



**A DETAILED CROSS-EXAMINATION OF YESTERDAY AND
TODAY'S BEST-SELLING PLATFORM GAMES**

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2006 addition - Revised Introduction

After writing this piece, I got an equal amount of heat and praise for it. Thanks to some much-needed critical feedback, I was made aware that there were far too many terms that really didn't need to be there, so they're gone, so now some of the data won't be such a headache to read.

I also realised that there was a need to develop a detailed taxonomy to describe common game elements and at present I'm working toward a project that will address that, though cannot announce it in detail just yet. Some of these processes and measuring standards have also been significantly refined and will be revealed in the next paper.

As for the platform game market, since the writing of this piece we've seen the market go more toward a 'hybrid' genre, with richness of interactivity in the environment traded off for more crudely (but competently) implemented multiple genres and sub-games. Conversely we've also seen a resurgence of late 80s / early 90s era 2D platform gameplay in the handheld Nintendo DS and Sony PSP consoles.

Current darlings of the scene include the simplistic and charming Loco Roco, which has considerable depth in a simplistic control scheme where you tilt the environment to move the lead character. It also contains concepts where you squish the character and split it up to move through areas of a certain shape and size.

New Super Mario Bros is regarded as a hybrid mix of all the best features of Super Mario Bros and Super Mario Bros 3, married with completely new concepts and a fully comprehensive two-player mode. The game has achieved excellent reviews and for good measure, I've added it to the analysis below, just for comparison's sake. Though sadly lack a copy and the time to play through Loco Roco at present.

As for overall game design trends in the last few years, games have taken on a philosophy to become more rewarding. Burnout is the perfect example of this, with players being able to unlock hundreds of bonuses, be they titles, pictures, extra vehicles or special areas. It's rare to find any sports or general action games nowadays that don't contain a reward at least once per level or every five to ten minutes. Some games now have more unlockables than actual levels.

To end, you may find that some of the conclusion data has not aged well, though regardless, it's hard not to find something useful in it at the end of the doc. Hope you get something out of this,

Dan

Platform Games

Platform games used to enjoy a 15% share of the market in 1998 - and considerably more in the 16-bit era - but 2002 Chart Track results showed a staggering drop to 2%.

As consequence, marketing circles are reportedly deliberating that platform games – as a genre - are not as attractive to consumers as they once were.

We believe it's not an issue of genre, but an issue of effective design principles of past being forgotten.

Thanks to Naughty Dog and Insomniac, the PS2 has been awash with well-produced platform games and we've also recently been blessed by new outings from Mario and Sonic on Gamecube. However, although they've all been successful in their own respects, these games have failed to match the astronomical sales success enjoyed by their predecessors.

To prove our point, we'll use the best selling games of each top-selling platform game series and compare them alongside the recent next-generation updates.

According to online reports, the worldwide best sellers of each series – that were not initially bundled with their respective consoles - are:

- **Super Mario Brothers 3** – more than 17 million worldwide total sales
- **Rayman** – over 4 million worldwide total sales
- **Sonic the Hedgehog 2** – over 6 million worldwide total sales
- **Crash Bandicoot** – over a million worldwide total sales

And the next-generation products we'll examine are:

Jak and Daxter, Super Mario Sunshine and Sonic Adventure

Some would say that it's pointless to compare to the 16-bit or even 8-bit days, as it was a different market and of course, it's true that the market has changed.

Another truism however, is that if online reports are correct, not a single game – of any genre - has sold as much as Super Mario Bros 3. Being that we're in an industry which is largely built on forward thinking, it may be productive to look to the past for lessons in improving the present and future of games - and this includes looking in classic game designs and ideas.

For effective feedback, we'll look at game design elements in these games alongside other relevant conditions, in detail.

Subject Profiles

SUPER MARIO BROTHERS 3

TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 17 million

Gamerankings Score: 92%

NES system

Origin: Japan

Number of Players: 2 in sequence and 2 simultaneously when in VS mode

US release: Feb 1st 1990



It is well known that Super Mario Brothers sold more than this title, being that it was bundled with every NES. We're choosing this title however, as it was not bundled initially and still managed to shift more than every other unbundled game – let alone platform games – in existence today.

Instead of relying on holiday bundles for a sales surge, the game benefited from a high-profile product placement in the film 'The Wizard' - 3 months before the U.S release - helping SMB3 rocket to worldwide sales, reportedly in excess of 15 million.

SMB3 was also the most varied and experimental of all other platform games in existence. It broke new ground in it's genre by being the first to introduce a level progression system in the form of a fully interactive World map – which was a level in itself. This also presented the option to complete the game without having to finish every single level – another first for the platform genre.

It took the original Super Mario Brothers formula and outdated it considerably, resulting in one of the finest examples of effective game design and design progression in recent decades.

RAYMAN

TOTAL WORLDWIDE SALES AS OF JUNE 2003 = 4 million

No updated figures available at time of publishing

Gamerankings Score: 70%

PSOne

Origin: France

Number of Players: 1

US Release: Jan 1st 1996

ESRB Rating: K-A



Rayman was initially released on the ill-fated Atari Jaguar and was initially met with disdain by critics because of its on-the-surface shallow gameplay - masked by lavish visuals and animated introductions.

Another negative, was the fact that the Jaguar release came at a time when the market was being saturated with generic characters like Accolade's Bubsy and Sunsoft's Aero the Acrobat and thus came into the world un-noticed in the sea of unoriginality which many critics decided to make Rayman a part of.

Upon its 1996 port to the PSOne, it's been an evergreen title, and then upon its budget re-release - combining it with Rayman 2 - it sold even more, possibly owing to it's residence on high-street super market shelves.

It was hardly ground-breaking, but its lush visuals and bizarre world, characteristic of French design, won plenty of young hearts and the total series has now sold in excess of 11 million and climbing at time of writing.

SONIC THE HEDGEHOG 2

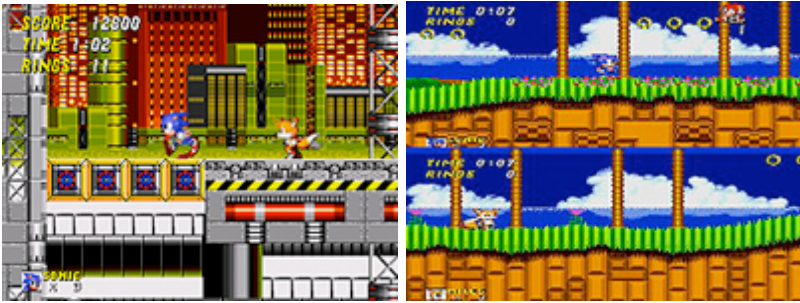
TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 6 million

Gamerankings Score: 89.4%

Sega Genesis

Number of Players: 1 or 2 simultaneous

US Release: Dec 31st 1992



Sonic 2 was released on New Years day in the US, although some would say foolishly, as the impact of its release would likely be muffled by the New Years celebrations. This however, didn't stop Sonic 2 becoming the best selling 2D Sonic game and furthermore – one of the best selling platform games of all time.

Sonic was the blue to Mario's red, combining lightning fast movement with vast and plush areas to explore – an antidote to Mario's far more compact game levels.

Sonic's design allowed for new ways for players to move around levels that were often larger in size than those in other games. These levels mainly consisted of half-pipes, loop-the-loops and ramps as parts and pieces of some very unique navigational situations. In this episode of the franchise, you could also race through selected stages with a friend in a simultaneous two-player split-screen VS mode – a first for platform games.

Sonic 2 had the first fully simultaneous competitive two-player mode and some say that this episode was also the greatest moment of the entire franchise.

It reportedly propelled Genesis unit sales to that which surpassed the legendary Super Nintendo and helped secure Sega as a powerful force for years to come.

CRASH BANDICOOT

TOTAL WORLDWIDE SALES AS OF NOV 2003 = 6.8 million

Gamerankings Score: 78.4%

PSOne

Number of Players: 1

US Release: Sep^{3rd} 1996

ESRB Rating: E



Crash Bandicoot seemingly came out of nowhere and filled the void that was waiting for a Playstation mascot.

Crash wasn't a groundbreaker in terms of new ideas, but the way the developers worked with the Playstation hardware to achieve environments with such visual wealth and compacted gameplay, was impressive for it's time.

Naughty Dog created a level-design formula which although on-rails and slightly claustrophobic at times, created a large amount of challenge through skill-jumps and completist-geared navigational puzzles which required pixel-perfect accuracy.

Crash Bandicoot has since gone on to star in a dozen more games and has even crossed into Kart game territory, showing that the Crash franchise has indeed become strong enough to stretch outside the platform game market.

