

# Children's Interpretations of Computer-Animated Dinosaurs in Theatre

*Jeanne Klein*

The very definition of the real has become: *that of which it is possible to give an equivalent reproduction*. . . . [T]he real is not only what can be reproduced, but *that which is always already reproduced*. The hyperreal. . . . [which] transcends representation . . . only because it is entirely in simulation. (Baudrillard 146–147)

In his critique of postmodernism, Baudrillard argues that today's hyperrealized simulations in life and theatre have rendered the staging of illusion impossible ever since we lost our child-like pleasures in "discovering the 'natural' in what was artificial and counterfeit" during the Renaissance (150). Likewise, our initial fascinations with automated, serialized reproductions since the Industrial Revolution has given way to "the whole *political* problem of the parody, the hypersimulation or offensive simulation" (38)—an infantile world of imaginary cartoons, as exemplified in Disneyland, in which we are tested to decode self-referential codes. Postmodernism requires that we prove the real by the imaginary, and the antiquated traditions of theatre must now be proven by anti-theatre (36).

New computerized technologies have created ideological, and I would argue, gendered rifts between younger and older generations and among those who embrace and resist new ways of distinguishing authentic reality from virtual simulations to apprehend the absolute relativity of "truth." As media users grow more habituated and desensitized to repeated exposures of computerized violence, televised wars, and the "movie" of 9-11, the "boys and their toys" must manipulate media with merged messages even further to new heights of sensationalized excitement in order to regain previous arousal levels (Zillmann). The human body, with its physical limitations of transformation, no longer carries its once privileged power of emotion as automated, digitized analogies of Man upstage living actors through muddied MUD's (Multi-User Domains) which allow computer users to assume and role-play multiple identities simultaneously. Even face-to-face human interaction in daily life has grown mundane and obsolete as media users prefer to distance their emotional expressions with the immediacy and speed of instant messaging, e-mail, and cell phones—with people located only a few blocks away. Under what conditions then does the virtual, that which feigns actuality and mystifies us with its technological secrets, become an inadequate substitute for the authentic?

Should live theatre incorporate cinematic simulations into its aesthetic characteristics? Some artists argue vehemently against contaminating the singular purity of living actors on stage before a live audience. Others, such as Mark Reaney, a virtual reality technologist at the University of Kansas, counter that

---

Jeanne Klein is an Associate Professor and Director of Theatre for Young People at the University of Kansas.

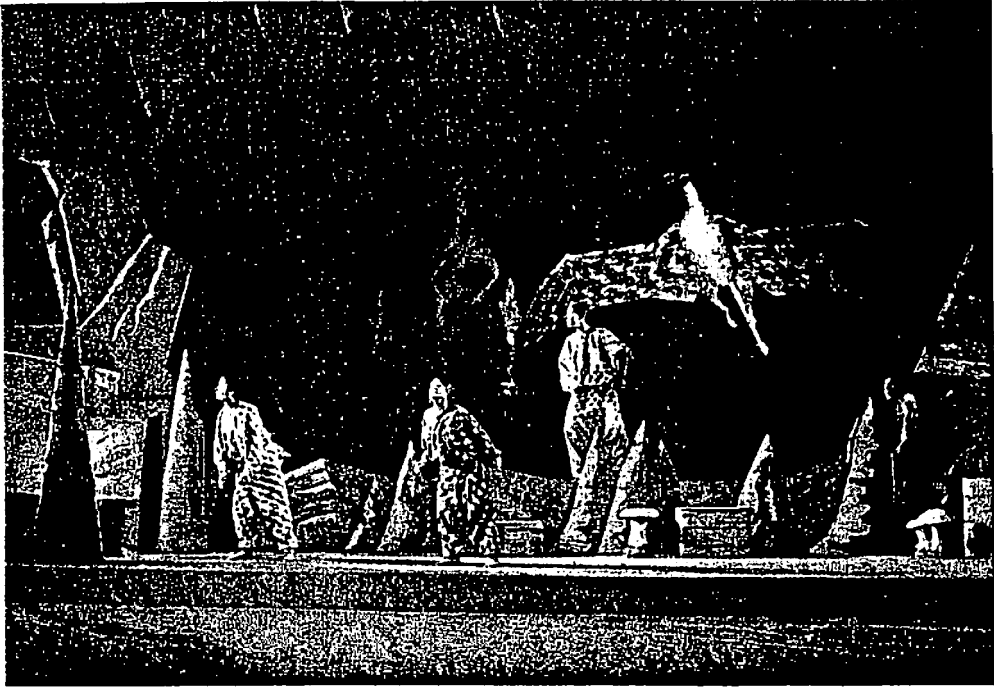
---

"Theatre doesn't have to be anti-video or anti-cinematic but can embrace those elements just as it has embraced all new technologies throughout its history. In doing so, we can adapt them to our own goals of creating exciting live performances for modern audiences." Similarly, the National Theatre Education Standards place a new focus on "appropriate" technologies by admitting that "The theatre, once limited to the bare stage, has found important resources for creating dramatic productions in such technologies as radio, film, television, and other electronic media" (15).

