generated playlists, and so on, which may create other cultural innovations in the near future.

Finally, chapter 8 explored some of the possible approaches to the non-linear and participatory aspects of gaming that music in games seeks to address in a variety of ways. The requirements of gameplay for a variable playback environment has led to the incorporation of many interesting ideas drawn significantly from the avant-garde, including algorithmic generation, granular synthesis, and open form. Although these ideas continue to be mined, it seems likely that some approaches to this problem may also pass in the other direction—from games to contemporary musicians and composers. Certainly, we can expect to see some of these techniques turn up in popular music, particularly if user-generated tagged playlists become incorporated into gaming.

In a sense, this book has raised as many questions as it has provided answers. It should be noted that my focus has been on game audio's production, at the expense of its reception and its users. Kristine Jørgensen's (2008, p. 175) study of the reception of game sound (primarily, sound effects), has shown that "games suffered both as user-oriented game systems and as virtual worlds when sound was not present, which means that both the progression through the game and the sense of presence in the game environment were affected." Nevertheless, as she demonstrates in two games, this affect is genre-specific, and her limited focus (on only two games, on only male respondents, without dividing sound effects from music, and so on) makes the study largely inconclusive in discussing games as a whole. More research needs to be undertaken into how audio functions in games and other dynamic media.

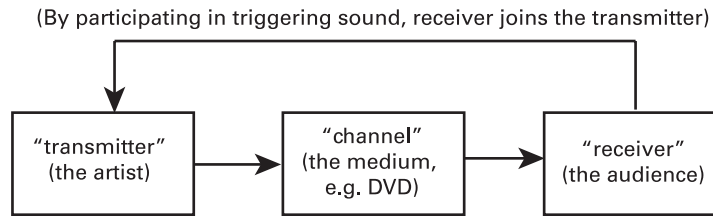
Moreover, there are, as shown, several different ways in which the player is connected to, participates in, or interacts with the sound of a game, and several ways in which this sound acts internally or externally to the game's diegesis. How is the audio used, and how does the medium of games influence reception? When the player can become a causal agent in the audio's playback, how does this change their relationship to sound and to music? As the player is no longer a passive listener, but may be involved in invoking sound and music in the game, we must reevaluate theories of reception. Not only this, but audio in games is heard in highly repetitive atmospheres, and we must examine how this has affected its reception, and how it may influence future production and distribution of popular music or video games in light of its obvious recent popularity.

Claudia Gorbman (1987, p. 15) suggests that there is a “mutual implication” between image and audio in their reception. But when the timing of events is such that the audio (in the case of music, for instance) may not coincide with the same image with each play, what happens to this “mutual implication”? It is unlikely that music will be triggered at exactly the same times with each gameplay. With sound effects being randomized through granular synthesis, even these will be played back differently every time the game is played. Ambience may be set so that different ambient sounds are heard every time the player is in a location, and the user controls a number of sound effects within any given scene, altering the soundscape. In other words, the close synchronization of audio with any series of images does not exist in games. Analyses of music and the moving image such as those undertaken by, for instance, Philip Tagg (2000; using a semiotic approach with multiple reception tests) or Nicholas Cook (2004; using a variety of approaches), although valuable, have used a fixed text, which is the same every time it is played back. Without this fixedness, what becomes of the meaning? Are the meanings different every time, or do they carry similar meanings, despite different timings? If the latter is the case, then are the studies of the close synchronization of music and image redundant?

Consider, for instance, if, in a film, the director wants an off-screen (in Chion’s terminology, *acousmatic*) dog barking to inform the audience that there is a dog nearby. The sound designer records a dog bark and it is inserted into the film’s mix. The audience then hears the dog bark and recognizes that there is a dog nearby in the off-screen activity. Nevertheless, the audience brings their own meanings to that sound, which may be “my dog recently died and I am sad.” In other words, the meaning is enriched by the connotation of the connotations. In terms of semiotic theory, I have elsewhere called this secondary level of signification *supplementary connotation* (Collins 2002, pp. 430–433). These are the unpredictable, individual, and often personal connotations associated with a text.