SONIC ADVENTURE

TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 2.5 million

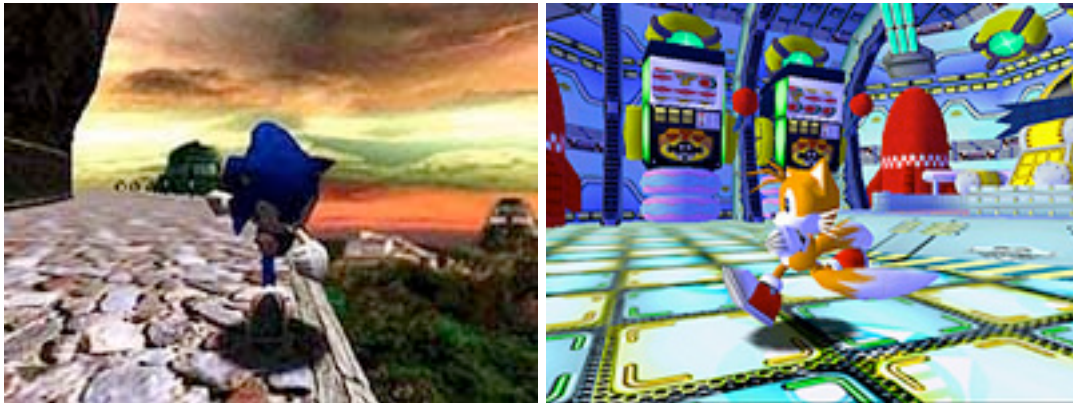
Gamerankings Score: 87.2%

Sega Dreamcast

Number of Players: 1. 2-player option is a short-term secret mode

US Release: Sep^{9th} 1999

ESRB Rating: E



Sonic's first full 3D adventure was clearly a labour of love, as displayed by the sprawling and beautiful environments and the ambitious and well-realised multiple-character story perspective feature.

The game displayed an almost entirely new persona from its 2D counterpart, emanating a more uniquely stylised and unique look to its 16bit counterparts.

The 3-dimensional update scaled down the open and vast level designs that were familiar throughout the 2D episodes and went for a far more linear and focused layout that limited the player to only a handful of off-path areas to explore for bonuses. Some found this off-putting.

One change was well received however - the inclusion of a multi-story viewpoint. In short, you could play as six different characters, each with its own view on the main narrative and a suitable twist on the core game engine - another platform first, courtesy of Sonic.

SUPER MARIO SUNSHINE

TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 5.5 million

Gamerankings Score: 91%

Nintendo Gamecube

Number of Players: 1

US Release: August 26th 2002

ESRB Rating: E



Super Mario Sunshine reportedly began as an N64DD intended update, minus the water cannon, before the 64DD was scrapped for a full worldwide release and Gamecube was given the green light.

SMS is a large departure from the traditional Mario formula, removing the old power-up system of past and the ability to pick up and throw enemies.

The new formula introduces the multi-functional 'Fludd' water-jet and consequently a wider breadth of possibility for original puzzle and level design ideas.

Although initially praised by the specialist media, some publications have backtracked in recent stories to say this is Mario's least spectacular moment, made even more so by the arguably unpolished camera software, which at times requires extreme precision of movement and can cause immense frustration.

It sold 500,000 copies in Japan in its first week, but sales spiked low after the initial excitement wore off. The game was soon after announced for Budget catalogue inclusion.

2006 Addition:

Now, in '06, the game has since enjoyed sitting in the 'Player's Choice' catalogue on a heavily discounted console and has amassed a rather impressive amount of sales.

JAK AND DAXTER

TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 3.2 million

Gamerankings Score: 90%
Playstation 2
Number of Players: 1
US Release: Dec 4th 2001
ESRB Rating: E



Jak and Daxter was born from the same loins that originally gave Crash Bandicoot to the world - Naughty Dog. In terms of level-design style, both share similarities – not in the superficial sense, but in the sense of a design ethos favouring less-puzzles and more movement and action. Jak and Daxter trimmed the puzzle-fat further, by possibly becoming the first fully action orientated platform adventure.

Jak and Daxter was also a test for Naughty Dog; a test of whether the studio with not much of a reputation prior to Crash Bandicoot could carry on being successful without relying on the Crash franchise.

Thankfully for Naughty Dog, Jak and Daxter was a success and more than that – it showed a clear difference in style between U.S and Japanese platform game design:

- Japan's style favouring puzzles and abstract play-themes - within an action orientated environment
- And U.S designers pushing for more action and variety and less brainwork in terms of elaborate puzzles or complex navigational dilemmas

Jak and Daxter was a well-received title critically and currently has a high-profile sequel in the works at time of writing.

2006 addition - NEW SUPER MARIO BROS

TOTAL WORLDWIDE SALES AS OF JUNE 2006 = 2.5 million

Not yet released in Europe

Gamerankings Score: 89.2
Nintendo DS
Number of Players: 1 or 2
US Release: May
ESRB Rating: E



New Super Mario Bros is the first traditional 2D Mario sequel since Super Mario World on the Super Nintendo.

Touted as a return to form for the series, it compiles the best of the 2D Mario games. NSMB has seen across the board rave reviews and having only released in Japan and America thus far, it has totalled more than 2.5 million sales worldwide.

It remains to be seen how much power this classically influenced realisation of the Mario brand has and thus far, things are looking positive.

From a recent Nintendo press release:

“After just 35 days on store shelves, New Super Mario Bros.® for Nintendo DS? has racked up sales in excess of one half million in the United States alone. That’s a sell-through rate of more than 20 every minute since the game went on sale May 15.”

The first ten minutes

A common belief amongst psychologists is that people make up a vast majority of their total opinion of a person in the first five seconds of meeting. It would also be fair to say that games are also subject to this nature-programmed degree of scrutiny.

We'll stretch this test time slightly from five seconds to ten minutes and examine factors that are relevant to a player's enticement and enjoyment within the first ten minutes of gameplay.

Bear in mind that games reviewers are particularly sensitive to negativity in a game's initial moments, and when games nowadays are mostly reviewed for an average of a handful of hours before the verdict goes to print, you'll be able to appreciate why the functionality and enjoyment of a game's beginnings is worthy of your focused attention.

1 – Visuals

Just as the 16-bit era was drawing to a close – thanks largely to Sony's Playstation - a flood of titles appeared which promised 'best ever graphics' as their main unique selling point. This was largely because the title was made entirely using FMV technology. Such titles included Night Trap on Mega CD, Voyeur on Phillips CDi and Sewer Shark on 3DO.

This flood was met with initial awe and helped titles that relied on better graphics to sell rather well, but of course these fads eventually died out and as a result, the market was made aware that appealing visuals are not worth hinging a while game on for an engaging game experience, if the mechanics and play rules are at least not up to standard.

One thing developers learnt from this short-lived gold rush, is that enticing visuals are important, and the old adage of "graphics doesn't matter", was and is largely an idealistic and unrealistic view in regards to having your titles sell well.

In turn, marketers learnt that mechanics play a significant role and a game is more likely to sell if both graphics and mechanical design are well executed.

See the terminology on the following page, to understand terms that will be used throughout this analysis.

Terminology:

Touch Hurt Hazards: Hazards that take a hit-point from the player character when the hazard is touched.

PC: Player character – meaning the character whom the player controls.

Kill Zone: A bottomless pit or an area that upon entering will kill you instantly.

Boost: An object, which increases the level of whatever it's boosting – speed or strength for instance.

Quota Token: A token or item which is part of a set. Once the set is complete, a reward is received. Types include:

- Area unlock: To gain access to an area when quota is met
- Ability unlock: To gain access to a new ability when set quota is met
- Event unlock: To have an event cue upon meeting a specified quota
- Bonus area unlock: To open a Bonus area upon meeting a set quota
- New level unlock: To open a new game level upon meeting a set quota
- Character unlock: To unlock use of a new character upon sufficient quota
- Bonus game unlock: To unlock additional bonus games

Sub-Quota token: A token or item which is part of a sub-set. Once this set is complete, a reward in the form of a Quota Token is received.

A Beat: A word describing an on-rails navigational route that an enemy or platform takes – when you see an enemy walking back and forth on a platform for instance.

Current generation games: Games on PS2, GC, Xbox and Dreamcast.

