4 | Building Relationships: The Process of Creating Game Music

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Even more than writing music for film, composing for video games is founded on the principle of interactive relationships. Of course, interactivity is particularly obvious when games use dynamic music systems to allow music to respond to the players. But it is also reflected more generally in the collaborative nature of game music production and the way that composers produce music to involve players as active participants, rather than simply as passive audience members. This chapter will outline the process of creating video game music from the perspective of the composer. The aim is not to provide a definitive model of game music production that applies for all possible situations. Instead, this chapter will characterize the processes and phases of production that a game composer will likely encounter while working on a project, and highlight some of the factors in play at each stage.

Beginning the Project

Though some games companies have permanent in-house audio staff, most game composers work as freelancers. As with most freelance artists, game composers typically find themselves involved with a project through some form of personal connection. This might occur through established connections or through newly forged links. For the latter, composers might pitch directly to developers for projects that are in development, or they might network at professional events like industry conferences (such as Develop in the UK). As well as cultivating connections with developers, networking with other audio professionals is important, since many composers are given opportunities for work by their peers.

Because of the technical complexity of game production, and the fact that games often require more music than a typical film or television episode, video games frequently demand more collaborative working patterns than non-interactive media. It is not uncommon for games to involve teams of composers. One of the main challenges of artistic collaborations is for each party to have a good understanding of the other's creative and

technical processes, and to find an effective way to communicate. Unsurprisingly, one positive experience of a professional relationship often leads to another. As well as the multiple potential opportunities within one game, composers may find work as a result of previous fruitful collaborations with other designers, composers or audio directors. Since most composers find work through existing relationships, networking is crucial for any composer seeking a career in writing music for games.

Devising the Musical Strategy

The first task facing the composer is to understand, or help devise, the musical strategy for the game. This is a process that fuses practical issues with technical and artistic aspirations for the game. The game developers may already have a well-defined concept for the music of their game, or the composer might shape this strategy in collaboration with the developers.

Many factors influence a game's musical strategy. The scale and budget of the project are likely well outside the composer's control. The demands of a mobile game that only requires a few minutes of music will be very different from those of a high-budget title from a major studio that might represent years of work. Composers should understand how the game is assembled and whether they are expected to be involved in the implementation/integration of music into the game, or simply delivering the music (either as finished cues or as stems/elements of cues). It should also become clear early in the process whether there is sufficient budget to hire live performers. If the budget will not stretch to live performance, the composer must rely on synthesized instruments, and/or their own performing abilities.

Many technical decisions are intimately bound up with the game's interactive and creative ethos. Perhaps the single biggest influence on the musical strategy of a game is the interactive genre or type of game (whether it is a first-person shooter, strategy game, or racing game, and so on). The interactive mechanics of the game will heavily direct the musical approach to the game's music, partly as a result of precedent from earlier games, and partly because of the music's engagement with the player's interactivity.[1] These kinds of broad-level decisions will affect how much music is required for the game, and how any dynamic music should be deployed. For

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[1] Paul Hoffert, *Music for New Media* (Boston, MA: Berklee Press, 2007), 16; Richard Stevens and Dave Raybould, *The Game Audio Tutorial* (Burlington, MA: Focal, 2011), 162–3.

instance, does the game have a main character? Should the game adopt a thematic approach? Should it aim to respond to the diversity of virtual environments in the game? Should it respond to player action? How is the game structured, and does musical development align with this structure?

Part of the creative process will involve the composer investigating these questions in tandem with the developers, though some of the answers may change as the project develops. Nevertheless, having a clear idea of the music's integration into the game and of the available computational/financial resources is essential for the composer to effectively begin creating the music for the game.

The film composer may typically be found writing music to a preliminary edit of the film. In comparison, the game composer is likely to be working with materials much further away from the final form of the product.[2] It is common for game composers to begin writing based on incomplete prototypes, design specifications and concept art/mood boards supplied by the developers. From these materials, composers will work in dialogue with the developers to refine a style and approach for the game. For games that are part of a series or franchise, the musical direction will often iterate on the approach from previous instalments, even if the compositional staff are not retained from one game to the sequel.

If a number of composers are working on a game, the issue of consistency must be considered carefully. It might be that the musical style should be homogenous, and so a strong precedent or model must be established for the other composers to follow (normally by the lead composer or audio director). In other cases, multiple composers might be utilized precisely because of the variety they can bring to a project. Perhaps musical material by one composer could be developed in different ways by other composers, which might be heard in contrasting areas of the game.