The field of theatre for young audiences must pay attention to these ideological changes in theatrical communication, even though most contemporary scripts do not yet require special effects technology that few companies can afford (e.g., Valle). While much has been made of theatre's uniquely live quality to distinguish this art form from computerized entertainment, today's children are exposed to more pre-recorded screen images than spontaneously live theatre than ever before. In fact, family homes have become veritable, self-contained entertainment centers as more and more children over the age of eight have individual access to televisions, VCRs, computers, and video game equipment in the privacy of their own bedrooms (Rideout et al.; Calvert et al.). Therefore, we must come to grips with the ideological implications of virtual simulations and their emotional stimulations by questioning the locus of interpretive power and control between artistic senders and aesthetic receivers and by determining whether ideologies of virtual hyperreality mean anything to young audiences. A "virtual reality" production by the University of Kansas Theatre for Young People provided the opportunity to garner the perceptions and responses of child audiences as a descriptive study.

### *DINOSAURUS*: A "VIRTUAL REALITY" PRODUCTION

The story of *Dinosaurus*, by Mast and Bensinger, involves two human characters, Peek, a scientist, and Bunk, an oil worker, who discover a community of so-called "extinct" dinosaurs while exploring for oil in an underground cave. The original production was conceived as a rear-projected shadow performance with a Narrator in front of the screen (revealed as Bunk at the play's end) who translated the dinosaurs' gibberish. In the present production, ten dinosaurs were doubly conceived as computerized animations, rear-projected onto a large vinyl screen behind three-dimensional scenery, and by four actors, the "dinosaur chorus," dressed in loose, tie-dyed clothes, who voiced two or more dinosaur characters, spoke the play's narration, and pantomimed various objects under black lights in front the screen (see photograph 1).<sup>1</sup> During performances, backstage crew members controlled the movements of each computerized dinosaur by manipulating joysticks on two computers, while simultaneously following the chorus' movements and interactions with the human characters on a television monitor. This theatrical convention was intended to "humanize" the "virtual" dinosaurs by foregrounding them with living actors. The director (a graduate student) believed that spectators would "meld" these doubled dinosaurs in their imaginations while hearing "living bodies telling the story to them" and differentiate this "more interesting" theatre experience from simply watching electronic media (Carriere).



PHOTOGRAPH 1. *The dinosaur chorus (from left to right: Michelle Nikoomanesh, Laurel Woodhouse, Becky Lake, and Dave Martin) performs in front of their respective, computerized counterparts. Photograph by Luke Jordan.*

### A MODEL OF PERCEIVED REALITY

Countless media studies since the 1970s have explored the criteria child viewers use to discern perceptual differences between fantasy and reality imagery (e.g., Hawkins; Potter; Davies). Developmental psychologists Huston and Wright (1021–1024; Fitch, Huston, and Wright) have synthesized these findings by proposing a structural model of perceived reality for television to characterize its multidimensional nature. One dimension, *factuality*, a function of cognitive schemata, refers to the viewer's belief as to whether a depicted event actually happened in the unstaged, unscripted, unrehearsed world outside the medium. The second dimension, *social realism*, which depends on program content and viewers' mental efforts and utilitarian motives for watching, refers to highly individual judgments made about the believable plausibility of characters in comparison to social situations in the world. Similarly, *physical realism* or the photographic authenticity of depicted representations, is the guiding criteria used during middle childhood to judge the degree to which visual images appear "fake," "make-believe," "realistic," or "true to life" (Parsons 47–52).

*Videocy* (or *videotypy*), a tentative third dimension, is defined as the degree to which a medium's technical features dominate or control a viewer's consciousness by calling attention to its special effects. Here, viewers may marvel at "unreal" technical manipulations, such as computerized animations, thereby distancing their minds away from the fictive story; or they may willingly suspend their disbelief in these unrealities, thereby keeping their imaginations inside the fictive drama. Young spectators are frequently awed by the "videocy" of theatrical spec-

tacles when special effects lead them to wonder how such "magical" feats are achieved. For example, during the finale of one theatre production, many children turned their attentions to a revolving mirror ball throwing balloons of light around the auditorium which diverted their minds from recognizing the metaphoric significance of the protagonist's emotional catharsis (Klein, "Reading" 69).

