On audience perception in gamified audiovisual performances

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Keywords
Audiovisual composition, Music Games, Art, Audience, Audience Perception

INTRODUCTION

This extended abstract presents an overview of the ongoing artistic research project *Gamified Audiovisual Performance and Performance Practice (GAPPP)*[1] located at the Institute of Electronic Music and Acoustics, Graz/Austria. Meeting the affordances of the limited space of an extended abstract, this text may only illustrate recent findings by briefly describing two examples of investigating audience perception in performance situations.

The main premise of *GAPPP* is that digital games offer models that can be adapted for audiovisual compositions and performances. Accordingly, one goal of the project is to develop a deeper understanding for the potential of game based elements like player interactions and game strategies for the composition and performance of audiovisual performances. The research is carried out from three points of view (see Figrue 1). Whereas the research on audience perception is informed by musicology, digital games theory and methods of social sciences, the other two points of view stem from contemporary electroacoustic audiovisual composition and performance.

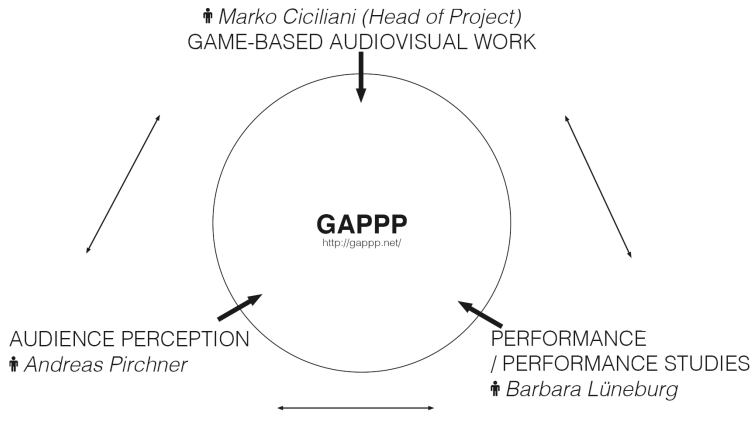

Figure 1: Three perspectives and basic model of the research design

Proceedings of DiGRA 2019

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The researched artworks are commissioned and composed for the project. It is left up to the composers in which way they want to integrate digital game elements into their compositions. Common characteristics are that the artworks are ergodic at different levels and that they involve one or more human performers as well as sometimes non-human virtual actors. The artworks may also include virtual realities to different degrees[2], bodily representation in virtual space[3] or first-person view projected on a screen that suggests a bodily presence in virtual space[4]. Some of the pieces include VR-headsets for the performers[5]. "Gamification" is associated with abstract notions of a system being rule-based, demanding the fulfillment of certain goals or offering competition.

The lab performances take place in the IEM Cube which is equipped with a large scale loudspeaker array. It is arranged as a dome capable spatialized surround sound. Quantitative and qualitative data is gathered through questionnaires and focus group interviews at the lab performances of the gamified compositions. Questionnaires are filled out by the audience during breaks at the lab performances. The research method also involves interviews led with the composers and performers identifying their intentions and expectations. While these are preceding the performances, there are further discussions in focus groups as well as with the composers and performers after the performances.

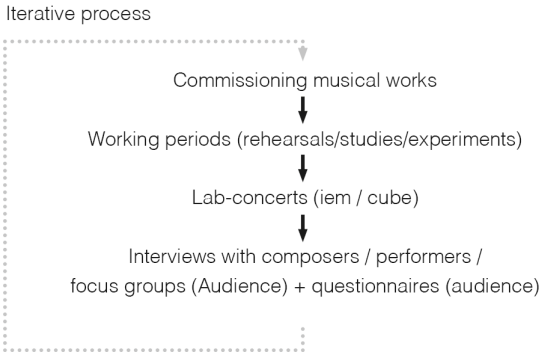

Figure 2: Iterative process of the GAPPP project

The described process is iterative (see Figure 2) and informs the following working periods. So far, 6 lab concerts with 18 performances have been carried out. At www.gappp.net a more detailed description of the project and it aims can be found. Additionally, an app and according touch device (*IRMA – Interactive Real-time Measurement of Attention)* was developed to measure the focus of attention of the audience members while they are attending the lab performances (see Pirchner, 2019).

