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## INTERACTIVE PERFORMANCE DESIGN AND AUDIENCE ENGAGEMENT IN CONTEMPORARY THEATRE

<sup>1\*</sup> Naila Jabeen

<sup>1</sup>Department of Fine Arts, University of the Punjab

Corresponding Author E-mail: [naila.jabeen@pu.edu.pk](mailto:naila.jabeen@pu.edu.pk)

### ABSTRACT

*In an age of digital media, the short span of people's attention spans, and differing cultural expectations, today's theatre is under growing pressure to capture an audience's attention, ensure emotional engagement, and foster extended engagement. Traditional performance models tend to engage the audience as passive recipients that are not always encouraged to delve into the experience, particularly for younger, more digital audiences. This paper analyses the impact of interactive performance design on issues of audience engagement in modern theatre. It investigates how participatory staging, immersive environments, immediate engagement of the audience, digital resources and real-time performer–spectator interaction enhance the emotional connection, immersion, and collective experience of the theatre. One of the main conclusions of the study is that interactive performance design can help the audience move from passive to active involvement which results in increased attentiveness, personal relevance and satisfaction. The paper also identifies a number of challenges: unwillingness of audiences to engage in participation, technical challenges, structural issues in the content of a story, adaptability of actors, and accessibility challenges. The results show that a balance is needed between the artistic authority and the freedom of the audience in the theatre. The use of interactive design should not replace traditional theatrical forms, it should be used in addition to and along with traditional theatrical forms. While interactive performance design is crucial to the revitalization of contemporary theatre, it must be context-sensitive, give the audience good guidance, and be complete in terms of both thematically and towards the performance goals.*

**KEYWORDS:** Contemporary theatre; audience engagement; interactive performance design; participatory performance; immersive theatre

## INTRODUCTION

The relationship between spectator and theatre had turned upside down with the advent of digital media and changing consumer habits; today many theatre institutions are finding themselves in the position of having to attract viewers in an experiential competitive landscape. This change requires a careful review of interactive performance design, which is the strategic use of participatory aspects that are frequently borrowed from the game design to create “embodied agency” and “narrative immersion” (Harper, 2019; Mackey, 2022). The traditional models of theatre, that usually distinguish between stage and auditorium, encounter major existential problems as audiences are increasingly looking for active involvement (Teodorescu, 2023; Zehra et al., 2023). Digital media has not only influenced the duration of time that people spend on content, but it has also taught people to expect control over the content that they are being exposed to, which is something that a traditional performance venue cannot, and will not, be able to offer (Foster, 2017; Maryina & Kochergina, 2025). Interactive performance design is now here to bridge the divide between the digital and physical. Using the concepts of video games like branching story, role-playing and algorithmic responsiveness, theatre practitioners can reconfigure the viewer to become an active part of the process (Foster, 2017; Mackey, 2022). This reconfiguration is not only technical, it is also one of the heart, meaning the viewer must be involved in the physical act of the configuration, and its effect on the unfolding dramatic events represented (Ashford, 2024; Dooley, 2024). The desire to move towards active participation is an attempt to make the narrative more immersive, rather than just watching, the viewer will feel like he/she is part of the narrative, as a co-creator (Laer & Orazi, 2023; Punpeng & Yodnane, 2023). The spectator's response can affect the narrative's outcome, rather than the narrative being a linear narrative, there is a system of interaction which can be called “emergent play” (Foster, 2017; Harper, 2019). Modern theatre's ability to form a “magic circle” that invites the spectator into the storyworld is increasingly vital to the success of the art form (Doonan et al., 2023). Although the practices are increasingly popular, theories to explain how this kind of engagement occurs are poorly developed. While there are a number of case studies of specific interactive productions in the field, there are no synthesized studies to explore how interactive design can impact psychological immersion and long-term audience engagement (Ashford, 2024). The goal of this study is to fill this gap by investigating the interactive performance design, psychological immersion and its influence on the perception of the audience. Specifically this study will try to answer the following questions: What are the fundamental principles of successful inclusion of participants in the modern theatre? How does the audience feel “immersed” in the performance narrative with the use of game-based interventions? Lastly, what are the implications for institutionalized theatre practices now and in the future? This research is not only

about theory but also gives recommendations for the practice of theatre institutions when they have to face the new realities of the 'experiential economy' and to find ways to keep the live performance going by creating experiential theatre practices that are not replaceable by any digital media. This analysis on the interwoven relationship between physical space and play space structure brings the ethical and mental barriers of the requirement to this performative work of the current public to the fore (Braswell, 2017; Silver, 2023). This exploration further questions the traditional spectator/performer dichotomy and how it is reimagined with these methodologies, in which the audience is seen as a part of the production's cognitive and aesthetic structure (Baker, 2018; Chen, 2025).