Unlike a film or television episode, where the composer works primarily with one individual (the director or producer), in a game, musical discussions are typically held between a number of partners. The composer may receive feedback from the audio director, the main creative director or even executives at the publishers.[3] This allows for a multiplicity of potential opinions or possibilities (which might be liberating or frustrating, depending on the collaboration). The nature of the collaboration may also be

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[2] Michael Sweet, *Writing Interactive Music for Video Games* (Upper Saddle River, NJ: Addison-Wesley, 2015), 80.

[3] Winifred Phillips, *A Composer's Guide to Game Music* (Cambridge, MA: MIT Press, 2014), 136–7.

affected by the musical knowledge of the stakeholders who have input into the audio. Once the aesthetic direction has been established, and composition is underway, the composer co-ordinates with the audio director and/or technical staff to ensure that the music fits with the implementation plans and technical resources of the game.[4] Of course, the collaboration will vary depending on the scale of the project and company – a composer writing for a small indie game produced by a handful of creators will use a different workflow compared to a high-budget game with a large audio staff.

Methods of Dynamic Composition

One of the fundamental decisions facing the composer and developers is how the music should react to the player and gameplay. This might simply consist of beginning a loop of music when the game round begins, and silencing the loop when it ends, or it might be that the game includes more substantial musical interactivity.

If producers decide to deploy more advanced musical systems, this has consequences for the finite technical resources available for the game as it runs. Complex interactive music systems will require greater system resources such as processing power and memory. The resources at the composer's disposal will have to be negotiated with the rest of the game's architecture. Complex dynamic music may also involve the use of middleware systems for handling the interactive music (such as FMOD, Wwise or a custom system), which would need to be integrated into the programming architecture of the game.[5] If the composer is not implementing the interactive music themselves, further energies must be dedicated to integrating the music into the game. In all of these cases, because of the implications for time, resources and budget, as well as the aesthetic result, the decisions concerning dynamic music must be made in dialogue with the game development team, and are not solely the concern of the composer.

The opportunity to compose for dynamic music systems is one of the reasons why composers are attracted to writing for games. Yet a composer's enthusiasm for a dynamic system may outstrip that of the producers or

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[4] Phillips, *Composer's Guide*, 119; Sweet, *Interactive Music*, 55–6; Chance Thomas, *Composing Music for Games* (Boca Raton, FL: CRC Press, 2016), 52.
[5] Thomas, *Composing Music for Games*, 249–53.

even the players. And, as noted elsewhere in this book, we should be wary of equating more music, or more dynamic music, with a better musical experience.

Even the most extensive dynamic systems are normally created from relatively straightforward principles. Either the selection and order of musical passages is affected by the gameplay ('horizontal' changes), or the game affects the combinations of musical elements heard simultaneously ('vertical' changes). Of course, these two systems can be blended, and both can be used to manipulate small or large units of music. Most often, looped musical passages will play some part in the musical design, in order to account for the indeterminacy of timing in this interactive medium.

Music in games can be designed to loop until an event occurs, at which point the loop will end, or another piece will play. Writing in loops is tricky, not least when repetition might prompt annoyance. When writing looped cues, composers have to consider several musical aspects including:

- *Harmonic structure*, to avoid awkward harmonic shifts when the loop repeats. Many looped cues use a cadence to connect the end of the loop back to the beginning.
- *Timbres and textures*, so that musical statements and reverb are not noticeably cut off when the loop repeats.
- *Melodic material*, which must avoid listener fatigue. Winifred Phillips suggests using continual variation to mitigate this issue.[6]
- *Dynamic and rhythmic progression* during the cue, so that when the loop returns to the start, it does not sound like a lowering of musical tension, which may not match with in-game action.
- *Ending the loop* or transitioning to another musical section. How will the loop end in a way that is musically satisfying? Should the loop be interrupted, or will the reaction have to wait until the loop concludes? Will a transition passage or crossfade be required?

A game might involve just one loop for the whole game round (as in *Tetris*, 1989) or several: in the stealth game *Splinter Cell* (2002), loops are triggered depending on the attention attracted by the player's avatar.[7]

Sometimes, rather than writing a complete cue as a whole entity, composers may write cues in sections or fragments (stems). Stems can be written to sound one after each other, or simultaneously.

