POSTMORTEM

TORU IWATANI'S RHAPSODY IN YELLOW

DESIGN PAC-MAN

THE ORIGINAL CONCEPT FOR PAC-MAN WAS THE RESULT OF my desire to create a game that everyone could enjoy. With a female target audience in mind, I wanted to create a game based on eating (which is why the name comes from the Japanese onomatopoeic word pakupaku, the sound one makes when opening and closing one's mouth while eating). When I was thinking about this, I was at a restaurant and noticed a pizza with a slice missing. I thought, "This is it!"

This was the inspiration, and it became the shape and general concept for PAC-MAN. Around this time, game amusement centers were saturated with games where killing aliens was the main objective. Lots of these games had great concepts that were fun to play, but I felt that none of these were equally accessible to women. Games at the time lacked variety—these types of games had a rather brutal image and a largely male audience. I wanted to liven up the game amusement centers by bringing female gamers, as well as couples, to the scene.

I was inspired by several of Atari's games in this regard; they had some innovative concepts which taught me a lot about design. I had no doubt that the concept for PAC-MAN would appeal to women, even though I didn't spend a lot of time seeking their opinion on the ideas. After all, even in the fashion and jewelry design industry, you have male designers creating items for women. I was confident that my creation was something that women would find appealing, so I just used my own intuition.

When drafting the original proposal for the game, I kept PAC-MAN to myself. When I finally showed the proposal to my boss and colleagues, the response I got wasn't all that

TORU IWATANI *joined Namco in 1977 and took charge of the game and visual design of 1980's industry-defining title PAC-MAN. Since then, he produced more than 50 arcade and video games, such as POINT BLANK, ALPINE RACER, and TIME CRISIS. Send feedback about this article to* editors@gdmag.com.

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GAME DATA

DEVELOPER
Namco

PUBLISHER
Namco (Japan) Midway (U.S.)

PLATFORM
Arcade

RELEASE DATE
April 3, 1980 (Japan)

NUMBER OF DEVELOPERS
5

DEVELOPMENT TIME
15 months

ARCADE HARDWARE
Z80 main CPU, Custom 3 channel 4-bit
WSG sound chip

ILLUSTRATION BY DEREK YU

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overwhelming. I had already created three other games prior to PAC-MAN, so I was already known to be a game designer among my colleagues. As a result, most people were able to look beyond this different kind of concept and let me explore the game's possibilities.

WHAT WENT RIGHT

1 LOW-PRESSURE ENVIRONMENT. When we were making PAC-MAN 25 years ago, we didn't have the same budget constraints or deadlines that most developers encounter today. Without this kind of external pressure, we were able to create something we were all very satisfied with in an environment that supported creation. Even so, we weren't able to include absolutely everything we wanted, even in 1980!

2 SMALL TEAM VALUES. Unlike the large-scale projects most developers work on today, our team consisted of a mere five members, so it was easy to control workflow.

Communication problems and team chemistry were not an issue, since we were all so close. In order to effectively manage a large project, everyone on the team needs to think somewhat along the same lines—to work toward a common goal. If you leave out the communication aspect, your team will fall apart. The process of making games today is much more complicated than it was in the PAC-MAN days, so we were able to thrive with a very lean development team.

3 SIMPLE DESIGN. We succeeded in making the game simple. When we were trying to bring out the exciting and fun elements in the game, we mostly used a trial-and-error approach. When working on the design though, we had to remind ourselves not to sacrifice the game's simplicity, since it was the one basic idea we had agreed upon when we began work. We wanted to make a game that would appeal to all levels of players and all genders, and included settings that would adjust the overall difficulty over time, such as attack waves and run delay zones for the ghosts. We put a great deal of effort into including these settings so it would be challenging for a wide range of players. It took a significant amount of time for us to playtest and to fine tune the various factors to reach the right level of balance.

WHAT WENT WRONG

1 HARD SELL. Since so many of the popular games at the time were similar, we had some trouble explaining the basic game concept to both our colleagues at Namco and the general public. It was especially difficult for us to explain the concept of how PAC-MAN, who spends most of his time avoiding ghosts, is able to turn the tables and chase the ghosts after eating a power cookie. Internally, we received a lot of suggestions on how we could improve the game and make it

easier for players to understand. For example, the president of the company requested that we change the color of all the ghosts to red, even though they all had independent AI routines and personalities. Fortunately, the game explained itself when people saw or played it, so our concerns about confusing players were largely unfounded.