By age six, young spectators know that theatre is a staged, scripted, and rehearsed media event with fictionalized characters in sometimes implausible situations (Saldaña). When recalling performances, six- and seven-year-olds rely upon observable formal cues to judge factuality, physical realism, and spectacle based on their criteria of photographic realism. Eight- and nine-year-olds include more content cues by integrating their knowledge of the social world outside a production to judge the possibilities of social realism within fictional plays. Between ages ten and twelve, children with more mass media experience balance form and content cues by interpreting artistic motives to judge how effectively formal elements express textual content (Klein, "Applying" 15).

### HYPOTHESES AND METHOD FOR THE STUDY

Given that media studies have yet to investigate potential video effects, the purpose of the present descriptive study was to explore perceived realities by focusing on whether computerized animations would divert young minds from interpreting the play's themes. Children were expected to suspend their disbelief in this fictive event by accepting the play's implausible premise; that is, what would happen if people discovered factually extinct dinosaurs? Judgments of physical and social realism were expected to differ based on individuals' knowledge of dinosaurs acquired from their Kindergarten science curriculum, as well as their familiarity with dinosaurs depicted in film, television, and electronic games. In regard to video, I expected the double set of dinosaur characters to confuse those who might question the artistic need for chorus actors in addition to dinosaur "cartoons." Directorial changes to the playwrights' intentions and the text's resolution (discussed below) further complicated the video hypotheses because the play's story was no longer narrated from Bunk's subjective perspective but from the chorus' objectified viewpoints. This Brechtian factor and the consequences of Bunk's final action offstage could affect children's interpretations regarding the significance of the play's environmental themes, depending on visual and verbal attentions. Finally, as past studies indicate (Cassell and Jenkins 12), boys were expected to focus more on the computerized machinations outside the play's fictive context, while girls might focus more on socio-emotional character relationships within the drama.

Thirty-two, mostly Euro-American, students in grades one, three, and five (ages seven, nine, and eleven) were selected to participate from a working-class elementary school in a small, Midwestern city.<sup>2</sup> These twenty-one girls and eleven boys were interviewed individually for fifteen minutes at their school four days after attending a matinee performance of *Dinosaurus* on 8 February 2001 in a large university auditorium.<sup>3</sup> Using photographic prompts, they were asked a variety of open and multiple-choice questions which included their viewing perspectives (i.e., enjoyment ratings, motives for watching, and ease or difficulty in understanding); their familiarity with dinosaurs from four media and how each

media experience differed from the play; and, their dinosaur knowledge (including why dinosaurs became extinct). They were also asked to describe what the animated dinosaurs did on the screen; what parts the chorus played (other than dinosaurs) and how they knew when the chorus switched parts; and, what Bunk, the oil worker, learned from his final actions in the play as an encapsulation of the story's theme.<sup>4</sup>

Dimensions of perceived reality were measured by the following questions: "Could the story of the play you saw actually happen in real life today? Why or why not?" (factuality); "If this story *could* happen in real life, would it look more like a school play, a puppet show, a TV cartoon, a computer game, or a movie? Why?" (social realism); and, "Did the play you saw *look* more like (which medium above)? Why?" (physical realism/video). They were also asked whether they perceived the screen and chorus dinosaurs and Bunk to be "make-believe," "realistic," or "actually real" and what made these characters such. To garner further video responses, we also asked whether they watched the screen and/or chorus dinosaurs, what made each "interesting" to watch, why artists included both, and "what difference" this doubling made, as well as what emotions the screen and chorus dinosaurs felt and how they knew each set felt these emotions as a measure of inside or outside fiction cognitive processing.

Coding measures were devised by categorical patterns of clustered responses that emerged from transcribed audio-tapes. Reliability among three coders ranged from 96% to 100%. Qualitative responses were then transformed quantitatively for statistical analysis.<sup>5</sup>

## RESULTS

The majority of children reported that peers would enjoy this play "a lot," especially if they already knew about dinosaurs' physical traits and activities. Personal motives for viewing were divided between entertainment ("for fun") and learning or both. Most rated the play as "real easy" or "sort of easy" to understand, in part, because the screen showed which type of dinosaur each chorus member portrayed (e.g., a tyrannosaurus rex or pterodactyl). Younger children tended to watch the play "to learn something" about dinosaurs, and thereby rated the play "sort of hard" to understand more than older children. As one seven-year-old boy explained, it was "confusing trying to look at both" sets of dinosaurs because "all of the people were in the way of the TV screen."