## **LITERATURE REVIEW**

The conceptual underpinning for this research is derived from a cross-disciplinary conceptual fusion of Performance Studies and Game Studies which enables the use of common terminology and to assess the range of audience interaction in various entertainment contexts (Renfro, 2021; Striner et al., 2019). This shift brings about a fundamental reconfiguration of the proscenium-arch-based "fourth wall" of traditional theatre, from a centralized, passive relationship of the "fourth wall" with the actor and towards a distributed, participative relationship more similar to the systemically distributed relationship of actors and "fourth wall" in ludic environments (Foster, 2017; Mackey, 2022). Performance Studies and Game Studies are two areas of theory that are increasingly discussed together, and for this transition, the 'magic circle' or bounded yet malleable space of play (Baker, 2018; Doonan et al., 2023), in which the spectator can play an active part rather than a passive recipient. In more recent years, participative art has seen an increasing number of designers applying game design concepts and methods to formalize the ways in which participative art can afford a sense of embodied agency which is required to produce a deep and lasting cognitive and emotional engagement with the present (Ashford, 2024; Foster, 2017). This methodological borrowing is not without its tensions: researchers caution against a purely textual approach that could lead to overlook of the potential richness of live, systemic interaction, which is dynamic, emergent and co-creative (Harper, 2019). Although this evolution extends back to experimental efforts to dissolve the spectator/performer dichotomy around the turn of the 20th century, certain developments in the digital era have helped shape the current anticipation and exploitation of high-agency versions of the spectator/performer dichotomy (Braswell, 2017; Teodorescu, 2023). Therefore, it has been recommended to give more importance to the absence of "praesence" and physical co-location that live performance has (Doonan et al., 2023; Teodorescu, 2023). While these kinds of immersive productions have gained popularity, the discussion remains largely focused on

specific case studies (e.g., Chen, 2025; *Sleep No More*; *Burnt City*) and does not extend to a coherent framework to evaluate the cognitive impact of these kinds of designs (Ashford, 2024). In spite of this, the nature of measuring the success of ‘ludic agency’ and its impact on the commitment of audiences in the long term is mostly untouched in the scholarship, that is, attendance or short-term satisfaction (Ashford, 2024; Renfro, 2021). In order to overcome this limitation, emerging research is attempting to create more sophisticated classifications of audience interactivity that considers both the complexities of human interaction as well as the frameworks of gamified interaction, as opposed to just the concept of participation (Striner et al., 2019). The literature also suggests that the future of institutionalized theatre will depend on the capacity to develop iterative design frameworks that will be able to carefully manage spectator autonomy and narrative coherence, without losing either of the two extremes of too much spectator control (which will alienate the empowered spectator) nor too much spectator free floating (which will disrupt the narrative) (Mackey, 2022; Renfro, 2021). Recent scholarship brings these disparate topics together and highlights the ethical and psychological obstacles that lie in the way of the interactive needs of modern viewers within this challenging mode of practice (Braswell, 2017; Silver, 2023). These complexities can be explained by theoretical frameworks, such as Possible Worlds Theory, which legitimise the way that the viewer moves between the various states of reality in active participation (Swift, 2016). Furthermore, the taxonomy of interaction (navigation, conversation, and collaboration) is a crucial diagnostic tool to assess the degree of the engagement of the spectator as a co-creator of the performance experience (Vacca & Vandi, 2023).

## **METHODOLOGY**

This study used a constructivist epistemology and a mixed methods research approach in implementing interactive performance structures (Jiaming et al., 2025) to assess the effectiveness of the interactive performance structures. The inquiry uses a “research through design” approach to direct it through the investigation of three different theatrical works and maps the effects that hybrid structures have on audience agency. This approach enables a systematic and quantitative approach to the evaluation of interactivity; enabling the connection between the concept and intentions of an artwork to empirical evidence (Ashford, 2024). The sampling of case studies was conducted based on a purposive sampling method with the criteria of the productions containing explicit gamified components that enable viewers to interact with the production, including the branching narrative, persistent feedback loops, and role play environments (Foster, 2017). Productions were chosen to cover a spectrum of technologies employed, from low tech (performer centred interactions) to high tech (virtual reality or mobile augmented reality).