2 ARTIFICIAL INTELLIGENCE. The one area of the game I would have liked to refine more if given the time is its artificial intelligence. I am pleased with the AI that exists in the game, but I would have liked to implement a system where the difficulty of the AI is automatically controlled. I anticipated that having a set difficulty curve would not be enough to cover the entire range of people that would play it. We wanted to have a system in which the computer could tell whether a beginner or an expert player is at the controls, based on the time it took the player to make a mistake. A record of these mistakes could be kept on the system, so it could automatically adjust the level of the AI in real time. We just didn't have enough time in our 15 month production schedule to implement that system. We also considered a few additional game features, such as gates that would trap the ghosts, but these also had to be sacrificed in order for us to finish on time.

3 TECHNICAL DIFFICULTIES. For the most part, we didn't run into too many technical problems during development. The developers on our team were all quite good, and as mentioned, we chose to keep the game simple in order to avoid potential technological issues. I think ultimately, we were able to create a simple game solely because there were techniques we didn't know about, through which we actually could have realized a more complex design. In that sense, it was better that we didn't know about them! The one technical problem we did encounter was with the animation. We ran into a few issues animating the non-game scenes, but managed to still create something compelling with a lot of personality. We had always wanted to create an animation style that people could chuckle at, since we wanted it to appeal to multiple audiences. We knew that in order for the game to become a successful franchise, we needed a main character that was positive and upbeat, and would make players smile while they played. The

PAC-MAN's original Japanese name was PUCK-MAN.
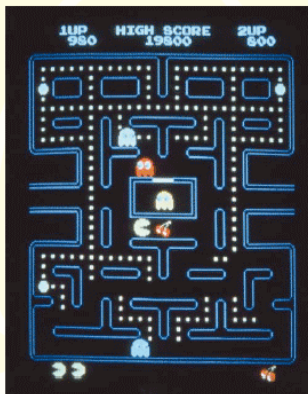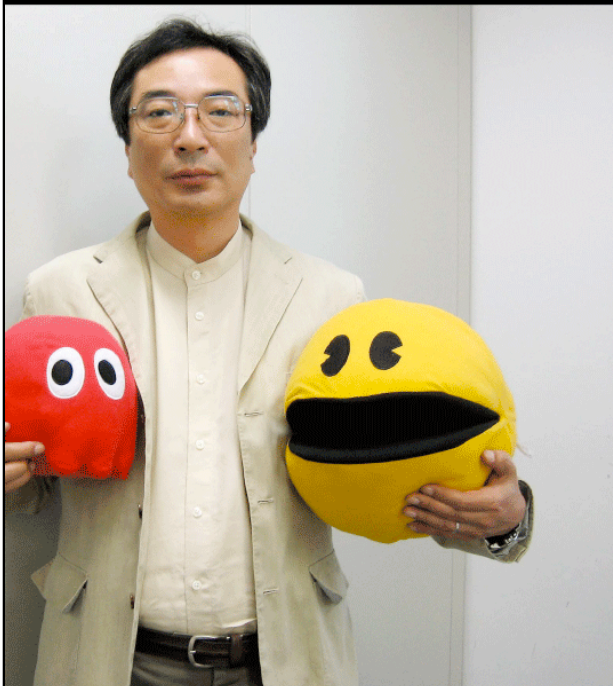
PAC-MAN creator Toru Iwatani and friends.

PAC TO THE FUTURE

I'm delighted that PAC-MAN has gained such popularity worldwide. We knew we had a high quality product after we finished the game when we realized there was nothing that could possibly be added or removed to make it better, aside from the minor issues I mentioned. Even still, we were uncertain as to how successful the game would be overall. We had no idea that it would become such a big hit around the world. Even after its success in Japan, we didn't anticipate the overwhelming reaction from overseas. Even young players today know PAC-MAN due to its consistent presence on consoles generation after generation, but most of all, I have the simple game design and adorable characteristics of PAC-MAN himself to thank for this success.

As the developer of PAC-MAN, I was able to get to know a lot of people that I otherwise would not have had the opportunity to meet. These people are all very important to me and I feel fortunate to have worked on such a special game. All of us who worked on PAC-MAN learned some important lessons that can apply to any game developer. First, it is important to make a game that your target player will enjoy, and not just a game that you would like to play. In that respect, it's important to have a service-oriented mindset. Additionally, developers should believe in themselves and strive for their goals, knowing that they can succeed at anything with bravery, energy, and a sense of mission.

PAC-MANIA brought the PAC-MAN franchise to isometric 3D.

same goes for the ghosts—the game needed an enemy, but we wanted something with a cute design. Fortunately, we were able to work around this one technical constraint with some excellent programmers to make PAC-MAN come alive.