Everyone appeared to know that dinosaurs are extinct, despite their sometimes shaky knowledge about the actual meaning of the term "extinction," with boys providing more accurate reasons (i.e., environmental changes) for their extinction than girls. With few exceptions, they understood that the play was a fictional account about factually extinct dinosaurs.

Most children had seen a dinosaur movie (72%) and/or television program (66%), while fewer had played a dinosaur video or computer game (31%; five girls and five boys) or seen a dinosaur puppet show (16%).<sup>6</sup> Boys more than girls perceived that these four media differed from the play primarily in terms of form (61%) more than content (39%). Those who explained more formal differences focused most on the mimicry between both sets of dinosaurs.

Regardless of their dinosaur media experiences, most children chose elec-

tronic media as the best form for depicting a "real life" dinosaur story. Apparently, whether "real life" happens live in person or as a recorded event makes little difference to them. Given that movies, television, and electronic games have the technological power to heighten "real life" with bigger and more realistic dinosaur movements than human actors, these children also focused on the screen dinosaurs' physical appearances. Only three girls recognized that the inclusion of live people in "a school play" distinguishes "real life" from electronically animated media. (If they had considered that human beings weren't around during the time of dinosaurs, then using live actors in a play would be a moot medium choice.)

When asked which medium the play looked like, over half perceived the performance more like theatre or a puppet show because actors, who seemed like puppets in four instances, "acted out" the dinosaur characters in "pajama" costumes; and, the play "wasn't just facts," in contrast to televised documentaries. The remaining spectators perceived this theatre event as more like electronic media by calling attention to the screen with its "bigger and more real" dinosaurs, for "It looked like we were the audience, just sitting on our chairs and watching them act, and they were on TV" which "usually does animals dancing all around a lot."

When asked what the screen dinosaurs "did," the majority described their movements and physical activities, and six children even perceived that these images "talked." The few who explained the super-objectives of these animations within the drama indicates that their minds were not distracted by video effects. With regard to the chorus dinosaurs, most children recognized that they also played objects (e.g., a mushroom, egg, or rock) and/or human narrators, primarily by watching changes in the screen's imagery, actors' behaviors, or both. Those who focused most on the mimicry between both sets of dinosaurs focused less on physical realism and more on the chorus dinosaurs' emotions within the fiction, while those who focused most on the chorus' acting appeared less concerned about physical realism.

Most seven-year-olds perceived the screen dinosaurs as "make-believe" because they existed as electronic media on a screen, while older children perceived them as looking pictorially "realistic" largely by their physical appearances or behaviors. Regardless of these reality labels, almost three-quarters of the children projected human emotions onto these computerized images by attributing various negative emotions (i.e., sad, scared, mad, upset, worried) to main conflicts against Peek and Bunk within the drama. In other words, they fused both sets of dinosaurs as one fictionalized entity by anthropomorphizing the screen images and projecting the chorus' physical and vocal behaviors onto the screen, just as the director and scenographer had hoped. These projections of human emotional expression onto computerized images indicate that viewers' minds were not dominated by theatrical video, as hypothesized. In fact, only five children pointed out the inability of screen pictures to feel any human emotion without "people acting them," for as one seven-year-old surmised, "They felt dead 'cause they're not alive."

Most youngsters perceived the dinosaur chorus as "actually real" or "realistic" actors with biological traits by acknowledging the theatrical convention that these humans were acting like dinosaurs as realistically as physically possible, with the understanding that people could not be costumed as dinosaurs. (Like-

wise, nearly all children judged Bunk, the oil worker, to be an “actually real” or “realistic” person, based on his human traits and/or his realistic portrayal of this character.) However, despite the chorus’ recognized humanity, no child volunteered their capacities for human emotion as a perceived reality reason—until asked directly what “these people” felt. Here, while many children noted character emotions from actorly behaviors, almost half focused on the actors’ pretense in the performance context, knowing full well that these actors “were just pretending to feel the same feelings as the [screen] dinosaurs.” In fact, six, mostly older, children projected themselves as actors by sensing they felt “mostly happy because they looked like they were having fun” and “real excited that they were doing a play”; or “embarrassed” or “worried” because “there were so many people watching them, and if I mess up, then they’ll start laughing at me.” In effect, it was the actors’ Brechtian conventions, and not the screen’s potential videocy, that drew their minds outside the fictive story during this questioning.