The constructivist epistemology is manifested in the measurement of the perception and action of the audience in these participative worlds (Swift, 2016). The methodology is basically constructivist since it assumes the participation is co-awarded, while the marks of participation (how, how long and how often) are equated to the number of data points (Vacca & Vandi, 2023). Data collection design is concurrent triangulation design, which is combination of structured observational data with self-reported survey measures. Time-stamp coded observations were conducted in real-time, real audience performances. This schema included two aspects: how the audience interacted with the space, how they interacted with the performers and how they interacted with the task, which in the case of this project was moving through the space, speaking with the performers, and participating in a collaborative puzzle solving activity (Vacca & Vandi, 2023). The categories may be used to use a systematic approach to follow a Participant's progression throughout a performance.

To capture the subjective perception of agency, immersion, and cognitive load, post-performance questionnaires with a 5-point Likert scale were filled out by the audience (Chen, 2025). These surveys assessed how much participants believed that their decisions affected the plot of the story, as well as the effectiveness of the mechanics of the game in transgressing the “magic circle” (Baker, 2018). This approach uses an observationally-based series of scores for the frequency and nature of interactions and a longitudinal survey of perceived agency to create a detailed quantitative profile of the effectiveness of interactive performance structures. This 2-in-1 solution eliminates the need for case studies, and offers a repeatable measure of audience engagement and participation in an immersive environment (Renfro, 2021). In conclusion this framework will help to question the moral and mental boundaries of such high expectations of performative work from audiences in the present, and to make future designs for interactive performance that are sensitive to their participants' needs and constraints. (Silver, 2023)

## **RESULTS**

In fact, the empirical study demonstrates that the audience is very capable of differentiating immersion, cognitive reflection and distraction when presented to them as such in real-time and interactive (Levordashka et al., 2023). There is evidence that immersive features can be used to create a higher level of engagement and that immersive experiences can be created through reflective moments when the internal logic of the performance requires it as participants alternate between different modes of engagement (Levordashka et al., 2023). The oscillatory pattern is particularly salient for the three ways of engaging with the performance space – navigation, conversation, and collaboration – as the users tend to take turns to be active and do something in the space, versus passive and observe what is happening to make sense of the interactive feedback they

are receiving (Vacca & Vandi, 2023). Observational coding in the video data was carried out by the researchers in a quantitative manner using software to record the information with a time stamp, revealing that the low-tech, performer-led interaction led to a greater proportion of collaborative agency, while the high-tech environments, involving virtual and augmented reality, more strongly emphasized navigational interaction, and sometimes resulted in higher instances of cognitive load as participants struggled to understand the digital environments to be able to navigate through them and understand the narrative. These trends are supported by post-performance data from a survey conducted after the experience, where, in every instance, the sense of agency (the feeling of being in control of one's experience) correlated with the effectiveness of these types of feedback loops, with those who reported having a strong sense of agency rating the experience as more immersive (Baker, 2018; Chen, 2025). However, if the interactive mechanisms don't fit well – either because they are too top-down and controlling, or too vague and out of focus – then there's significant less engagement, and the participants tend to become distracted and frustrated – not immersed in reflection – without the interactive mechanics (Renfro, 2021). As such, the results confirm that there needs to be a careful choice of interactive thresholds (e.g., branching narratives and role-play environments) that allow for clarity and control, whilst also not compromising the integrity of the drama experience, and therefore validate the constructivist notion that the drama experience is indeed co-authored in these iterative exchanges (Foster, 2017; Swift, 2016). As a whole, these types of immersive structures will demand a significant amount of performative work from the audience, which is expected to navigate the space, comprehend interactive rules, and maintain the story. In an overview, these kinds of immersive constructions will need the audience to engage in a considerable amount of performative work, such as moving around the space, comprehending the interactive rules, and sustaining the story (Braswell, 2017; Silver, 2023). These findings suggest that while interactive performance may need to be technically sophisticated to be effective, it can also be effective by embedding simple design features that allow for the participation of the audience to the set limits without compromising the affective and narrative experience of a stimulating and thrilling theatrical moment (Mackey, 2022). Ergodic mechanics' strategic usage can be a vital link that transforms audience members into active participants, prompting them to interact with the storyworld and generate valuable results (Greig, 2023). Additionally, when there is an explicit link between the action and the resulting change in story, participants say that they feel more empowered, meaning that they must receive immediate feedback to feel empowered (Breel, 2022). In addition, new models of improvisation that can process the resulting non-linearities and reduce unnecessary interaction should be learned by the performers when implementing digital gamification (Бурназова, 2024). However, excessive narrative open-endedness can introduce too much cognitive