However, even this approach does not account for dynamic media such as games, in which the audience plays an active role in the construction of the (audio) “text.” The traditional semiotic chain of communication from transmitter (the composer/sound designer) to channel (the sounds) to receiver (the audience) is disturbed in games by the interplay between the player and the audio. In some cases, the player becomes a cotransmitter, and therefore, just as the audio in games is nonlinear, it may be worth considering the communication chain as also nonlinear, perhaps in a more circular fashion in which the receiver plays a more active role (see figure 9.1).

Using the example of the dog barking, in this case, let us say that the player is in a driving game, and happens to take a curve too quickly just after the dog barks. The sound of the tires squealing is added to the transmission. In this case, the audience may interpret that supplementary connotation one level further, as

**FIGURE 9.1**

Participation's impact on the traditional transmitter-channel-receiver chain of events.

“my dog recently died when he was hit by a car and I am sad and I hate cars,” moving the train of thought away from the dog and toward the car. The participatory nature of video games in other words potentially leads to the creation of additional or entirely new meanings other than those originally intended by the creators by not only changing the reception, but also changing the transmission. We might refer to these meanings as *participatory supplementary connotations*, as the original meaning (that there is a dog somewhere) is maintained, but, through our own experiences and through participation, is supplemented by additional meanings.

Furthermore, even the language and assumptions of linear media theories are inadequate for games. As discussed particularly in chapter 7, in game audio there is a breakdown of the traditional notions of author and text. When the music does not exist as a single linear track, there is no *musical text*, and the “author” is perhaps as much the player–listener, whose moves and involvement affect the playback of the audio, as the composer, who is responsible for composing them, and the audio integrator, who makes decisions regarding playback and incorporates sound elements into the gameplay. As mentioned above, sound effects may be created algorithmically by an amalgam of granules, and therefore be different with every play, further disturbing this notion of text. The idea of the game as one text or one complete work especially fails in the face of unscripted online games, localized games, and so on. As suggested, this reduction of text and authorial power may even have an impact on the future development of music in general. Artists may construct new approaches to songwriting, and listeners may play more of an active role through the generation of tagged playlists in which they control the placement of music in a game. What happens to the reception of music when the well-known and well-used structural popular forms developed since the days of Tin Pan Alley disintegrate? And what happens to reception when players may consciously articulate connotations by inserting mood-based tags into their music playlists?

Moreover, since with games there is no record of playback—games are different every time, particularly, as noted, with online games—there is no set text

from which we can work (unless we do a video screen capture, and then treat it as a linear media form). Indeed, since not only games, but every game *play* and game *player* is different, what methods can we use to determine how players hear, use, and interpret game audio? I can provide no answers at this time, but this is clearly an area that needs significantly more research, particularly in light of the increasing role that dynamic media forms are having in our daily lives.

Of course, there is also the issue of rhythm-action and other music or audio-based games, and how these affect the reception of the audio. Music has recently taken on somewhat of a primary role in certain styles of games, driving the structure of games in some cases. The power of the composers in some games companies is notable (if rare). As Nintendo composer Hip Tanaka illustrated: “When it comes to music, I didn’t discuss it with anybody. They allowed me to be in charge of the game’s music. I even insisted that game designers change certain graphical concepts in the maps from my point of view” (cited in Brandon 2002). As discussed, recent games like *Rez*, *Electroplankton*, and *Lumines*, as well as the popularity of rhythm-action games, suggest areas where the composition of music in games can be taken much further, so that games are built around music, rather than the other way around.

New interface devices, such as the Nintendo DS stylus, or new multitouch screens, in which images (and potentially sounds) can be moved about on a screen by hand, suggest that a participatory element to audio’s consumption will become a standard in which users may physically manipulate the playback of the audio that they want to hear. Moreover, the rise of dynamic audio in theme parks, museums, educational tools, appliances, toys, art installations, and other areas in our lives suggests that even outside of video games, this cultural form is having a significant impact on the ways in which sound is produced, mediated, and consumed.