Contrary to videocy hypotheses, most children reported watching both sets of dinosaurs for their respective physical appearances. However, these particular spectators also tended to point out the screen more often throughout interviews, as well as the dinosaurs’ dialogue and mimicry in order to discern dinosaur types. Thus, when asked why artists included both screen and human dinosaurs on stage and “what difference” it made, overlapping reasons indicated mostly pragmatic purposes for employing this theatrical convention:

- to enhance physical realism by making the screen dinosaurs bigger and more realistic-looking because people don’t look like dinosaurs (e.g., they can’t fly);
- to indicate chorus members’ identities by the type of dinosaur each played (cited by older more than younger children);
- so people could act out dinosaurs (and not have to change costumes);
- to talk for the dinosaur images on the screen;
- to copy (or even control) the movements of the screen dinosaurs;
- to enhance spectators’ experiences (e.g., to see better and choose what you want to watch, to make it easier to pay attention and understand, and for more fun); and, finally,
- to retain the medium of theatre.

Only three children explained the latter reason explicitly as follows:

So it would be more than a movie, so it would tell kids, like instead of just having to just watch a movie and not hear anything, you could have people talk. (seven-year-old girl)

It wouldn’t be an actual play if you didn’t have people in it [but] I don’t think it made a difference. It was kind of neat to have something in the background that moves with you. (nine-year-old girl)

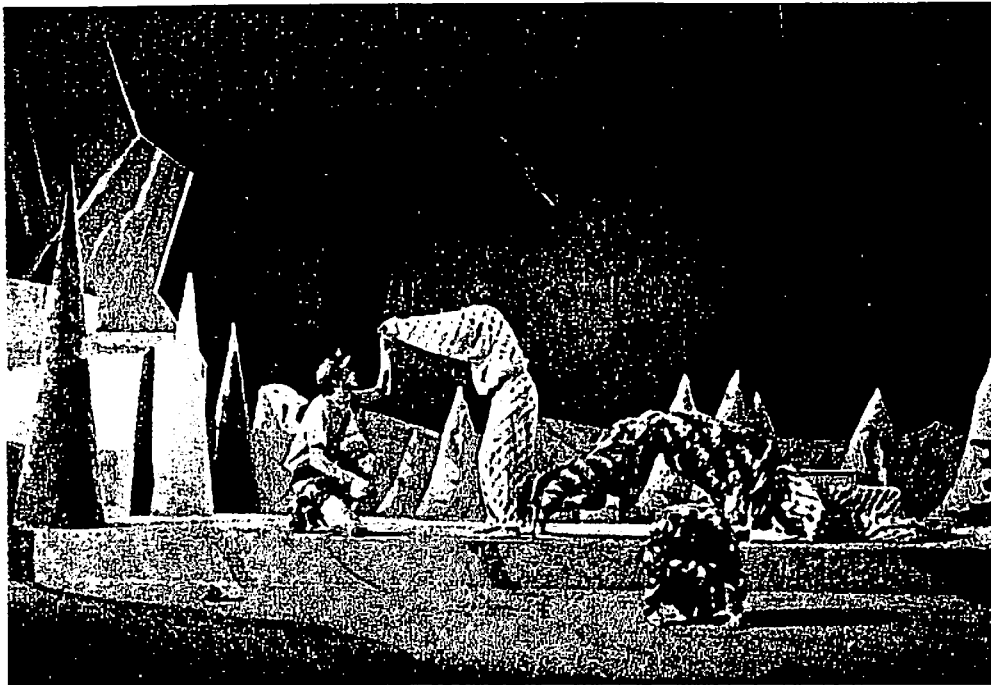
If the people weren't down there acting, doing the same stuff as the dinosaurs, it wouldn't really be like a play. [And] if it was just the people, they wouldn't seem like dinosaurs. But if it was just the dinosaurs, it wouldn't be a play. It'd be more like a movie with just the dinosaurs. (eleven-year-old boy)

In contrast, another eleven-year-old boy explained how the screen provided another look at things without them having to just *picture* what the dinosaurs would look like. 'Cause then it's easier to pay attention to the whole thing instead of having to stop and think. You can actually *see* it and then add a little more if you wanted. I think it made it a better play than what I thought it would be like. I thought it would just be some people with long, long necks and they'd have on costumes and stuff.

In their attempts to figure out how the computerized images worked, several seven-year-olds perceived that the chorus "controlled" the screen dinosaurs with "string" or "a little cord on them," or perhaps "radiation moved them" when "a person on the back of that machine would flip on a switch." One nine-year-old reasoned that this doubling "made a lot of difference because the people were not *exactly* moving how the dinosaurs would move," by explaining that the chorus "might not have learned all their actions and they only had one more day to show us the play." Despite their experiences with electronic media, children did not fully understand the actual technology employed backstage beyond its appearance as a "video or computer game."

