# 6 - Conclusion

## 6.1 - Overview

This project set out to examine whether a procedural music system could be implemented which would work in tandem with a simple game to adapt to the in-game events. As the participants, on the whole, found that the emotional state of the music changed correctly with the in-game events, the project can be deemed a success. While the valence changes were sometimes to subtle (discussed above, see section XX), the intensity change were not and were successful in increasing the tension of the music as players progressed. One point of note is that care must be taken in correctly determining what in-game events can effect music, if participants think that one should and there is no change this could lead to a breakdown of musical cohesion of the game.

## 6.2 - Expanding the Markov

As stated above (see section XX), the application would benefit from increasing the order of the Markov chain used to analyse the music. To further this, utilising a higher dimensional chain to analyse how the different channels interact would help the musical cohesion of the generated music, similar to Snodgrass and Ontañón (2014) experiments using Markov chains to analyse 2D images. This would also allow for multiple instruments to be play at the same time.

## 6.3 - Other Algorithms

Developing other algorithms would also be a viable course for future study, for example the attention-based neural network ‘Music Transformer’ (Chengzi, 2018) seems an interesting example which can generate music with a higher degree of coherence than other proposed methods. Its self-references and so can replicate phrases that have appeared before in a piece. While the paper does not mention the length of time that is required to generate the music, as it would require Realtime music generation to work in a video game, an algorithm based on this concept would be an excellent addition to the field of research for procedural music.