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[6] Phillips, *Composer's Guide*, 166.
[7] Simon Wood, 'Video Game Music – High Scores: Making Sense of Music and Video Games', in *Sound and Music in Film and Visual Media: An Overview*, ed. Graeme Harper, Ruth Doughty and Jochen Eisentraut (New York: Continuum, 2009), 129–48.

In a technique sometimes called 'horizontal sequencing'[8] or 'branching',[9] sections of a composition are heard in turn as the game is played. This allows the music to respond to the game action, when musical sections and variations can be chosen to suit the action. For instance, the 'Hyrule Field' cue of *Legend of Zelda: Ocarina of Time* (1998) consists of twenty-three sections. The order of the sections is partly randomized to avoid direct repetition, but the set is subdivided into different categories, so the music can suit the action. When the hero is under attack, battle variations play; when he stands still, sections without percussion play. Even if the individual sections do not loop, writing music this way still has some of the same challenges as writing loops, particularly concerning transition between sections (see, for example, the complex transition matrix developed for *The Operative: No One Lives Forever* (2000)).[10]

Stems can also be programmed to sound simultaneously. Musical layers can be added, removed or substituted, in response to the action. Composers have to think carefully about how musical registers and timbres will interact when different combinations of layers are used, but this allows music to respond quickly, adjusting texture, instrumentation, dynamics and rhythm along with the game action. These layers may be synchronized to the same tempo and with beginnings and endings aligned, or they may be unsynchronized, which, provided the musical style allows this, is a neat way to provide further variation. Shorter musical fragments designed to be heard on top of other cues are often termed 'stingers'.

These three techniques are not mutually exclusive, and can often be found working together. This is partly due to the different advantages and disadvantages of each approach. An oft-cited example, *Monkey Island 2* (1991), uses the iMUSE music system, and deploys loops, layers, branching sections and stingers. *Halo: Combat Evolved* (2001), too, uses loops, branching sections, randomization and stingers.[11] Like the hexagons of a beehive, the musical elements of dynamic systems use fundamental organizational processes to assemble individual units into large complex structures.

Even more than the technical and musical questions, composers for games must ask themselves which elements of the game construct their

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[8] Phillips, *Composer's Guide*, 188.

[9] Sweet, *Writing Interactive Music*, 149.

[10] Guy Whitmore, 'A DirectMusic Case Study for No One Lives Forever', in *DirectX 9 Audio Exposed: Interactive Audio Development*, ed. Todd M. Fay with Scott Selfon and Todor J. Fay (Plano, TX: Wordware Publishing, 2003), 387–415.

[11] Martin O'Donnell, 'Producing Audio for Halo' (presentation, Game Developers Conference, San Jose, 21–23 March 2002), accessed 8 April 2020, http://halo.bungie.org/misc/gdc.2002.music/.

music responds to, and reinforces. Musical responses inevitably highlight certain aspects of the gameplay, whether that be the avatar's health, success or failure, the narrative conceit, the plot, the environment, or any other aspect to which music is tied. Unlike in non-interactive media, composers for games must predict and imagine how the player will engage with the game, and create music to reinforce and amplify the emotional journeys they undertake. Amid exciting discussions of technical possibilities, composers must not lose sight of the player's emotional and cognitive engagement with the game, which should be uppermost in the composer's mind. Increased technical complexity, challenges for the composer and demands on resources all need to be balanced with the end result for the player. It is perhaps for this reason that generative and algorithmic music, as impressive as such systems are, has found limited use in games – the enhancement in the player's experience is not always matched by the investment required to make successful musical outcomes.

Game Music as Media Music

As much as we might highlight the peculiar challenges of writing for games, it is important not to ignore game music's continuity with previous media music. In many senses, game composers are continuing the tradition of media music that stretches back into the early days of film music in the late nineteenth century – that is, they are starting and developing a conversation between the screen and the viewer. For most players, the musical experience is more important than the technical complexities or systems that lie behind it. They hear the music as it sounds in relation to the screen and gameplay, not primarily the systematic and technical underpinnings. (Indeed, one of the points where players are most likely to become aware of the technology is when the system malfunctions or is somehow deficient, such as in glitches, disjunct transitions or incidences of too much repetition.) The fundamental question facing game composers is the same as for film composers: 'What can the music bring to this project that will enhance the player/viewer's experience?' The overall job of encapsulating and enhancing the game on an aesthetic level is more important than any single technical concern.