To garner interpretations of the play's themes, spectators were asked what Bunk decided to do at the end of the play, what he learned from the play, and how they knew this information. In order to grasp the play's main ideas, they needed to infer the *consequences* of Bunk's decisive, climatic action; that is, that he purposely sealed off the cave's entrance with dynamite *so that* no one could ever return there and harm the dinosaurs again. In effect, his dramatic action ironically rendered the dinosaurs "extinct" once more. However, this crucial action occurs offstage. Past studies (Klein, "Children's;" Klein and Fitch, "First Grade") have found that young spectators tend to miss offstage actions, unless they pay attention to dialogue and/or sound effects. In the present case, children needed to recall hearing the sound and seeing a special lighting effect of an explosion with smoke, seeing a painted wall of rocks close the cave entrance, and/or hearing the Narrators' explanation: "Set a little dynamite charge off—(sound of a rumble and crash)—blew off a little avalanche. Not much; just enough to cover the entrance to the land of the dinosaurs. *He never saw the place again*" (30, emphasis added). However, the text and the director's staging confused the issue of whether Bunk actually leaves the cave forever, as stated by the Narrator above, or returns again to visit his dinosaur friends. In the final moments of the play, another Narrator states, "There's a place down below where the dinosaurs dance and dance and dance *at least till the nonecks find them again*" (31, emphasis added).<sup>7</sup> At this point, the director had Bunk return to the stage, from the opposite side of where he had exited the cave's entrance, to join the dinosaurs and deliver the next Narrator's lines himself: "But there's only one man alive *who knows his way down*. 'Cause my little partner, she never found her way back.





*PHOTOGRAPH 2. After blowing up the cave's entrance offstage, Bunk (Brad Danler) returns to the stage and joins the dinosaurs during his narration, while the chorus creates a dinosaur shape as a final tableau to end the performance. Photograph by Luke Jordan.*

*And as for me, well, I'm not telling*" (31, emphasis added). The visual fact that Bunk stands with the dinosaurs during these lines implies that he found his way back down through a different path in order to visit the dinosaurs again—and reverses the earlier narration that Bunk never returned (see photograph 2).

For all these reasons, together with the fact that young spectators' memories were challenged by being interviewed four days after attending the performance, thematic interpretations varied considerably based on which visual and verbal actions were recalled. Only thirteen children (41%) remembered that Bunk blew up the cave's entrance or that "it got blocked off" when "the rocks fell down"—five of whom also recalled the Narrator's lines to this effect. Yet encoding this climatic action led only seven of them to grasp his motive fully—so that no one, including Bunk himself, could return to the cave and hurt the dinosaurs. Only fourteen children (44%) recalled that Bunk took the camera away from Peek, the greedy scientist, and/or destroyed the film—his final onstage action just before he exited to blow up the cave entrance. However, only half of these children, including three who also recalled the explosion, concluded that he did this so no one would know about the dinosaurs in the cave. In addition, only nine children (28%) recalled Bunk's secret about not telling anyone about the dinosaurs. But, again, only four of them used his final narration to infer the consequences of his actions. Interestingly, a few also grasped Bunk's arc (a testament to the actor's performance)—that, at first, he was afraid of the dinosaurs before realizing they were "nice and not mean," because one dinosaur had saved his life. Yet those who emphasized this critical turning point did not necessarily comprehend that Bunk saved the dinosaurs' lives in return by sealing the cave's entrance.

In the final analysis, two-thirds of the children concluded that Bunk left the dinosaurs alone forever, thereby saving their lives from actual extinction. Yet only half of this group, primarily eleven-year-olds, grasped the consequences of his actions which ensured that no one, including Bunk himself, would ever return to the cave. In contrast, seven-year-olds were more likely to conclude that he returned to stay with his dinosaur friends, because his visual reappearance on the stage was far more memorable than the chorus member's explicit narration that he never returned. Thus, the remaining third of the children concluded either that Bunk remained with the dinosaurs or that he simply learned that dinosaurs were "nice" and "they won't eat you," as opposed to many media depictions of dinosaurs as ferocious, man-eating beasts.