	Spec	Approx Head to body ratio	Screen space	On-screen decor	First level	Camera
SMB3	8 bit 2D	40% - 60%	Mario is a sixth of the screen high.	Static cutouts. Platforms. Hills. Pipes.	Abstract area at daytime.	2D flat pan. 2 axes of movement.
Rayman	16 bit 2D	33% - 67%	Rayman is a fifth of the screen high.	Animated plant-life. Animated wildlife. Platforms. Hills.	Tropical jungle.	2D flat pan. 2 axes of movement.
Sonic 2	16 bit 2D	50% - 50%	Sonic is a sixth of the screen high.	Animated plant-life. Animated wildlife. Animated backdrops. Multi-layered backdrops. Far-reaching ocean.	Tropical hills.	2D flat pan. 2 axes of movement.
Crash	32 bit 3D	33% - 67%	Crash is a fifth of the screen high.	Static plant-life. Location and era revealing statue ornaments.	Tropical jungle.	2D overhead on rails with vertical scroll. 2D Flat panning with horizontal scroll.
Sonic Adventure	128 bit 3D	45% - 55%	Varies with camera.	Animated plant-life. Animated Wildlife. Far distant animated environment. Far-reaching ocean.	Clean, modern city with Tropical landscapes.	3D intelligent camera with occasional fixed angles.
Jak	128 bit 3D	25% - 75%	When controllable , Zoom Out = a fifth of the screen, Zoom In = 3/4 of the screen. Otherwise, adapts to area.	Animated wildlife. Animated backdrops. Far distant animated environment. Far-reaching ocean.	Tropical Island.	3D player controlled with occasional fixed angles.

	Spec	Approx Head to body ratio	Screen space	On-screen decor	First level	Camera
Mario Sunshine	128 bit 3D	40% - 60%	Zoom Out = a thirteenth of the screen. Zoom In = a fifth of the screen.	Gameplay-relevant organic plant-life. Far distant animated environment. Far-reaching ocean.	Tropical Island.	3D player controlled camera, with context dependent effects.
New Super Mario Bros	64 bit 3D	40%-60%	Mario is a sixth of the screen high.	Static cutouts. Various plant life. Platforms. Red bricks. A Palace with animated features. Scrolling Clouds. Hills. Pipes.	Abstract green area overlooking a palace at daytime.	2D flat pan. 2 axes of movement. Horizontal scroll possible through L and R controls.

SPEC

Aka - the graphical muscle that the artists can stretch. The results show that 2D graphics have clothed the top three best selling platform games. They also show that comparatively speaking; the lesser the graphical muscle on the platform, the bigger the head.

HEAD TO BODY RATIO

The data shows that through the ages, lead character's heads have gotten smaller. In the lo-tech days, big heads were necessary so that distinctive features could be present in the characters – much like Mario's moustache or Sonic's spikes.

Both Shigeru Miyamoto, Mario's creator and Jason Rubin, Crash's creator, have revealed in interviews how the use of a large head on their characters, was merely to give more distinction to them on machines capable of lesser levels of detail. Of course, nowadays the method is no longer required, due to the amount of graphical creation power available.

Co-incidentally enough, Disney's technologically-unrestricted Mickey Mouse, owns a head proportionally large in relation to his body – similar to Mario and

Sonic head to body ratios - so perhaps big-head-to-body-ratio is a key factor in character distinction throughout all medias and not just low-spec games?

SCREEN SPACE

This is an important issue, as you need your character to be visible - but you also need to see what's ahead. The results conclude that a good balance of both these factors lies in having the player character's height take up between a fifth or sixth of the screen.

The two most extreme cases however, are Super Mario Sunshine and Jak and Daxter; Super Mario Sunshine's zoom-out function stops when Mario becomes a 13th of the screen high and it's zoom-in stops, when Mario's a fifth high.

Jak and Daxter seems to prefer the up-close approach - possibly due to the fact that its movement skill sections are very much within a close-range proximity and far simpler than those found in Mario Sunshine.

2006 Addition: New Super Mario Bros now provides screen-scrolling buttons in the L and R triggers, possibly as a long time complaint of 2D side-scrollers was the lack of ability to see what was coming. /]

ON-SCREEN DECOR

This is merely eye-candy. Sure enough, as technology has developed, so has the amount of background decor. This may seem a superficial area to explore, but when someone looks on the back of a box in a supermarket, your screenshots need to entice.

Oddly enough, the best seller of them all – Super Mario Bros 3 – didn't opt for the colourful approach. This is possibly due to the limited 8-bit hardware it was on at the time. It compensated by using large chunks of the same colour that harshly contrasted with another. For instance, the boss castle standard scheme involves medium grey brickwork; whilst deep orange lava pits bubble affront a jet-black backdrop.

2006 Addition: New Super Mario Bros begins the game in a palace courtyard, with a greater level of detail than seen previously in Mario backgrounds. Castle with animated flags, colourful fauna and scrolling clouds. It's not an oil painting by any means, but it does give a sense of life previously missing from the lower-spec counterparts. /]

FIRST LEVEL

Obviously this is the first part of the game and thus needs to stimulate as many senses as possible and impress. Tropical / nature-filled environments are a

popular choice across the board, possibly due to the immense wealth and composition of colours that are present in such areas. Also the potential for background clutter and animated wildlife in a tropical environment is considerably large and hence can stimulate a prospective player even more so.

CAMERA

An issue amongst 3D games mainly, as 2D games seem to stick with only two axes of camera movement. Mario Sunshine's in-game camera was recently the subject of heavy criticism throughout the specialist media, as was Sonic's upon Sonic Adventure's release. Jak and Daxter's camera is also problematic – especially during times requiring the player to judge and perform long jumps from the corner of a room.

What this suggests is that developers could perhaps take provisions to improve this, by increasing the priority that camera-software has in game development.

Other solutions, which would cost less R+D time and improve players' abilities in their jump-nav judgements include:

- Adding strong or angled shadows by way of effective lighting on nearby walls, or a shadow emitter/emulator attached to the character
- Or having a unique lock-on jump system

2006 addition: The second recommendation would be a unique mechanic and one that I wouldn't personally desire, but it is something to consider. Toby Gard's Galleon, which was a Tomb Raider-esque pirate adventure, saw a control system using an automated system that received praise from those whom experienced it. Sadly, the game did not sell well, though many would point reasoning at the long development timeline leaving little money left for marketing the game.

Also note that camera software has not improved much over the years, though many – Denis Dyack of Silicon Knights for example - are starting to see it as a more urgent problem, promising to provide the player with a system good enough that they never have to think about controlling it.

Some have speculated that the Wii controller's unique design will help remove the camera system problem that has plagued games for over ten years now. Others are simply looking at being more conservative with their environments, though this can also be castrating to the visual potential of a game. /]

2 - Controls

If you can't control the game, you're watching an animation.

	Movements possible pre-power up...	...across how many buttons?	Control tutorial?	Broken or seamless flow between actions?	Input sensitive actions?
SMB3	Jump – which doubles as an attack during descent. Accelerating run. Break environment. Slide. Climb ladders. Pick-up enemy. Bounce – off enemies only. Kick enemy. Throw enemy. Enter Pipe.	2	No	Seamless	Yes
Sonic 2	Jump – which doubles as an attack during descent. Aerial spin attack. Charged spin attack. Break containers and rocks. Spin bounce – off containers and enemies only.	1	No	Seamless	Yes
Rayman	Jump. Crawl.	2 (later becomes 4)	No	Seamless	Yes
Crash	Jump – which doubles as an attack during descent. Spin attack. Bounce – off containers and enemies only. Break containers.	2	No	Seamless	Yes

Sonic Adventure	Jump – which doubles as an attack during descent. Aerial direct attack. Aerial spin attack. Charged spin attack. Run. Bounce – off containers and enemies only. Break containers and marked objects. Pick-up object. Throw.	2	Only hints	Seamless	Yes
Jak	Punch. Spin attack. Kick. Jump. Double-jump. Air-stomp. Rising-uppercut. Momentum-affected jump. Dive. Hang. Climb. Talk.	4	Yes	Seamless	Yes

Mario Sunshine	<p>Jump – which doubles as an attack during descent. Sidestep. Spin-jump. Side-ways jump. Downward squash attack. Upward travelling wall-bounce. Dive. Slide. Pick-up object. Throw. Back-flip. 3-stage sequential height increasing jumps. Bounce – off containers and enemies only. Break containers and marked objects. Hang. Climb. Talk.</p>	<p>3</p>	<p>Yes</p>	<p>Seamless – bar the stomp attack which has slight recovery time</p>	<p>Yes</p>
New Super Mario Bros	<p>Jump – which doubles as an attack during descent. 3-stage sequential height increasing jumps. Landing squash attack. Wall bounce. Accelerating run. Break environment. Slide. Duck. Climb ladders. Pick-up enemy. Bounce – off enemies only. Throw enemy.</p>	<p>2</p>	<p>No</p>	<p>Seamless – bar the stomp attack which has slight recovery time</p>	<p>Yes</p>

MOVEMENTS POSSIBLE PRE-POWER UP...

2006 addition: this section contains numerous edits.

