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A proposition for how musical competencies could benefit 3D character animators when synchronising performances to pre-recorded music using Khumba as a case study

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Abstract

Even though a significant amount of research has been conducted over the years on film music and animation, these two fields of academic study mostly developed independently from each other. Little attention has been given to these two fields in terms of how they are deployed together, particularly after the 'Golden Age' of Hollywood filmmaking. This study, from an animation perspective, contributes to this need for research with an investigation and eventual proposition that will elucidate and advance the integration and contemporary deployment practices and processes of music and character animation.

The aim of the study was to identify and suggest the ideal musical competency set a character animator would benefit from and, to propose an approach for notation in which these competencies are used to digitally animate characters moving to the beat of pre-recorded music for a 3D animation feature-length film. A qualitative research approach was followed and the research methodology consisted of a historical analysis, studying current practices and the analysis of a case study.

The South African 3D computer-animated feature film, *Khumba* (2013), produced by Triggerfish Animation Studios, was used as the case study. Reasons for its suitability were twofold: Firstly because the researcher could easily access the animators (which was essential) and secondly, because the film had the musical scenes required to conduct the research. The focus was on the musical scenes in the film. The integration of animation and music in a scene was analysed, allowing the researcher to show how *Khumba* animators could have benefited from the suggested musical competencies and from using the proposed method when animating musical scenes.

A universally agreed approach for notation in animating-to-music doesn't exist. However, a method known as the bar sheet was used by earlier animators, requiring them to have a basic knowledge and understanding of music. This study proposes the reintroduction of an adapted version of the original bar sheet, digitised for assimilation with contemporary technology. A plug-in for Autodesk Maya was also proposed as an output of the research.

Ultimately, this research has the potential to lead to a heightened proficiency of character animators when animating musical scenes in 3D feature-length films. In addition, the research could prompt a universally agreed approach for notation which combines traditional and new methods and techniques. The adoption of this approach could also lead to changes in the working practices of filmmaking teams and the work flow within production pipelines.