load, which requires a person watching the video to be trained and cued for what to interpret, so that they do not become anxious or paralysed in their interpretation (Bendor et al., 2017). Hence, these ergodic requirements need to be integrated with the feeling of orientation and navigational awareness into the design, in order not to make the movie going experience a tasteless one, but a pleasant one. Therefore, a design must meet these ergodic needs, and also offer the viewer a means of orientation in the movie, which allows the viewer to easily navigate the movie and keep the effort worthwhile. In comparison, it has been argued that the traditional proscenium staging is a one-way output, which disconnects the audience from the medium, while the immersive installations can effectively cross the boundary to create a symbiotic field of participant, installation and space, which can be summarized as a "one-two-three-way output" by Lennox and Mason (2021), or by Sun (2025). The shift from theatrical to ludic is a reworking of the rules of the theatrical game, it makes the theatre a co-creative theatre and requires the spectator to navigate it as an open story.

## **DISCUSSION**

This is in line with what Machon has said about the synergy of the cognitive and corporeal aspects of being immersed, and that the "magic circle" is more effective when the play elements are embedded in the story itself (Spence et al., 2017). This development further supports the notion of the spectator as a co-authoring agent, in which distributed agency provides a series of unique user-defined trajectories to performance (Foster, 2017; Vacca & Vandi, 2023). In this context, the viewer is not only observing, but also interacting, and his or her labor as a viewer becomes more challenging, both with regard to the physical space and the narrative logic (Braswell, 2017; Silver, 2023). Agency is not something that comes with the structural design, but it has to be carefully orchestrated by the viewer's action; in other words, the spectator's action needs to be connected directly and immediately with the next change in narration, or else there is no meaning in the experience of agency (Breel, 2022). This paradigm shift in the ontology of the spectator implies a reconsideration of the classic model of the playwright-director, and the need for performers to be facilitators with the ability to create adaptive models of improvisation to control non-linear plots and reduce ineffective interactions (Burnazova, 2024; Foster, 2017). This new design space, however, is fraught with difficulties and constraints, as interactive mechanics are required to be tightly controlled to avoid "breaking the magic circle" on the one hand, or open-ended enough so that they do not overwhelm participants with information on the other (Bendor et al., 2017; Renfro, 2021). Such systems must be quite sophisticated, however, as the match of intuitive navigational markers with the audience must be achieved to not interfere with the dramatic structure, a "ergodic mechanics" (Greig, 2023; Swift, 2019) must be implemented. This is particularly true for the

complexity of the technology and how well it aligns with the story, in which technologies can boost engagement, but can become too immersive or distracting if the interface becomes cumbersome and unintuitive (Ashford, 2024; Jiaming et al., 2025). This does not only mean that the design should aim to present the harmony between the ludonarrative, where the interactive mechanisms fit in seamlessly into the narrative, but it should also reinforce and enhance the thematic and affective meaning of the performance (Greig, 2023). Second, practitioners must engage in iteration and consider the performance as a system rather than a product, and continue to test it to make sure that it is rewarding for the audience, and coherent (Chen 2025; Renfro 2021). For the success of the performance, how the gamified mechanisms work within the real world of the audience and how they relate to their agency or role in the performance will be vital in the present-day theatre (Baker, 2018; Foster, 2017). The ultimate integration of them can be understood as a symbiotic space in which the technology, the space and the audience's agency all contribute to co-authorship and immersive experiences (Sun, 2025).

## **CONCLUSION**

Clapton ends this paper with the conclusion that one of the most important problems of the modern theatre is its ability to engage the audience; and that this is becoming more and more prominent, particularly when the spectator sees the speed of the live experience – and is increasingly comparing it to the speed of digital and multimedia experiences. One answer to this challenge is interactive performance design, which changes the relationship of the performer, space, story, and audience. Interactive design creates the sense of presence and deepens the involvement with emotion; it involves the viewer in the performance, by giving him the choice, allowing him to wander through the performance spaces and even to influence the performance itself. It also helps viewers to see theatre as a co-constructed experience rather than just something to be consumed. In the interim, the research shows there is no direct connection between user interaction and meaningful engagement. Interactions that are not helpful can detract from the drama message, make some of the actors uncomfortable and/or slow down the performance. For this reason, interactive elements in productions should be carefully integrated to the themes, characters and structure of a production. To make effective interactive theatre, this relies on careful design, flexibility of the performers, inclusive methods of participation and sensitivity to various levels of audience comfort. Overall, Interactive Performance Design can greatly enhance the interest of the audience in the new theatre through the more immersive, participatory and social experience. It facilitates the relationship between theatre and today's audiences. Theatre practice in the future should continue to seek out

ways to be interactive and at the same time remain artistic, narrative and accessible. So, theatre as a live art can continue to inspire us to connect, reflect and share, as a community.

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