This factor determines how much movement a player can enjoy without power-up items or upgrades. More movement equals more freedom and potentially more ways to interact with the environment.

Grand Theft Auto – one of the best selling games ever – has freedom as its backbone. Remember, that we humans like to express ourselves – see the success of MySpace and W.O.W as prime tools of self-expression in an interactive environments. The more opportunities we/players have to express themselves, the more immersed in the experience we're/they're likely to be.

You'll notice that even in the 8-bit era – more than 12 years ago - Mario allowed you plenty of movement and self-expression, allowing no less than nine actions before power-ups, within the constraints of two buttons.

One commonality throughout Crash and all Sonic and Mario games analysed, is the ability to bounce off enemies - and in Crash and Sonic's cases, containers. This often allows the player to use the momentum gained from the bounce, to reach otherwise unreachable areas. Otherwise, the player can bounce onto another enemy or container, possibly in a sequence of bouncing on enemies/objects exclusively to reach a very HTR area or score bonus.

On a side note, 2D Sonic grants players the ability to scroll the camera and thus gain extra visibility for areas above or beneath Sonic's default visibility – a rare feature in 2D games.

Including camera control – now removed - as a character's moveset seemed valid at time of writing, but I would not consider it as such in the present unless it impacted gameplay more dramatically – like the visors in Metroid Prime or the binoculars in Metal Gear Solid 3: Snake Eater. **]**

...ACROSS HOW MANY BUTTONS?

This feature is an important one to consider in regards to a game's accessibility; the less a player has to learn mentally *and* physically, the more accessible the game becomes – challenges of the game world permitting.

Super Monkey ball is a perfect example of this, as the entire game is controlled by the d-pad/analogue stick alone and is immediately understandable from the start, yet it's scope for mastery is huge and very much relies on the level designs and their increase in challenge to keep the game challenging.

Thankfully, we have a commonality that shows and as you can see, most of the games studied use two buttons (excluding camera control). This is especially

prominent amongst the top sellers. Of course in Crash's most recent games, Crash has a third movement button and of course Mario does too, but the difference between the two, is that Mario can perform a dozen moves with the three buttons, and Crash only manages around half that.

2006 addition: New Super Mario Bros has now reverted action controls back to two buttons; with some simplistic implementation of moves from the 3D games using simple d-pad presses at certain times. It also manages to cram in a dozen moves too, which is an achievement with only two buttons and a d-pad.

Sonic 2D commendably only uses one button for all actions, with intuitively designed use of the D-pad required to perform additional movements. /]

CONTROL TUTORIALS?

Coincidentally enough, the all-time best sellers **do not** use tutorials and the newer, more hi-tech titles do.

SMB3 perhaps assumes you've read the manual and introduces challenges and ideas, gradually increasing their complexity as time goes on.

Rayman does the same, as does Crash and 2D Sonic.

Jak and Daxter, Super Mario Sunshine and Sonic Adventure however, **all** use unavoidable tutorials at the very beginning of the game.

This clearly shows a desire has arisen in recent years to make things more accessible for prospective players.

2006 addition: NSMB seems to grant accessibility by rewarding you almost constantly. So instead of making the game easy by the in-game obstacles, it sets up a safety buffer for lesser-skilled players by giving them regular rewards, access to power-ups and alternative routes should they get stuck. At least that's my theory on it. /]

BROKEN OR SEAMLESS FLOW BETWEEN ACTIONS?

Do the characters' different actions tween together when performed in a random sequence? Is there recovery time and hence, broken visual and physical flow between actions?

Clearly, in all cases, seamless physical flow is favoured - except for the odd move which requires the character focus all their weight, energy and intention toward one target for a power attack. Even then, those kinds of move - in all the games containing them - tend to have a minor recovery time, which isn't significant enough to feel like you've had the wind taken out of you.

INPUT SENSITIVE ACTION?

If the player presses down on the button for different lengths of time, does the action activated react relative to this?

This is an important factor, as it's an intuitively brain-wired action by complete non-gamesplayers to hold down a button to make the action last longer. This means it forms a substantial part of a new gamer's first subconscious judging of whether the game conforms to their idea of what is and isn't coherent. It makes perfect sense to cater for this and all games - even since SMB3's days - provide for this.

Additionally, Sonic Adventure, Super Mario Sunshine and Jak and Daxter's movement mechanics are context dependent to a higher degree, using the analogue controller to range between many more subtle ranges of slow and fast movements than the 2D games, where a button or an acceleration mechanic were used for speed.

3 - Reward elements

A traditional game is essentially an event where goals are achieved and rewards received – mechanical, visual, sonic or otherwise. Rewards are often granted upon completion of a goal and are considered widely as *the* incentive to play through an entire game, through a well-structured goal and reward system.

	Pick up types	Power-up types	Permanent upgrade types	Location of first power-up	Power-ups per level	Ending rewards
SMB3	Finance. Extra life. Environmental Deformer. Power-up + Hit-point-up. World-map navigation items	Flying ability. Hiding ability. Bouncing projectile ability. Smash over-head blocks.	None.	Beginning of first stage.	3 or more on average, every level.	End sequence, plus 28 power-up items when you start a new game.
Sonic 2	Finance + Hit-point-up + Quota key. Multi-finance. Extra life Power-up. Quota-token: ability unlock, combined with	Speed-up. Invincibility. Underwater/ 1-hit protection.	Super-character ability - allows temporary - <i>relative to finance level</i> – invincibility, including higher jumping ability + faster	Beginning of first stage.	Between 3 and 5 on average, every level.	Standard end sequence, or special ending if all bonus-Quota tokens are collected.

Rayman	event unlock. Quota-token: Bonus area unlock.		movement.			
	Finance. Extra life. Heath-quota. Hit-point-up. Power-up. Quota token: area unlock. Quota-token: Bonus area unlock. Quota-token: event unlock.	Shrink size. Restore size. Stronger attack.	Punch. Long distance punch. Hang. Swing. Slow descent. Dash.	After first two sub- levels.	Around 5 per level.	Standard end sequence.
Crash	Finance. Multi-finance. Extra life. Hit-point-up. Environmental deformer. Quota-token: area unlock.	Health-up. Invincibility.	None.	Beginning of first stage.	Between 3 and 5 on average.	Standard ending for defeating final boss. Special ending if 26 Quota-items are collected. Special Bonus area if 26 Quota tokens are collected.
Sonic Adventure	Finance. Multi-finance. Random finance. Health-up. Power-up. Extra life. Quota-token: area unlock. Quota-token: event unlock. Hit-point-up. Organic sub- game avatar.	1-hit protection. Finance magnet.	Speed power up. Additional attack. Halve charge time for Speed power.	Middle of second stage.	3 on average.	Standard end sequence. Additional gameplay if all character missions are 100% complete. Special end sequence if additional gameplay is complete. Special message if all Quota tokens are collected.
Jak	Finance. Multi-finance. Hit-point-up. Hit-point finance. Power-up. Quota-token: area unlock.	Attack-up. Projectile ability. Speed up.	Only for vehicle.	Mid-way through training level.	Ranges between 3 and 15 relative to size or type of stage.	Complete the game with 100 or more Quota tokens to get an extra ending.

Mario Sunshine	Quota-token: event unlock.					
	Finance. Hit-point-up. Multi-finance. Power-up. Ammo. Quota-token: area unlock. Quota-token: ability unlock. Quota-token: unlock event. Quota-token: power-up unlock. Extra life.	Launch upward. Hover. Jet forward. Special vehicle.	Water-cannon.	Beginning of first stage.	Between 1 and 3.	Standard end sequence. Additional gameplay. Extra ending if all Quota token collected.
New Super Mario Bros	Finance. Extra life. Secret revealer. Power-up + Hit-point-up. Bonus game enabler. Unlock level enabler.	Invincibility within bonus game ability. Invincibility that allows instant enemy kills. Invincibility that spawns finance behind your movements. Bouncing projectile ability. Smash blocks from above and below ability. Shrinking + high agility ability. High speed + armour + vertical block breaking ability.	None	Beginning of first stage.	Between 3 and 4 for easily available power ups. Between 1 and 3 for power-ups rewarded by skill-mini games. Game map also offers free power-ups between levels.	Standard end sequence. Additional character unlocking code. Newly unlocked in-game decoration rewards. Additional status markings if all game completion conditions are met.

PICK-UP TYPES

This simply shows the resources a player has at their disposal. The majority of games show that they contain the following:

- A finance icon – coins, fruits, rings, etc...

- Extra Life – an extra chance to nav past whatever hazard killed you.
- Power-up – an item that grants new powers allowing you to solve certain problems and reach otherwise HTR areas.
- Hit-point-up – an item that re-fills your hit-point quota.