FINDINGS AND ONGOING RESEARCH

Example 1

One interest of the *GAPPP* project lies in investigating which elements the attention of the audience is attracted to in the complex situation of a gamified audiovisual performance. Insights are supposed to be able to deliver feedback for composers and performers of audio-visual works. Recently several

investigations researching various aspects of audience perception in contemporary compositions have been carried out. They stem from musicology and artistic research (Çamci, 2016; Phillipps, 2018; Seibert, 2018). By investigating whole artworks in situated contexts they differ from experiments in psychologic lab settings with short audiovisual fragments that can be systematically varied but whose findings can hardly be extrapolated to the experience of time varied complex aesthetic relationships, that are characteristic for audiovisual performances in a concert setting (see Kebeck and Schroll). However, experimental research on audiovisual perception undertaken in lab situations showed a dominance of the visual domain (see e.g. Hecht and Reiner, 2009).

For the GAPPP project, audience experience is understood as perceiving artworks in situated concert contexts. Feedback of the audience on their focus of attention is measured by means of the already mentioned measuring device *IRMA (Interactive Realtime Measurement of Attention*) that was designed over the course of the project. The audience is asked to indicate their current focus of attention on a touch tablet by accordingly positioning their index finger within a triangle. The corners of the triangle are labeled *visuals, sound* and *performer* (see Figure 3).

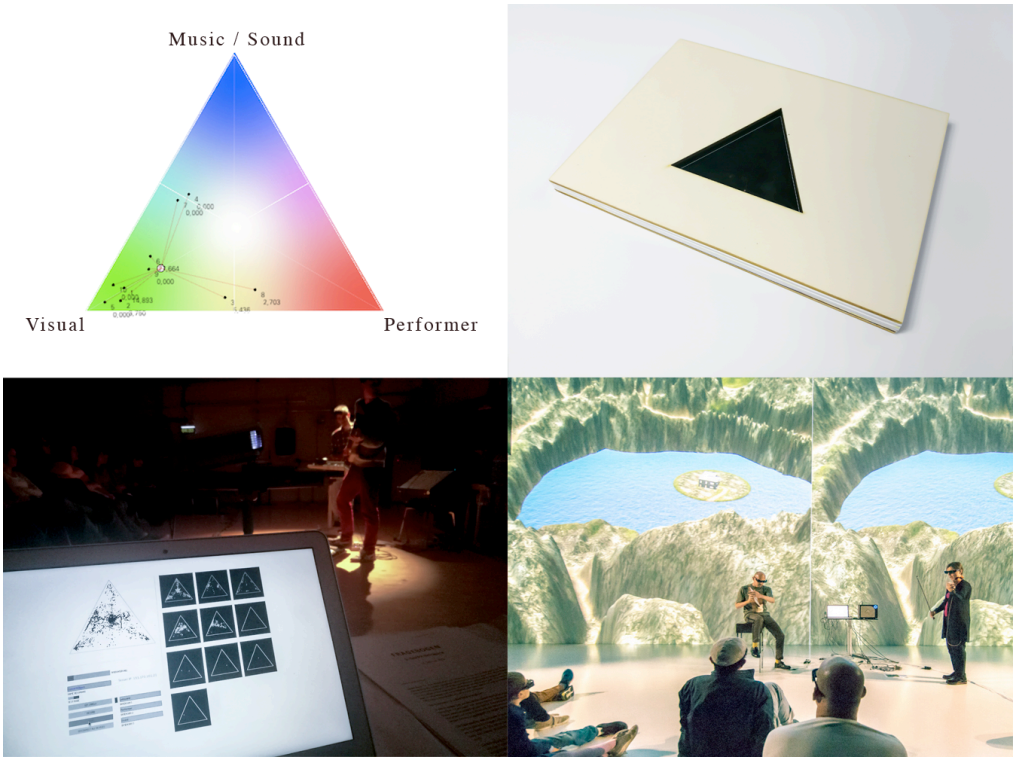

Figure 3: Top-Left: Attention triangles with position data and the calculated *average focus of attention* of 10 subjects; top-right: touch device with cover; bottom-left: *IRMA* collecting audience data at a performance; bottom-right:

Performance of *Kilgore* by Marko Ciciliani at Ars Electronica Festival, Linz.