EDITOR POSTMORTEM:
PAC-MAN FRANCHISE

THOUGH TORU IWATANI'S IMPRESSIONS OF HIS WORK CREATING the original Pac-Man game are vital and fascinating, they obviously don't tell the whole story. Twenty-five years and countless titles later, Namco continues to grow and expand the PAC-MAN franchise. But clearly, just as there were ups and downs in creating the original arcade game, there have been similar pluses and minuses in the creation and nurturing of PAC-MAN's legacy. *Game Developer* decided to take a close look at a quarter century of PAC-MAN games and come up with its own objective list of What Went Right and What Went Wrong in terms of the little yellow guy's growth. These, then, are our independent impressions of how the franchise has fared, and what Namco still has to work on before PAC-MAN inevitably takes over the world some time later this century.

WHAT WENT RIGHT

1 PAC-MAN: THE FIRST GAMING ICON? PAC-MAN, many would argue, was the first ever gaming icon—a recognizable video game character that was embraced by millions, even transcending video game media in his appeal. Why such a breakthrough? Well, prior to Pac's genesis, early video games often didn't even have characters at all—rather, the protagonists were spaceships or paddles. Even those that did include characters were largely disparate from the illustrations and designs upon which they were based.

But PAC-MAN's simple, cute, yet compelling character design allowed him to be easily identified, both in pixilated digital and stylized drawn form. As a result of the smash success of the first PAC-MAN game, Pac's likeness made its way to everything from lunchboxes to Saturday morning animated series, and pervaded early '80s culture far more than anyone could reasonably have expected. The crowning example of this is probably Buckner & Garcia's number eight hit in the U.S. charts, "Pac-Man Fever"—novelty songs are one of the best signs that you have a genuine phenomenon on your hands.

But since then, cultural awareness of PAC-MAN hasn't really let

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Namco's forthcoming
PAC-MAN WORLD 3.

of PAC-MAN's appeal is and base the gameplay on those points. In particular, Namco's recent collaboration with Nintendo's Shigeru Miyamoto and excursions onto the Nintendo DS system have been fruitful in terms of serving up fresh ideas for our little yellow friend.

Specifically, Miyamoto's experiments for PAC-MAN VERSUS, which pits a PAC-MAN-controlling player on the GameCube against players controlling ghosts on multiple Game Boy Advances, doesn't change the nature of the game's design much on paper. But what it does change is the way people play and interact with the game, which makes it feel fresh and fun. On a similar note, PAC-PIX for the Nintendo DS starts with a charming set up—the ability to draw your own PAC-MAN with the DS's stylus and then control which way it moves onscreen to gobble up the ghosts, a perfect idea for a franchise evolution. In similar form, PAC 'N ROLL for the DS is another smart extension—the innovation of control by rolling PAC-MAN with a stylus is the most compelling part of the experience and helps remind us of the viscerally direct control of the arcade original.

WHAT WENT WRONG

1 A DIFFICULT TRANSITION TO 3D. PAC-MAN's transition into the 3D world, and in particular the world of 3D gameplay, has not been an easy one. While it has been established that departing from the original PAC-MAN design can yield good results, the PAC-MAN WORLD games, while enjoyable on a basic level and relatively commercially successful, ultimately place PAC-MAN in a 3D platforming space alongside the likes of MARIO 64, RATCHET & CLANK, and CRASH BANDICOOT.

This, needless to say, is a difficult area to compete in, and since PAC-MAN traditionally operates in a restrictive 2D maze medium (as opposed to, say, Mario, whose 3D adventures would be much easier to envision even if MARIO 64 did not exist), it's not as simple to place him in a freeform three-dimensional world, and so his 3D excursions, like those of other early arcade icons, feel a tad limited. As a result, the 3D PAC-MAN games have lacked much of the critical adoration given to competing titles and don't tend to register high on the list of must-play games for hardcore gamers, although their gameplay ends up working out well for the casual mainstream market.

2 LACK OF DIRECT CREATOR INVOLVEMENT. PAC-MAN's much-loved creator Toru Iwatani was indisputably the visionary behind the first PAC-MAN title, and continues to work at Namco 25 years later. He was at the helm of Namco's games division all those years ago, designing the company's first-ever arcade title GEE BEE and two sequels, before making PAC-MAN. After the completion of one further title, LIBBLE RABBLE, he stepped out of the development sphere and into Namco's administration.

Though Iwatani continues to contribute to the company's overall direction and creative think-tank, he has not directly designed a PAC-MAN game since the original. When asked at Game Developers Conference 2004 what one element he would add to the original game, he said, essentially, that he would add nothing. The game was so simple that adding anything extra to it would be too much, and taking anything away would break the gameplay.