Oddly enough, Crash and SMB 3 are the only two games to use environmental deformaters – objects, which when activated, change something in the environment into something else.

- In SMB3, there are “P” blocks which when activated, turn finance into blocks you can stand on for a short time to reach otherwise unreachable areas
- In Crash, you have “I” blocks, which fill and otherwise useless box-shaped outlines, into containers you can break open for finance, or use to nav over and across a kill zone

Another recurring feature of note is the use of **combining pick-up properties**. In Sonic, holding any amount of finance gives you a hit point. When you get hit, your finance explodes from you in a dramatic shower of gold, and you have to react quickly enough, to regain it – or at least some of it. This also gives you back your hit point.

In SMB3, power-ups give you an extra hit point and some give you two. When hit, you lose the power-up *and* the hit point that came with it.

Crash has a fresh take on this, where upon acquiring two hit-points, the next one you collect will make you temporarily invincible. When your invincibility wears off, the next hit point will reactivate it and so on until you lose one of the two hit-points.

3D Mario and both 2D and 3D Sonic, use dual-property pick-ups as before, but with Mario making the dramatic change from using power-ups as a way of gaining hit-points, to using finance as a way of *restoring* hit-points.

Also, overall results show that as time has passed, pick-up types like Quota-token: area unlock, ability unlock, event unlock and Multi-finance pickups have **massively** increased in popularity – possibly a reflection of the industry’s desire to instil replay value into a game, albeit a little crudely.

2006 Addition: NSMB not only increases the amount of duality in moves and power-ups – kicking a turtle shell onto some coins now adds those coins to your stock for instance... - it also increases the amount of bonus schemes present and accessible at one time. Now multi-coin blocks reward you with a power-up mushroom if you hit them fast enough (or use a skilfully aimed stomp on top of them and hold the button down). A super power-up now gives you the ability to exchange your ability to destroy for Extra lives and hidden invincibility stars are

commonplace in the majority of early levels. If that wasn't enough, random item boxes can appear at the beginning of a level, hitting the level's end goal on a double digit – 11, 22, 33, etc... grants you a free power-up or Extra life and collecting the level's key quota tokens allows you to unlock paths on the map you otherwise. 7]

Super Mario Brothers 3 urged replayability by simply hiding lots of bonuses within the game - like special ships that would appear on the map if you met certain score conditions. Hidden shops were also expertly cloaked in the standard game levels, amongst many other bonuses and hidden pick-ups of every kind, that only the most dedicated of players could completely discover.

In Sonic Adventure, some of the bonuses are unlocked when certain plot points are cued and the rest are available to discover in HTR areas, when you backtrack after gaining specific skills and abilities later in the game.

In Jak and Daxter, you can activate ability enhancing spore emitters that grant you skills to go where you once could not. You also get upgrades for the vehicle you use in the vehicle-based levels. Only other bonuses includes an extra ending scene once a token quota is met.

In Mario Sunshine, bonuses are unlocked after you've met a token quota, or after performing a story relevant action. Again further bonuses can be found by backtracking after gaining additional skills.

POWER-UP TYPES

Lists the types of improvement and enhancement a player's character can experience.

Asides from the as-standard temporary invincibility found in all games, SMB3 has a bouncing projectile power-up, a flight ability which grants an additional close-range frontal strike attack, a stealth ability which grants a quick-fall and a suit which improves Mario's swimming ability.

In short, there is no obvious attempt at going for a specific theme, bar maybe enhancing Mario's abilities – jumping to flying, attacking to projectile throwing, etc... - with abstract imagination.

2D Sonic sticks to basic speed up, temporary invincibility and a one-hit shield, which also protects Sonic from drowning underwater. Also, once collection of a set of seven bonus Quota tokens is complete, you gain access to the Super Sonic ability, which is activated every time your finance reaches 50 and diminishes when your finance – now acting as a second by second timer – counts down to zero. You can add to the timer by collecting more rings, which adds another interesting sub-property to the finance tokens.

3D Sonic also has the same set of power-ups as 2D Sonic, only due to the extra dimensions involved in finance collection, he now has a second shield with magnetic properties. This means that nearby finance is vacuumed and collected by simply being within a certain radius - as Sonic's finance is made of metal.

3D Sonic can also achieve the Super Sonic ability, but instead of earning it through the collection of seven Quota tokens, 3D Sonic gains it through full 100% completion of all sub-character quests. Upon fulfilling this task, a new sub character quest is revealed and it stars Super Sonic.

Rayman's world contains attack-based power-ups and a shrink/grow mechanic for specific in-level puzzles. His other power-ups are skill upgrades, which add a holistic range of new nav-skills. These include a dash, a ledge hang, a hover ability and a punch which – if charged – increases in distance and power.

Crash has only the one power-up, which a re-activatable temporary invincibility power-up. This is granted by collecting three hit-points in succession – without being hit mid-way through. It can be reactivated indefinitely, provided you have two hit-points already and collect a third.

Jak and Dexter's power-up system seems based around combat game power-ups, where speed, power or overall ability is upgraded. Upon finding a specifically coloured emitter, Jak can be gifted with a speed-up, which includes the ability to open special doors, platforms, jump-pads and other movers carrying a special symbol. Jak can also receive a projectile ability and improved power and range for his attack moves. All these power-ups come with a time limit, which can be added to sequentially by finding more emitters of the same colour. Mixing colours merely resets the timer and makes a new one for the last power-up collected.

Mario Sunshine's power-up system is arguably the most original. Within the first five minutes into the game you gain a support tool, which amongst adding to Mario's offensive repertoire, has an interchangeable navigational option:

Each power-up fits within a theme of directional advantage:

- One presents a speedy advance in any directed horizontal direction
- Another gives a considerable boost in a vertical direction
- The third grants a hover ability, which is designed for navigating wide gaps between platforms.

Either of these options remains in Mario's skill set until the player changes it by way of opening the infinitely re-usable power-up boxes.

2006 Addition: NSMB Mario has some unusual power-ups. Being able to turn into a shell allows you to move horizontally at speed and break blocks from the side, though a ricocheting duality means only twitch gamers will master this for

long-term level navigation as it causes easy falling into killzones. It seems mostly useful for uncovering specific, otherwise unreachable secrets and moving more nimbly in the underwater levels.

Mini Mario is vulnerable to instant death, but can perform higher and long jumps. He can also run across the top of a body of water, overall making him incredibly nimble and sprite-like and also a joy to control. He can enter exclusive secret areas in this form and is thus mandatory to find certain quota tokens in some levels.

Super Mario and Fire Mario remain the same as they've always been, with a new duality added onto Fire Mario's projectiles, whereby killed enemies are turned into a unit of finance.

Standard Invincibility is the same, but now two other forms of invincibility:

- **Giant Mario:** Activates a mini-game whereby you must destroy as much onscreen stuff as possible to build up a green bar. The more units the bar fills, the more Extra lives will be rewarded to you when time runs out. If things onscreen run out, you can butt-stomp the floor and more will appear.
- **Silver Invincibility:** Works the same as the standard invincibility, but finance spawns in your path of movement, meaning running and jumping at speed and length fills the screen with potentially hundreds of coins. It occurs rarely, whereas Giant Mario can be found quite regularly and Gold Invincibility tends to be hidden in an invisible block on almost every stage. **]]**

Power-up repertoires are clearly where the games show differences between each other. There are hardly any similarities between them, bar titles from the same series. The one common theme throughout the majority of these titles however, is that when all the power-ups in the one game are looked at holistically, they tend to be geared toward deforming or enhancing the full range of a character's default powers and navigational skills.

2006 Addition: NSMB's power-ups seem more abstract and have more crudely designed exclusive secrets than previously found in most games. It's probably the only game that contains three types of invincibility, with one allowing you to deform the level using your destructive size and power in a freely integrated bonus-mini-game. Overall, the amount of power-ups is large and again, possibly indicative of a current design trend to reward players as much as possible. As we all know, being empowered in a game is a very rewarding feeling. New powers and abilities also help to keep the experience fresh. **]]**

PERMANENT UPGRADE TYPES

Some characters are improved indefinitely. Rayman and Sonic – both 2D and 3D versions – are the only characters that receive indefinitely altering power-ups. Of note, Sonic 2 (2D) only grants its permanent upgrade as a reward for collecting seven bonus tokens, which take over half the game's play time to secure.

Mario Sunshine has one permanently affecting power-up, but you receive it in the first five minutes of gameplay. It's occasionally removed when playing the stages known as 'challenge levels'. It also acts as the core hub for all other power-ups. All in-game power-ups are permanent until swapped over – bar the first - and then those power-ups are interchangeable indefinitely.

Sonic Adventure's upgrades happen as part of the story and only one or two are hidden.

