From Beeps To Soundscapes — Designing Mobile Game Audio

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This is the second article in a series of mobile game user experience articles; it covers the basics of mobile game audio design and gives some insight into the future of mobile game audio.

Learning from the Past

No game would be complete without sounds — they are an essential part of any game. Video game audio started as simple beeps in the 70s and progressed to CD-quality sounds and licensed music titles in the 90s. More recently, video game music has evolved towards interactive music and rhythm games such as the Dance Dance Revolution. Currently, the history of game audio is repeating itself on mobile platforms. While only a few years ago mobile games produced simple beeps, they are now catching up to the level of audio on video games.

A good (and bad) example of mobile audio is the Tamagotchi. It soon became infamous for its annoying, beeping sounds that often occurred in inappropriate places — many schools around the world even banned the virtual pets. Nonetheless, they became wildly popular. But problems aside, this article handles some user experience issues in designing audio for mobile games and takes a quick look at where mobile game audio is heading.

Do's and Don'ts of Mobile Game Audio

The two key issues for any positive user experience are mobility and context of use. There are places where it is inappropriate to make any sounds, and there are other situations where it improves the game experience. Moreover, players may switch the context during the game; they should, for example, be able to turn sounds on after leaving a bus, without restarting the game. Background noises, conversations with others, and audio accessories such as headset usage also affect the overall experience.

Remember mobile context:

- The game should be playable without the sounds.
- Allow silent starting of games.
  If intro music is implemented, there must be a way to switch it off. Prompt for sound settings at the start of the game.
- Sound settings should comply with the device profile — even if the user changes the device profile during the game.
- Adjust the level of audio to be appropriate in each supported device.

An additional issue is the mobile device's capabilities. For example, the small screen size is a key limitation in mobile games, but audio is not. Especially Symbian C++ game sounds are getting to the point where the possibilities are greater than limitations.

From a cognitive point of view, the auditory channel is an excellent way to relay information and give feedback to the player. While the background music can be used to enhance the emotions and mood of the game, a specific sound effect can be used to communicate meaningful game information.

Do not:

- Include loud or high-pitched sounds.
- Have sounds on as the default.
- Use sounds that are similar to ring tones and alert tones.

Do:

- Give the player full control over background music and sound effects.
  Allow setting the volume close to silent. On some devices this has to be done by setting the volume of sound files lower, or mixing the sound yourself, instead of just relying on the audio APIs.
- Use sound to provide meaningful feedback.
- Use sounds to communicate what happens in the game outside the mobile device screen.
- Use sounds to get the player's attention.
- Have a reasonable default setting for sound volume for each device type.
- Use unique sound — the sounds must not be confused with one another. Negative events should produce negative sounds and positive events should produce positive sounds.
- Allow the user to change sound settings during the game.
- Use background music to elicit emotions and game moods.

In multiplayer games, use sounds to:

- Give feedback about other players' actions.
- Build tension by indicating who is about to win or lose.
- Relieve tension by indicating who has won or lost.

In Bluetooth multiplayer games, background music should be synchronized for all players in order to avoid an auditory mess. It is also noteworthy that in Bluetooth games sounds from one player's device relay information to other players as well. Sad sounds from the opponent's game may be happy for the winning user.

The Future of Mobile Game Audio

Interesting topics include audio games — games that are based purely on audio. Some current audio-based games and resources are available at the www.audiogames.net Web site. These games are mainly designed for the blind, but they offer many interesting insights for mobile game developers too.

One interesting audio-focused pilot project has already been started. The "Songs of North" is a multiplayer location-based game that uses sounds to communicate what is happening in the game world, so that players don't always need to have visual information on the game world. More information can be found at www.uta.fi/hyper/projektit/mogame/english.html.

Another interesting future direction is games that are affected by the music. The basic idea is that a music file, such as an MP3 file or a ring tone, is analyzed, and the game events and characteristics are affected by the selected background music. Some prototype implementations have already been developed by the Nokia Research Center. More information can be found from the Game Developers Conference session notes at www.cmpevents.com/sessions/GD/NovelWays.doc (J. Holm, K. Havukainen, and J. Arrasvuori). According to the

article, “Even a very trivial game can be made interesting if the player can affect the difficulty level by changing the background music to his/her favorite tune. When the music has control over some of the actions on the screen, a player may end up saying: ‘I passed the game with Queen’s Show Must Go On, but Steep’s Rearrange is far too difficult for me!”

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