This may help explain both why Iwatani has not worked directly on the series since its inception, and why it has sometimes been difficult to transition the game into the next generation. Although Namco has done a fine job of continuing

up, showing that recognition of and love for the little yellow puck isn't just a fad. Aphex Twin, Weird Al Yankovic, and Argentinean concept rock group Patricio Rey y Sus Redonditos de Ricota have also recorded PAC-MAN-related musical numbers. And as recently as this year, Namco reached a settlement with hiphop star Lil' Flip over his sampling of PAC-MAN sound effects for his hit "Game Over." Also in the recent past, PAC-MAN music and gameplay themes were used for a subtle North American Volkswagen commercial in which the car picked up pellets and fruit, ending on PAC-MAN's classic game over sound. The fact that the game itself was not specifically mentioned, but Volkswagen still felt confident in riffing off the sounds and themes surrounding PAC-MAN shows the true profile of the franchise within contemporary culture.

2 SEQUEL-BUILDING BY ITERATION. For a time, the PAC-MAN series evolved not in over-ambitious leaps, but in baby steps, refining the already proven model of the original, whose chase-and-be-chased 2D gameplay was a major innovation that spawned any number of clone titles by rival arcade game creators. Namco's careful nurturing of the series is evident in the love many players still have for some of the earlier PAC-MAN sequels. This is particularly true for MS. PAC-MAN, the first, and most successful iteration of this type, and still one of the most beloved titles.

In fact, the game was not made by Namco at all, but by the small American firm General Computer Corporation as an add-on to the original PAC-MAN arcade board. But it's to Namco's (and U.S. licensee Midway's) credit that they appreciated the improved gameplay and even more female-friendly nature of the pseudo-sequel and brought it within the fold as an official part of the PAC-MAN franchise. This iteration-like sequel model worked well for a time, and there were some fun twists which still preserved the addictive original gameplay, including the 1987 isometric PAC-MANIA and the enjoyable extension MS. PAC-MAN MAZE MADNESS (2000), each with its own charms achieved through working off the original's innovations.

3 INTELLIGENT EXPANSION OF GAMEPLAY. While PAC-MAN has sometimes had trouble expanding past its 2D maze-based roots, some franchise extensions have worked particularly well, especially when they consider carefully what the essential nature

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the high profile of the franchise, and although there have been some critical highlights for the PAC-MAN series, some argue that the lack of a consistent creative overseer has caused the series to lack direction. In fact, with his fun-yet-simple design tactics, one wonders what a second Iwatani-helmed PAC-MAN game might look like.

3 **FRANCHISES CAN BE BUMPY.** Every franchise has them—from THE LEGEND OF ZELDA's horrid interactive CD-i games through some of CASTLEVANIA's stuttering 3D iterations. Unfortunately, the same is true for the PAC-MAN franchise. Along the 25 years of fun, there have been a few mis-steps. This is particularly true of titles that try to stray too far from PAC-MAN's original maze chase genre. Many humanoid mascot characters have multiple natural extensions; as ambulatory humans, they can be in a platformer, a racing game, a tennis game, a baseball game, all without changing their intrinsic nature or design. PAC-MAN, on the other hand, needs to sprout arms and legs, neither of which are part of his original design, in order to leap out of his 2D maze.

Although these changes can work in video game form (as in PAC-LAND), other extensions can just end up feeling a bridge too far for our plucky friend. A prime example is probably party game PAC-MAN FEVER, which traded off the PAC-MAN name to relatively little interest and unfavorable critical reception, though early, quirky titles such as PROFESSOR PAC-MAN also seemed to take the franchise name down an inappropriate cul-de-sac. The bottom line, as with all franchises: things work less well when their branding or characters are added to genre-based titles that aren't actually enhanced by their presence in terms of gameplay.

PAC IT UP

There's no disputing the pervasiveness of the PAC-MAN iconography, and in that sense, the little yellow fellow's quarter century has been overwhelmingly successful. As journalists and former game developers ourselves, we've been interested by the ways that the PAC-MAN franchise's game designs have grown and morphed over the years, despite the apparent perfection of the original game concept.

Though it's clear that PAC-MAN's genesis has made him a handful during his teenage years, now he's in his 20s and settling down to a life of contented ghost-chomping. And who knows—another golden age of power pill consumption may be just around the corner. Here's to another 25 years of "wokka wokka wokka!" ⋊

Brandon Sheffield contributed to this article.