Using indefinitely affecting power-ups is not a dominant idea throughout the titles analysed herein, but it is an idea that could be explored with breaking new ground in mind.

LOCATION OF FIRST POWER-UP

2006 Edit: Six of the seven games chose to have the first power-ups located almost immediately – possibly to allow to the player to get used to the game world and it's rules before the truly intended range of challenges are introduced. [/]

Rayman, which has its first power-up located far later than all the other games, coincidentally received the lowest review score, although inversely sold 4 million copies worldwide and has gone on to become a successful 13million+ selling franchise.

This could be due to journalists only judging the first 30 minutes of the game, as it is well known that journalistic accuracy can fall victim to lack of time resources when approaching strict publishing deadlines.

Another factor lending weight to this idea, is that within the first 10-15 minutes, you can't defend yourself against any enemies and have to use avoidance tactics rather than confrontation. The first power-up available is Rayman's attack action and is located a few sub-stages into the game.

This can give off a negative first impression to anyone. To feel defenceless from the first instant can be displeasing and frustrating - unless you know that you'll be gifted with attack ability at some point in the near future. Unfortunately, this is never eluded to, or suggested unless one reads the instruction manual.

POWER-UPS PER LEVEL

The data shows an average of between 3 and 5 per level for each game. The only extreme case here is Jak and Daxter's levels, which contain a range of between 3 and 15 power-up emitters per stage. This could possibly be attributed to the fact that Jak and Daxter is a heavily action-orientated platform game and thus needs to keep the action constant to keep the experience exciting throughout. Also the power-ups are time-restricted and so several of the same kind of power-up are often lined up on a route – possibly in a subtle attempt to have the player conform to a route leading to a special door, platform, boss or otherwise.

ENDING (GAME COMPLETION) REWARDS

Here, results show that extra bonuses upon completion of the game are favourable, with Sonic and Mario leading the way in the amount of total bonuses on offer.

In particular, Sonic Adventure and Mario Sunshine have additional gameplay in the form of drastically altered versions of previously played areas and newly accessible levels and sections of levels. In 3D Sonic's case, an additional climatic story CG is gifted, following with granted use of an additional 'super' character to get the game's 'real' ending.

All games bar SMB3 grant rewards for collecting a full set of Quota tokens, as SMB3 has none to collect.

Unfortunately – at least in this writer's opinion - Jak and Daxter's reward is somewhat anti-climatic and unsatisfactory, with the player merely receiving a three second clip of a door opening to reveal bright light for their dedication and effort.

Best seller Super Mario Bros 3 delivers a replay incentive upon the game's completion, granting the player 28 "P-wings" – an item granting the player infinite flight ability for a whole level – for use in the player's next play of the game.

2006 Addition: NSMB delivers a very standard ending – nothing spectacular – and reveals a code so players play as Luigi, though his abilities are exactly the same. There's also an added bonus in the way of wallpapers you can collect and a proof-of-skill marking in star icons that appear next to your save file. Finding all the game's hidden exits, levels and quota tokens bestows the file with three stars, showing you have beaten the game as thoroughly as the design allows. /]

4 – Challenge and reward design

The factors below will reveal further detail differences and similarities between the chosen games.

	Hazards (within first ten minutes)	Score and Pick-up bonuses	Exploration bonuses from HTR areas	Area finish bonuses
SMB3	Kill-zones. Kill-touch enemies. Static enemies. Horizontal moving enemies. Pop-up enemies. Sentries. Shelled enemies. Enemies bouncing in arc path. Projectile enemies. Time limit.	100 finance grants you Extra life. 80,000 score grants you a bonus mini-game. Transform map-hazards into bonus-levels, providing specific score conditions on levels of an even number are met. Meeting finance conditions in certain levels makes an additional bonus item container (shop) appear.	Throughout the game: Level warp item. Hidden stages. Portals that lead to bonus rooms. Environment deformers that grant access to HTR areas or reveal secret portals. Hidden area with additional pick-ups.	In first minutes of play: Roulette block – once three roulette blocks have been hit, you get a prize! + Time related score bonus. Later levels: Unlocker items for later sections in level. Unlocker items for sections in world map.
Sonic 2	Floor-based enemies shooting diagonal projectiles. Treetop enemies throwing projectiles. Kill-zones. Touch-kill hazards. Hazards that surprise pop-up from the floor. Floor, wall and ceiling mounted touch-hurt hazards. Inertia guiding you against your will. Time limit.	100 finance grants you Extra life. 50 finance grants you bonus level entry. Every 50,000 score grants you Extra life.	Throughout the game: Non-hostile pick-up area. Bonus level entrance/checkpoint.	All game: 100 finance or more at end of level grants an extra continue.

Rayman	Touch-hurt hazards. Kill pits. Tall horizontally moving hazards on a beat. Short horizontally moving hazards on a beat. Front protected horizontally moving floor hazard on a beat. Leaping horizontal moving floor hazards. Projectile. Vertical upward travelling airborne hazards.	If context-set finance quota upon finding hidden character is met – you're teleported to bonus level.	Throughout the game: Non-hostile pick-up area. Portal to bonus pick-up sub-game. Prisoner cages. Nav-objects to reach further HTR areas. Trigger usability and visibility of hidden prisoners, platforms or pick-ups.	In first minutes of play: Ability to save. Access to new level. Later in game: Occasional upgrade.
Crash	X+Y axis moving floor hazard on a beat. Overhead-attack protected diagonal ricochet moving floor hazard with limited movement area.	100 finance gives you an Extra life. 3 health-up gives you invincibility.	In first minutes of play: Trigger usability of hidden platforms or pick-ups Finance containers. Later in game: Bonus level-Unlock/Quota items. Super bonus Unlock/Quota item. Extra level Unlock/Quota item.	In first minutes of play: If all containers in a level are smashed and no-lives are lost, you activate a platform to appear in the next area. Later in game: Path is built to one-off bonus section using Quota-unlock items as platforms.
Sonic Adventure	Inertia. Walking enemy along X + Y-axis throwing projectiles. Projectile launching boss-hazard with disappear ability. Front-protected	100 finance grants you Extra life.	Throughout the game: Hidden shortcut(s) to level end. Hidden non-hostile pick-up area(s).	All game: New character, Access to main game world. Score bonus. Rating bonus. Quota Token bonus. Sub-game

Jak	<p>floor-based player-targeting, aggressive enemy. Hurt-touch mover moving up and down repeatedly. Kill-Zone. Selected parts of water area as kill-zone.</p>			<p>relevant avatars collected in-level appear in designated area.</p>
	<p>Kill-hazard in water area. Static floor based hurt-hazard</p>	<p>50 health tokens give you a hit point. Context dependent amount of unlock tokens grant you access to a new area. 100 unlock tokens give you a second ending</p>	<p>In first minutes of play: Finance. Later in game: World Quota tokens, sub Quota tokens and finance.</p>	<p>All game: Access to next area.</p>
Mario Sunshine	<p>Static floor hazard. Static removable floor hazard with tentacle-like moving part.</p>	<p>100 finance grants you Extra life. 8 super-finance type A grants you a Quota-token. 10 super-finance type B grants you Quota-token.</p>	<p>In first minutes of play: Only finance. Later in game: Unlock/Quota tokens, sub-Quota tokens and all kinds of finance and super-finance.</p>	<p>All game: Access to main game world.</p>
New Super Mario Bros	<p>Kill-zones. Kill-touch enemies. Pop-up enemies. Horizontal moving enemies. Inertia from rocking platforms. Seesaw platforms dropping you. Enemies bouncing in arc path. Time limit.</p>	<p>100 finance grants you Extra life. 10 sequential hits on a special coin-block gives you a power-up. Hitting the end goal on a certain time grants you a free bonus on the game map. Smash through x number of items when super-powered for an Extra life. Start a level when a red block flies on it for a free power-up. Jump through an icon and collect 8 quota tokens</p>	<p>Throughout the game: Level warp. Hidden stages. Portals that lead to bonus rooms. Environment deformers that grant access to HTR areas or reveal secret portals. Hidden area with additional pick-ups. Hidden area only accessible with special power-up. Bonus destruction mini-game power-up in a specifically designed environment. Secret power-ups. Additional level exits.</p>	<p>In first minutes of play: Hit the end marker at the highest point for an Extra life. Hitting the end marker at points beneath the peak give you points bonuses relative to how high you hit it. Access to hidden levels if you find the correct exit. Hitting the end marker at a certain time – matching end</p>

		before the time runs out for an Extra life. Search within unique block formations to find secret power-ups and Extra lives. Find Unlock level token to unlock later levels and game map paths.	Quota tokens that unlock later levels.	digits – unlocks a bonus in the game map. Later levels: Unlocking of major junction in game map path.
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HAZARDS

A commonality throughout, is that all games begin with floor-based simplistic enemies.