This makes it possible to measure attention in real-time and in the situated context of the performance. Empiric data collected at performances shows on several occasions that when visual elements are introduced to the performance, initially they tend to attract attention and dominate attention. Gradually this focus decreases again and sounds as well as aspects relating to the performer "re-enter" the focus of attention. A striking example of the described observation is the last section of the performance of *Tympanic Touch* (Ciciliani, 2018). Here, visuals are added to the performance only after about 10 minutes. While the sound is still playing, the *average focus of attention* (calculated of the data of all participants) instantly shifts near the extreme pole of the dimension *screen* (green color, see Figure 4) While the performance continues however, the focus shifts to a position between sound and visuals (light green, almost white).

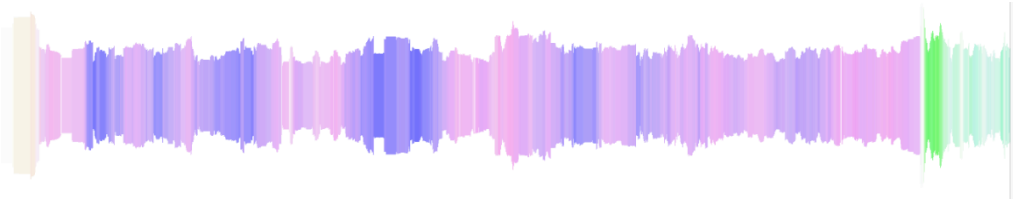

Figure 4: Visualization of the *average focus of attention* at a performance of the composition *Tympanic Touch* by Marko Ciciliani (n=10). The duration of the piece is represented by the horizontal axis. The calculated *average focus of attention* is shown by the color (compare to Figure 3 top-left). The vertical height of the bar represents *deviation* of attention of the participants.

Example 2

In *Terrain Study* by Christof Ressi (2018, for Virtual Reality and Violin), VR gradually shifts from representing the audiovisual logic of the physical world to its own arbitrary rules resulting in an independent aesthetic. This shift is seen as an effect of its changed digital *materiality*[6] (represented by sonic actors) intra-acting (see Barad, 2007) with the performer. Perceived by performer and audience, this virtual environment has no longer a representative function but becomes an abstract artistic reality. By assuming that the bodily behavior of the performer and the physical performance space are defined and transformed by ongoing intra-actions of the material conditions of the virtual and physical space (resulting in an entanglement of the both), the underlying notion of equal performativity of human and non-human (technological) actors differs from concepts that grant more power to language (see Butler, 1990) or a notion of assemblages of pre-existent

heterogenous entities going back to Deleuze (see Born, 2011). Agency is seen as activity and intra-action of human and non-human subjects and objects.

Again, the limited space of this extended abstract makes a detailed description of the artwork impossible. However, a short overview of some central aesthetic ideas is shown in figures 5 and 6.

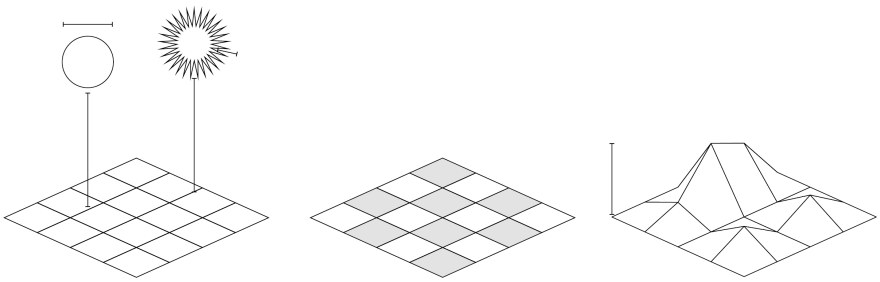

Figure 5: Selected material composition in *Terrain Study*. Virtual sonic actors (left) as sound samplers for the performer, textures (middle) and elevation (right) of the terrain affecting sound of the moving virtual actors and sonic reality of performer (headset) and audience (loudspeaker array).