### CONCLUSIONS

Contrary to hypotheses, the results of this reception study provide little evidence of a "videocy" dimension of perceived reality, for it does not appear that young spectators' minds were dominated or controlled by computerized animations—at least not four days after attending the performance. Several reasons may account for these findings. First, as youngsters themselves implied, dinosaurs are expected to be represented as computerized images on movie, video, or computer screens—because, after all, they are extinct—so the use of large, computer-animated dinosaurs in this live performance did not constitute a "spectacular" special effect to begin with. If videocy effects did occur at all during the performance, children may have acclimated themselves to these computer-animations by the end of the play. Second, there may have been too few respondents in each age group and an insufficient number of boys (eleven) in proportion to girls (twenty-one) to warrant significant age and gender differences. Third, seven-year-olds' memories were especially challenged by having to recall details from the play four days later. Therefore, responses to the performance reflect eleven-year-olds' greater mnemonic capacities and strategic abilities to process visual and verbal signs more efficiently than younger spectators. In fact, interpretations of the play's themes confirm how pre-adolescents are better able to infer characters' psychological motives and the cause-and-effect consequences of dramatic actions more than younger children. Furthermore, the staging and text of the play's climatic resolution confounded deciphered conclusions and any potential relationships with videocy effects. Finally, the concept of "videocy" itself may simply be a non-viable dimension of perceived reality, or potential videocy variables may need to be redefined by questions other than those employed here in future reception studies.

Nevertheless, responses to the double set of dinosaurs in this production highlight the importance of physical realism to young spectators who assume, like Disney's *Dinosaur* computer-animators, that the goal of narrative entertainment is to create the most hyperreal, life-like simulations possible with whatever new and innovative technologies lie at our disposal. For young media-savvy viewers, "real life" is not defined by living human beings enacting events live before an audience in the same space and time. Contrary to ideological beliefs that spectacular technical effects may divert attentions outside fictive worlds, young spectators take electronic media forms for granted by merging the emotional expressions of live and animated characters within textual content. Whether the

particular children in this study will come to expect electronic imagery in future theatre productions at this same venue remains to be seen. However, spectators' conditioning of virtual simulations through computerized media suggests the "extinction" of theatre's live distinctions by way of the dinosaurs.

As Baudrillard concludes, in a postmodern world controlled by political economy and efficiency, where everything, including human beings, has become commercially theatricalized, the marginalized activity of theatre itself can no longer be distinguished from "authentic" living.

And so art is everywhere, since artifice is at the very heart of reality. And so art is dead, not only because its critical transcendence is gone, but because reality itself, entirely impregnated by an aesthetic which is inseparable from its own structure, has been confused with its own image. Reality . . . no longer even surpasses fiction: it captures every dream even before it takes on the appearance of a dream. . . . The cool universe of digitality has absorbed the world of metaphor and metonymy. The principle of simulation wins out over the reality principle just as over the principle of pleasure. (151-152)

### ACKNOWLEDGMENTS

This study is dedicated to my mentor, the late John C. Wright. I also wish to thank participating students, parents, teachers, and school administrators, as well as the entire production team of *Dinosaurus* and research assistants, for their support of this project.

---

### NOTES

<sup>1</sup> See Reaney's additional color photographs of this production at his website <http://www.ukans.edu/~mreaney/dinosaurus>.

<sup>2</sup> I selected a working-class neighborhood school with the assumption that these children may have less access to mass media in their homes than upper- or middle-class children. I also had collegial relationships with the teachers at this school from their past invitations for KU drama workshops. Permission to conduct this study was granted by David Hann, Coordinator of the KU Advisory Committee on Human Experimentation (ACHE), and the Lawrence Public Schools. Required signatures were obtained from the school's principal and parents of all participating children with teachers' mutual consent. Per KU ACHE rules, children's verbal assent was obtained at the start of the interview by asking, "May I ask you some questions about what you think and feel about this play with some pictures?" and "Is it OK with you if I turn on this tape recorder to help me remember what we say? If you want to stop at any time during the interview, you can. It's OK."

<sup>3</sup> Unfortunately, a snowstorm forced the cancellation of school the day after their attendance, when interviews were planned on that Friday, so children were interviewed the following Monday. Individual, tape-recorded interviews were conducted at a table in the vacant cafeteria and two separated stations of the vacant computer lab. Per the principal's request, I interviewed all first graders; and two, pre-trained, undergraduate seniors, Gwethalyn Williams and Keena Reimer, interviewed third and fifth graders. The audio-tapes were transcribed by Gwethalyn and myself.

<sup>4</sup> My past studies have shown that children are better able to infer main ideas of plays when asked, "What did the protagonist learn at the end of the play?" and "How do you know?"

<sup>5</sup> I created emergent coding schemes according to commonly accepted, grounded methods of qualitative research, which Gwethalyn, Keena, and I used to code all data individually. We then refined coding definitions as we discussed all data for reliability. See Wright, et al. and other perceived reality studies for analogous coding schemes. For further details, see my technical report submitted to the Educational Resources Information Center (ERIC) at <http://www.ericsp.org>.