The 2D games have a range of sentry, airborne, high-mounted, projectile-based, projectile throwing and vertically travelling enemies in the very first levels, and evolve and add to this throughout the game.

Crash, Mario Sunshine, Jak and Daxter and Sonic Adventure, tend to keep things *much* safer to begin with, restricting enemy types to those who are floor based with only Sonic Adventure going so far as to add a projectile throwing enemy and a few aggressive attackers in its first few minutes of gameplay.

All games also have static environmental hazards – spikes, blades, etc... - and bottomless pit Kill-zones as standard, with the occasional game having a hazard that ‘contains’ and surrounds the gameplay area – like a bottomless pit or an ocean you can drown in or get eaten in.

Sonic is unique in that it contains hazards related to the way the character interacts with the environment’s shape. For instance, jumping on a sloped area – when in the confines of inertia/momentum - could send you flying into a nearby hazard - being as the angle of the slope relative to your speed alters your trajectory and jump range significantly.

Mario Sunshine and Jak and Daxter’s kill-zones don’t come in till later in the game and it’s fair to say the majority of hazards in both titles – at least within the first parts of the game - are enemy based, as opposed to environmental and very minor in threat.

2006 Addition: NSMB sticks to the simple enemy formula, even so far as simplifying it slightly to have only shelled, bouncing and horizontally walking enemies – no spiked ones. It now uses platforms as hazards too, with some see-saw platforms causing you to fall to your death if stood on for too long. /]

SCORE AND PICK-UP BONUSES

Score bonuses also seem to have declined in popularity over time with Mario Sunshine, Crash and Jak and Daxter replacing score with finance and Quota Token count.

Sonic Adventure however, has decided to keep a score feature, using it as a way to grade a player's game-play performances.

Games which don't use a score system for unlocking areas or granting bonus Quota tokens, tend to hide Quota tokens in HTR areas, or simply place a sub-series of Quota tokens within a combination of standard, hidden and HTR areas for the player to collect.

In simpler terms:

- Older systems choose to reward overall skill – using a score function to reward the player with lives and extra pick-ups every time x points are added to the total. In SMB's case, other rewards are activated, based on score performance – like secret bonus stages appearing for instance
- Newer systems choose to reward inquisitiveness, preferring to measure Quota Token collection as a way of judging skill. This system relies heavily on the player's desire to find HTR areas and giving them unlockable bonuses or extra lives/finance as a reward
- **2006 Addition:** NSMB combines both a quota token system and a skill system, with exploration, experimentation and skilful gameplay all rewarded with either a score bonus, Extra life or power-up /]

Mario Sunshine used the new system in an arguably crude fashion, using three different types of finance - merely different in colour, Quota amount and in ease of discovery – as ways of unlocking further Unlock/Quota tokens, which would then grant you access to later levels and game events.

EXPLORATION BONUSES FOUND IN HARD TO REACH AREAS

This field shows that as time has gone on, use of exploration bonuses have increased and performance recorders like score systems are being removed altogether. This is also evident when looking at the results on page 30.

Results show that HTR area bonuses mainly consist of:

- Extra lives
- Quota tokens
- Or Bonus areas that grant you access to either of the above, garnished with extra finance bonuses

This shows that developers understand the importance of rewarding a player relative to their efforts. Now of course, the choice of what to reward has changed, with developers focusing more on exploration bonuses, as opposed to skill and efficiency bonuses present in Sonic Adventure's tough – but ultimately rewarding replay missions.

2006 Addition: NSMB decides to reward both skills and exploration, with later sections requiring either skill, the desire to explore and abstract thinking – matching up a navigational problem with a power-up you collect outside the level containing it to collect certain quota tokens. /]

AREA FINISH – LEVEL END BONUSES

Extra lives and continues were popular area finish bonuses in days of old, although there's not enough recurrence in this idea to brand it as popular.

Particularly interesting is the feature in Super Mario Bros 3, which hasn't been replicated since in any form whatsoever. The end marker is a mini-game in itself - a slot machine block.

Hitting the slot machine block at the end of a level fills one of three sequentially filled spaces with a symbol card. If all blocks are filled after three levels with the same symbol card, you are granted a bonus related to the symbol, meaning you could earn a number of extra-lives depending on your timing in hitting the roulette block.

Additionally, SMB3 has a reward where a special bonus level will appear on the level map if a set of very specific and difficult-to-meet score conditions are met. It's a reward aimed at the very skilful or very lucky, with enough randomness to allow lesser players to activate it by accident.

2006 Addition: NSMB end level rewards are very simple and focused on either setting yourself to be able to hit the top of the end goal pole and receive a 1up or high score bonus. Also timing the jump to hit the end goal when the timer has two matching end digits – 22, 33, 44, etc... - grants the player an additional reward on the map. This can be an Extra life mini-game, a power-up roulette block mini-game or a free Giant Mushroom power-up. /]

Sonic 2 grants lives and continues depending on your finance quota and score.

Crash Bandicoot rewards you for destroying all the containers in a level within one life, by granting you a special platform in the following level.

Sonic Adventure, Mario Sunshine and Jak and Daxter grant you further access to later levels, as well as additional Quota tokens. Sonic Adventure has a unique

reward where you unlock usable characters as you meet them. There is also a bonus where the last eight creatures you freed in a completed level become available to feed your A-life sub-character – which you can later play with in a VMU*.

Rayman is the only game that provides no end of level bonus – other than being able to access the next level.

*VMU was a memory card with control keys and a visual display, so that players could play unlocked mini-games in an outdoor environment.

5 – Short-term Challenge design

In crude definition, a game level designed for a traditional gaming audience is a series of many small challenges strung together to form a sequence or set of sequences.

How closely they're packed together obviously determines how much immediate variety is presented to the player and the breadth of choices available to them at any one time. The best successful example of this is the multi-million success; **Grand Theft Auto: Vice City on PS2.**



GTA:VC's backbone is freedom of choice, which in turn presents the player with a variety of things they can choose to do. Anything from taking on the game's main crime missions, to ignoring them completely and becoming a fireman, putting out fires in the city, or becoming a taxi driver.

Additionally, the aforementioned game is in a completely different genre from the one we're exploring, but its core is the same; a fully realized game world with characters, goals to achieve and places to explore. The only 'real' differences are

the scale, narrative spirit and world structure, though those are significant differences.

The list below shows how many different types of mini-challenge are present within the first five to ten minutes of gameplay. Bear in mind that the number of times a listed challenge is available within those minutes is not counted. Variety of gameplay is what we're looking for here.

Task types present in first five to ten minutes – optional and mandatory	
SMB3	<p>32 types: Collect finance Hit un-marked containers to find finance or pick-ups. Smash breakable areas of environment – brick material - for hidden bonuses and addition to score. Blitz through enemies with invincibility power-up. Pick-up and throw enemy onto multiple enemies in succession. Hit marked containers for pick-ups/finance. Skilfully throw an enemy shell into the side of a marked container for pick-up. Bounce-kill a succession of enemies before landing for score bonus. Jump over Kill-Zone. Jump over horizontally moving floor hazard. Jump on, then kick an enemy shell. Jump on, then pick up an enemy shell. Jump-kill hazard by a jumping on top of it. Jump-hit base of container for pick-up. Avoid pop-up sentry projectile and get past. Avoid being hit by a ricocheting enemy shell. Secretly drop behind in-game backdrop. Kill sentry with power-up, without getting hit by projectile. Aim and throw enemy shell into side of container for pick-up reveal. Close-range attack hazards with power-up. Close-range attack enemies with power-up mid-inertia. Clear area of hazards to make a safe path for long run-up. Accelerate and meet speed quota then fly to hidden area. Explore for hidden areas in HTR areas out of plain site Navigate under and past hazards descending from above in an arc formation. Take cover from sentry hazard projectiles from behind object. Find hidden environment deformer. Aim and throw shell into destructible area until it ricochets through enough blocks to reveal path to secret. Collect finance within deformer's time limit. Accelerate enough to be able to duck and slide off your inertia to the other side of a low ceiling. Hit roulette bonus container at right time to receive bonus Quota token for Extra life. Catch power-up that runs away.</p>
Sonic 2	<p>28 types: Collect finance.</p>

Rayman

Blitz through enemies with invincibility power-up.
Bounce of container and jump attack enemy hazard without landing.
Smash containers for pick-ups/finance.
Avoid projectile attack.
Smash pick-up container hidden behind backdrop.
Jump over horizontally moving floor hazard.
Bounce-kill enemies in succession without landing.
Use power-up to reach checkpoint/Bonus area.
Enter subtly hidden area for finance bonus.
Collect finance for check-point/Bonus area entry.
Navigate and jump to HTR area for Extra life.
Spring-jump to HTR area for finance and checkpoint/bonus entry.
Break inertia to reach moving platform to access HTR area.
Jump over Kill-Zone.
Keep momentum going to collect all finance on loops and twists.
Break inertia from speeding along slope and control jump within the altered trajectory to reach vertical moving platform on a beat.
Skill-jump over object forcing your movement direction while at speed.
Jump over object forcing your movement direction to avoid being pushed in undesired direction.
Navigate from one object forcing your movement direction to another to keep momentum going.
Add inertia to object forcing your movement direction to a spring to jump over and land past a hazard.
Use object forcing your movement upward to spring and land on moving horizontal platform.
Navigate across moving horizontal platforms to checkpoint/Bonus area.
Kill enemies mid-momentum and mid-inertia.
Guide supporting avatar to extra finance/health when hurt.
Bonus level: Learn new mechanics for new area.
Avoid hazards that come toward you.
Guide supporting avatar to finance and safety.
Collect finance to meet round-end quota to earn Token Quota.

