Sweetser, Penelope, and Peta Wyeth. "GameFlow: a model for evaluating player enjoyment in games." *Computers in Entertainment (CIE)* **3.3 (2005): 3-3.**

GameFlow is a new model that consists of eight elements – concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction. The aim of the study in this article is to develop and validate a model of player enjoyment in games that are based on flow. Each of the elements in the model is mapped to elements of flow.

Table I. Mapping the Elements from Games Literature to the Elements of Flow

Games Literature	Flow
The Game	A task that can be completed
Concentration	Ability to concentrate on the task
Challenge Player Skills	Perceived skills should match challenges and both must exceed a certain threshold
Control	Allowed to exercise a sense of control over actions
Clear goals	The task has clear goals
Feedback	The task provides immediate feedback
Immersion	Deep but effortless involvement, reduced concern for self and sense of time
Social Interaction	n/a

I have collected some points of criteria from each element that can be used in our project.

Concentration -- players shouldn't be burdened with tasks that don't feel important, games should quickly grab the players' attention and maintain their focus throughout the game and players should not be distracted from tasks that they want or need to concentrate on. Challenge -- must match players' skill levels, the level of challenge should increase as the player progresses and provide new challenges. Player skills -- should be taught to play through tutorials and game interfaces & mechanics should be easy to learn and use. Control -- players should feel a sense of control over their characters, game interface and input devices. Clear goals -- players provided clear goals at appropriate times. Feedback -- players should receive feedback on progress toward their goals. Immersion -- players should become less self-aware, feel emotionally involved in the game. Social interaction -- games should support competition and cooperation between players and support social communities inside and outside the game.

These elements are a good starting point for our research too even though it is an art performance. It is really important to understand the user's perspective of our project and whether or not they are able to navigate properly and feel a sense of presence. Even though

this study doesn't deal with gaming in VR, it is helping us understand the criteria participants can judge their experience.

The study evaluates two games (one of high-rating and another of low-rating) and compares the two later. Each element was rated on a scale of 5. It was identified that some of the GameFlow criteria are more suited to specific game genres and aren't applicable to strategy games. Through the evaluation, it was also identified that some of the GameFlow criteria are difficult to measure through an expert review and that they would require player-testing to evaluate.