<sup>6</sup> Media included Disney's computer-generated *Dinosaur* (released on video ten days before spectators attended the production); *The Land Before Time*, an animated movie; *Walking with Dinosaurs*, a documentary on the Discovery cable channel; and, *Carnivores*, a computer game in which players hunt for dinosaurs.

<sup>7</sup> "Nonecks" refers to the name given to humans by the dinosaurs.

## WORKS CITED

- Baudrillard, Jean. *Simulations*. Trans. Paul Foss, Paul Patton, and Philip Beitchman. New York: Semiotext(e), 1983.
- Calvert, Sandra L., Amy B. Jordan, and Rodney R. Cocking, eds. *Children in the Digital Age: Influences of Electronic Media on Development*. Westport, CT: Praeger, 2002.
- Carriere, Patrick. Personal interview. 16 Nov. 2000.
- Cassell, Justine, and Henry Jenkins, eds. *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, MA: Massachusetts Institute of Technology P, 1998.
- Davies, Máire Messenger. *Fake, Fact, and Fantasy: Children's Interpretations of Television Reality*. Mahwah, NJ: Erlbaum, 1997.
- Fitch, Marguerite, Aletha C. Huston, and John C. Wright. "From Television Forms to Genre Schemata: Children's Perceptions of Television Reality." *Children and Television: Images in a Changing Sociocultural World*. Ed. Gordon L. Berry and Joy K. Asamen. Newbury Park, CA: Sage, 1993. 38-52.
- Hawkins, Richard P. "The Dimensional Structure of Children's Perceptions of Television Reality." *Communication Research* 4 (1977): 299-320.
- Huston, Aletha C., and John C. Wright. "Mass Media and Children's Development." *Handbook of Child Psychology*. Ed. Irving E. Sigel and K. Anne Renninger. 5th ed. Vol. 4. New York: Wiley, 1998. 999-1058.
- Klein, Jeanne. "Children's Processing of Theatre as a Function of Verbal and Visual Recall." *Youth Theatre Journal* 2.1 (1987): 9-13.
- . "Applying Research to Artistic Practices: *This Is Not a Pipe Dream*." *Youth Theatre Journal* 7.3 (1993): 13-17.
- . "Reading Empathy in a Québécois Play: *Crying to Laugh*." *Theatre Research in Canada* 15.1 (1994): 58-74.
- Klein, Jeanne, and Marguerite Fitch. "First Grade Children's Comprehension of *Noodle Doodle Box*." *Youth Theatre Journal* 5.2 (1990): 7-13.
- Mast, Edward, and Lenore Bensinger. *Dinosaurus*. New Orleans, LA: Anchorage, 1994.
- National Arts Educators Coalition. *National Standards for Arts Education*. Reston, VA: Music Educators National Conference, 1994.
- Parsons, Michael J. *How We Understand Art: A Cognitive Developmental Account of Aesthetic Experience*. New York: Cambridge UP, 1987.
- Potter, W. James. "Perceived Reality in Television Effects Research." *Journal of Broadcasting & Electronic Media* 32.1 (1988): 23-41.
- Reaney, Mark. <http://www.ukans.edu/~mreaney>.
- Rideout, Victoria J., Ulla G. Foehr, Donald F. Roberts, and Mollyann Brodie. *Kids and Media at the New Millennium*. Menlo Park, CA: Kaiser Family Foundation, 1999.
- Saldaña, Johnny. "A Quantitative Analysis of Children's Responses to Theatre from Probing Questions: A Pilot Study." *Youth Theatre Journal* 3.4 (1989): 7-17.
- Wright, John C., Aletha C. Huston, and Marguerite A. Fitch. "Children's Understanding of Fantasy and Reality in Television." Panel presentation at AATE Conference. Minneapolis. 8 Aug. 1990.

- Wright, John C., Aletha C. Huston, Alice Leary Reitz, and Suwatchara Piemyat. "Young Children's Perceptions of Television Reality: Determinants and Developmental Differences." *Developmental Psychology* 30.2 (1994): 229-239.
- Wright, John C., Aletha C. Huston, Rosemarie Truglio, Marguerite Fitch, Elizabeth Smith, and Suwatchara Piemyat. "Occupational Portrayals on Television: Children's Role Schemata, Career Aspirations, and Perceptions of Reality." *Child Development* 66 (1995): 1706-1718.
- Valle, Philip. "The Digital Frontier: On the Virtual and Material in TYA." *TYA Today* 16.2 (2002): 34-37.
- Zillmann, Dolf. "Television Viewing and Physiological Arousal." *Responding to the Screen: Reception and Reaction Processes*. Ed. Jennings Bryant and Dolf Zillmann. Hillsdale, NJ: Erlbaum, 1991. 103-133.