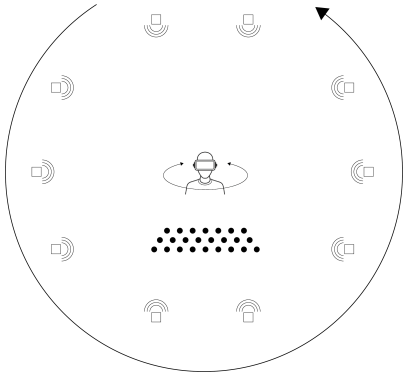

Figure 6: Subjective sonic reality of the performer mediated by technology and translated to physical space. The movement of the head "rotates" the sonic reality of the performer for the audience by moving the spatialized sound sources.

To investigate game and sound aesthetics as well as the situated experience at the performances, the questionnaires for the audience include according sections. The qualitative feedback of the participants showed that the experience of the vanishing world was consequently associated with dystopian feelings. Surprisingly however, participants gave positive ratings to otherwise negative adjectives describing the emotions and associations they had at the performance:[7]

Subj. 6-9: dangerous (+); tense (+)
Subj. 6-28: death (+); nightmare (+); helpless (+);
Subj. 6-33: angst (+); confusion (+)

As the parameters of the VR world are mainly result of the instrumental and bodily performative intra-actions of the performer the world becomes dependent on sound and performance. It challenges the knowledge of their familiar living environment of the audience. Empiric data underlines the observation that disturbing sensations at the same time can be entertaining for audiences.

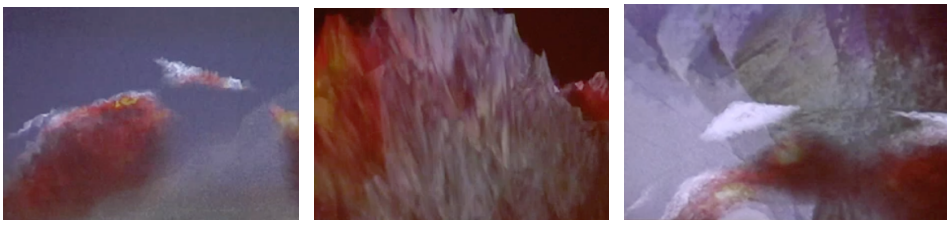

Figure 7: Abstract aesthetics of the vanishing world in the last section of *Terrain Study*.

Music games like dance games or instrument games have parameters for "correct" performances coded into their game systems. Even in social situations, for the performers the machine and the game system of the machine are the ultimate authority (Bloom, 2018, P. 187). This marks a difference to artistic (gamified and/or audiovisual) stage performances that are performed foremost for an audience. However, with the rise eSports and streaming platforms, for the player/performer a special situation is marked where the role of the "observer" is double cast by the game system and the audience. Under such circumstances, games also can be seen as performed for an audience and consequently information about the perception of the performance by an audience could be interesting not only for composers and performers of contemporary music, but also for game designers and players.

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ENDNOTES

[1] GAPPP is funded by the Austrian Science Fund FWF as part of the PEEK program for artistic research, nr. AR364-G24.

[2] For example *Coretet. Trois Machins de la Grâce Aimante*, Rob Hamilton (2019).

[3] For example *To Kill two Birds with One Stone,* Martina Menegon & Stefano D'Alessio (2018).

[4] For example *Kilgore*, Marko Ciciliani (2018).

[5] For example *Terrain Study*, Christoph Ressi (2018).

[6] For an overview on digital materialism see for example Reichert & Richterich, 2015.

[7] Subjects answered to the question *"Which spontaneous emotions/associations did you have while the first artwork was presented?"* and marked the adjectives as positive (+), negative (-) or neutral (~).