Of course, where games and films/television differ is in the relationship with the viewer/listener. We are not dealing with a passive viewer, or homogenous audience, but a singular participant, addressed, and responded to, by the music. This is not music contemplated as an 'other' entity, but a soundtrack to the player's actions. Over the course of the time

taken to play through a game, players spend significantly longer with the music of any one game than with a single film or television episode. As players invest their time with the music of a game, they build a partnership with the score.

Players are well aware of the artifice of games and look for clues in the environment and game materials to indicate what might happen as the gameplay develops. Music is part of this architecture of communication, so players learn to attend to even tiny musical changes and development. For that reason, glitches or unintentional musical artefacts are particularly liable to cause a negative experience for players.

The connection of the music with the player's actions and experiences (whether through dynamic music or more generally), forges the relationship between gamer and score. Little wonder that players feel so passionately and emotionally tied to game music – it is the musical soundtrack to their personal victories and defeats.

Delivering the Music

During the process of writing the music for the game, the composer will remain in contact with the developers. The audio director may need to request changes or revisions to materials for technical or creative reasons, and the requirement for new music might appear, while the music that was initially ordered might become redundant. Indeed, on larger projects in particular, it is not uncommon for drafts to be ultimately unused in the final projects.

Composers may deliver their music as purely synthesized materials, or the score might involve some aspect of live performance. A relatively recent trend has seen composers remotely collaborating with networks of soloist musicians. Composers send cues and demos to specific instrumentalists or vocalists, who then record parts in live performance, which are then integrated into the composition. This blended approach partly reflects a wider move in game scoring towards smaller ensembles and unusual combinations of instruments (often requiring specialist performers). The approach is also well suited to scores that blend together sound-design and musical elements. Such hybrid approaches can continue throughout the compositional process, and the contributed materials can inform the ongoing development of the musical compositions.

Of course, some scores still demand a large-scale orchestral session. While the composer is ultimately responsible for such sessions, composers

rely on a larger team of collaborators to help arrange and record orchestras. An orchestrator will adapt the composer's materials into written notation readable by human performers, while the composer will also require the assistance of engineers, mixers, editors and orchestra contractors to enable the session to run smoothly. Orchestral recording sessions typically have to be organized far in advance of the recording date, which necessitates that composers and producers establish the amount of music to be recorded and the system of implementation early on, in case this has implications for the way the music should be recorded. For example, if musical elements need to be manipulated independently of each other, the sessions need to be organized so they are recorded separately.

Promotion and Afterlife

Some game trailers may use music from the game they advertise, but in many cases, entirely separate music is used. There are several reasons for this phenomenon. On a practical level, if a game is advertised early in the development cycle, the music may not yet be ready, and/or the composer may be too busy writing the game's music to score a trailer. More conceptually, trailers are a different medium to the games they advertise, with different aesthetic considerations. The game music, though perfect for the game, may not fit with the trailer's structure or overall style. Unsurprisingly, then, game trailers often use pre-existing music.

Trailers also serve as one of the situations where game music may achieve an afterlife. Since trailers rely heavily on licensed pre-existing music, and trailers often draw on more than one source, game music may easily reappear in another trailer (irrespective of the similarity of the original game to the one being advertised).

Beyond a soundtrack album or other game-specific promotion, the music of a game may also find an afterlife in online music cultures (including YouTube uploads and fan remixes), or even in live performance. Game music concerts are telling microcosms of the significance of game music. On the one hand, they may seem paradoxical – if the appeal of games is founded on interactivity, then why should a format that removes such engagement be popular? Yet, considered more broadly, the significance of these concerts is obvious: they speak to the connection between players and music in games. This music is the soundtrack to what players feel is their own life. Why wouldn't players be enthralled at the idea of a monumental staging

of music personally connected to them? Here, on a huge scale in a public event, they can relive the highlights of their marvellous virtual lives.

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This brief overview of the production of music for games has aimed to provide a broad-strokes characterization of the process of creating such music. Part of the challenge and excitement of music for games comes from the negotiation of technical and aesthetic demands. Ultimately, however, composers aim to create deeply satisfying experiences for players. Game music does so by building personal relationships with gamers, enriching their lives and experiences, in-game and beyond.