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HD WORKFLOW PAYS OFF FOR '21'

Maybe mathematics isn't so geeky after all. Consider the enterprising students from the Massachusetts Institute of Technology (MIT) who traveled to Las Vegas in the late 1990s with a plan: to use their analytical card-counting skills to play blackjack and win. They wound up scoring the ultimate American dream, boldly beating the house and netting millions.

"It's an attractive story," says director Robert Luketic (*Legally Blonde*, *Monster-in-Law*) who jumped at the chance to direct the true-life tale starring Kevin Spacey, Laurence Fishburne, and Kate Bosworth. "This was also the first action-thriller type movie I've done. I'm sort of known as the guy who does 'wedding-dress films.' But this is the realm I've always wanted to work in. Columbia took a gamble on me, in the same way our guys [in the film] took a gamble. It was a managed risk."

A Whole New Game

Luketic's biggest creative leap involved finding ways to make an exciting thriller about an ordinarily slow-moving game of cards. "It is not exactly a spectator sport," says Luketic about the film's card-playing focal point. "So we focused on making it visually intriguing in how we shot the games. We also focused on the process that the team used to count cards and how the kids worked together as a team to make it happen. These were brilliant students with brilliant minds. We wanted to show [how quick and sharp they were]."

Working with cinematographer Russell Carpenter, Luketic shot the cards in unusual ways. For example, he created an entirely CG title sequence – using only cards – to quickly entice the audience with the film's jaunty style. He also shot oversized cards – about three feet in height – to emphasize the emotional significance of the games.

"We really strove to make each card game look and feel different," says editor Elliot Graham. "Some scenes show cards falling like pillars from buildings to give them the weight of heaviness when losing. In other scenes, the cards may appear light and buoyant when the characters are winning."

Graham enjoyed accentuating the material through cutting, often using speed-based effects to take the audience into the minds of the players, particularly that of a student played by actor Jim Sturgess. Graham explains, "We shot a lot of the card games from his point of view to show how he sees the world when playing cards and how he applied his math skills. We'd shoot his eyes up close, then we'd do a slow-motion shot of the cards, and then a wide shot of the cards, and then go to his eyes. Then we'd show the cards again, but really, really fast, like others see them."

The contrasting speeds showed how Sturgess's character could calmly keep track of multiple card decks while carefully plotting his next move, while the fast-paced shots accentuated the more frantic and less deliberate moves of the other players.

Speed was also critical in a crucial three-minute card sequence that consists solely of card shots. The scene's rapid-fire pacing adds tension and excitement to the film's high-stakes climax. "There is probably not a shot that lasts for more than 10 frames. We wanted it to feel like an action sequence," says Graham.

HD SUPPORTS TECHNO-AESTHETIC

A complete HD workflow enabled the filmmakers to experiment with various creative approaches, using speed changes and other visual effects on the fly while viewing material in its most pristine state.

"I never saw a degraded image of the movie at any point. That was a first for me. I always saw images exactly as they were intended," says Luketic, who viewed the high-def images on a 60-inch HD plasma display in the editing suite.

Luketic had considered himself a member of the old vanguard who never thought he'd shoot a movie in HD. Now he is a convert. "I thought I would miss the grain and the texture of film," he explains, "but the Genesis camera is extraordinary. We used the traditional lens kits that have been used for many years and crews are really familiar with, right on the new [HD] camera body."

He believes that HD was particularly appropriate for *21* because there were many scenes shot in large casinos with dark expanses, so the fine image resolution could pick up those nuances. "This story also has a techno-aesthetic. The kids were mathematicians, very precise. HD really helped support that," he says.

Graham and assistant editor Liza Espinas-Regnier used Avid Media Composer Adrenaline systems connected to an Avid Unity shared-storage setup to cut the film – both on location in a hotel suite in Boston (with the shared-storage setup in the bathroom) and in the post suites in Los Angeles. While Graham had worked with HD source material on *Superman Returns*, he had never edited in HD.

"Going into HD again, I figured the future is all digital, why not go digital all the way? We already knew the Genesis, so it wasn't

that risky to try, and the studio was excited to do it.”

The post team, led by post supervisor John Naveira, ultimately decided to use the Avid DNxHD 115 codec to encode the visually rich HD files while maintaining the utmost image quality for editing and screening. Digital dailies were created at post house National Boston and delivered on hard drive in Avid DNxHD 115 format for quick ingest into the Avid systems. Luketic was amazed by the speed and ease of the HD editing workflow and the stunning visual quality of the encoded material.

“The Avid system just dealt with these huge files. It was extraordinary. It felt as though we were doing all the editing as usual [with the same speed as SD], but with these amazing images,” he says.

Audience previews were generated from the Avid system using Avid DNxHD 115 encoded material, which was output to HD D5 tape and projected digitally in theaters. “People commented how good the test looked and wanted to know if it was the final film,” says Luketic.

However, it was the emotional reaction of the test audiences that was most gratifying – and a likely harbinger of the film’s good fortune to come. Luketic explains, “You can be toiling away and never know whether people will connect with a film. To hear them clap and laugh, that’s the greatest pleasure. That’s why we do it.”