21 types:

Learn behaviour of unusual platform.
Navigate across three vines for pick-up.
Meet finance quota to enter bonus level.
Bonus level: Collect finance quota before time-out.
Navigate up and across platforms.
Jump from the edge of a platform at the last second to reach a HTR area.
Jump over Kill-zones.
Jump navigate along platforms in an upward direction.
Navigate off unusual platform to reach high-vine.
Navigate vines in a horizontal direction over Kill-Zone.
Navigate vine and wait for horizontal-moving floor hazard to pass before landing.
Use new power up to free Quota Token from container at a distance.
Jump over horizontally moving enemies on a beat.
Use new power-up to free special bouncing platform and jump off special platform to reach HTR area.
Avoid airborne horizontally moving hazards coming from static enemy.
Hit airborne hazard launching enemy during vulnerable frames.
Navigate on special platform onto enemy head and use as a platform to gain power-up from HTR area.

Crash	<p>Navigate special platform into water and ride special platform to Quota Token.</p> <p>Navigate special platform over Kill-zones to reach bonus.</p> <p>Charge attack to kill HTR enemy.</p> <p>Navigate special platform over kill-zone and jump to acquire power-up.</p>
	<p>13 types:</p> <p>Collect finance.</p> <p>Smash containers for pick-ups.</p> <p>Jump over Kill-Zone.</p> <p>Jump on top of enemy.</p> <p>Bonus token quota navigate.</p> <p>Blitz through enemies by moving into them when invincible.</p> <p>Bonus area: Smash all containers.</p> <p>Navigate between two containers to bounce between them and maximise your financial income.</p> <p>Jump up platform-rich wall in non-hostile area.</p> <p>Bounce across a row of containers over a Kill-Zone.</p> <p>Meet container smash quotient.</p> <p>Meet token collect quotient to reach bonus level.</p> <p>Skill-hit enemy into another enemy</p>
Sonic Adventure	<p>17 types:</p> <p>Finance collect.</p> <p>Run from boss hazard's attacks.</p> <p>Avoid projectile line of fire.</p> <p>Jump-hit enemy in vulnerable spot.</p> <p>Jump away from targeted charging floor-based enemy.</p> <p>Navigate up a sequence of springs to a high level.</p> <p>Jump attack succession of enemies without landing.</p> <p>Keep momentum going when running a loop-the-loop.</p> <p>Build up momentum on curved wall to reach hidden shortcut.</p> <p>Run up curved wall whilst still in speed-up power-up time limit to reach hidden short-cut area.</p> <p>Deviate from standard route to find hidden area.</p> <p>Deviate from standard route to find bonus finance.</p> <p>Use special object forcing your movement direction to progress to next part of level.</p> <p>Break-off halfway through object forcing your movement direction to enter a transport network to access Bonus area.</p> <p>Jump-attack to bonus item platform over Kill-zone.</p> <p>Move PC onto object forcing your movement direction to jump over Kill-zone.</p> <p>Navigate entire level in fast time to gain three Quota tokens.</p>
Jak	<p>10 types:</p> <p>Reach destination within power-up time limit to activate special object.</p> <p>Reach next power-up within power-up time limit for more power-up.</p> <p>Double-jump to higher area.</p> <p>Jump across horizontally placed platforms.</p> <p>Break containers for hit-point finance.</p> <p>Collect finance.</p> <p>Collect quota token.</p> <p>Collect seven sub-Quota tokens.</p> <p>Attack static décor.</p> <p>Jump-attack static décor.</p>
Mario Sunshine	<p>20 types:</p> <p>Jump past floor hazard whilst avoiding the hurt-hazard at the centre.</p> <p>Collect permanent upgrade.</p>

Skill spray hazard marks on floor to avoid slipping.
Refill ammo in Water-Zones.
Wall bounce to higher area.
Skill spray hazard marks on wall.
Skill spray marked character for story hint.
Spray villagers for comedy reaction.
Bounce off canopies.
Bounce off one enemy onto another in succession.
Bounce off tight ropes.
Spray special graphics for finance bonuses.
Jump-kill enemies emerging from floor hazard.
Smash containers for practice.
Climb poles/trees for practice.
Kick fruit.
Reveal boss through skill-spraying hurt hazard at centre of floor hazard.
Kill boss before time limit or he'll disappear and you have to reveal him again.
Avoid hazard marks on floor – hurt zone – while trying to achieve goal of killing boss.
Collect Quota Token.

NEW SUPER MARIO BROS

39 types:

Collect finance.
Hit un-marked containers to find finance or pick-ups.
Smash breakable areas of environment – brick material - for hidden bonuses and addition to score.
Hit block directly under floating finance to collect floating finance.
Hit block directly under enemy to kill enemy.
Search for hidden/invisible pick-up/finance containers by jumping in random or suspicious areas.
Blitz through enemies with invincibility power-up for score bonus and Extra lives if enough are killed in succession.
Blitz through as many enemies and objects as possible within bonus mini-game power-up for Extra lives.
Pick-up and throw enemy onto multiple enemies in succession for score bonus and Extra life if enough are killed in succession.
Bounce-kill a succession of enemies before landing for multiplied score bonus and Extra life if enough are killed.
Jump over Kill-Zones.
Aim and throw enemy into floating finance to collect it.
Kill enemy hazard by jumping on top of it.
Avoid falling off seesaw platforms by standing on one side for too long.
Use seesaw platform to reach HTR area.
Explore for hidden areas.
Use power-ups from external levels to enter hidden areas in others.
Kill enemy hazards with projectiles for finance and score.
Kill x enemy hazards in a row for an Extra life.
Jump on, then kick an enemy hazard.
Jump on, then pick up an enemy hazard.
Avoid being hit by a ricocheting enemy shell.
Skilfully throw an enemy shell into the side of a marked container for pick-up.
Skilfully throw an enemy shell into the side of an unmarked container for pick-up.
Navigate through unconventional HTR areas – somewhat out of sight – to find hidden bonuses/exits
Break through bricks using specialised downward attack to reach hidden areas and coins (can only be done while powered-up).
Aim specialised downward attack to kill enemy.
Catch finance while floating down from upon high.
Collect finance at speed while diving from special float move.
Catch power-up that runs away.
Find level-unlocking Quota Tokens hidden in the level.
Clear area of hazards to clear path for triple jump combo.
Find hidden 'easy route' to beat level.
Aim for high points on end level goal for score and Extra life bonuses
Accelerate enough to be able to duck and slide off your inertia to the other side of a low ceiling.
Upon activated bonus icon, collect x quota tokens before time runs out to earn Extra life.
Skilfully double jump between walls to escape death in a kill-zone.
Skilfully double jump between walls to reach high sections.

TASK TYPES PRESENT IN FIRST FIVE TO TEN MINUTES

Optional and Mandatory

This term represents what varieties of gameplay skill are required to achieve goals in the level – mandatory or otherwise.

Mandatory = actions that are required to complete the level.

Optional = actions that are not required to achieve progress in the game.

These actions could be anything from getting to a HTR area to grab some finance, or simply exploring the environment around you - climbing a tree for the sake of it, or kicking some fruit around for fun.

Results show that Sonic 2 and Super Mario Brothers 3 contain the most gameplay. They both contain approximately 27 types of challenge within their first 5-10 minutes of play – and in their particular instances, that's the very first stage.

[2006 Addition: I went through these again and realised that SMB had 34 types of gameplay and NSMB had 39. **]**

Also the greater majority of these tasks are rewarded upon completion.

Results also show that in the first few minutes of play in a game, the most popular task types are:

- Collect finance
- Find Power-Up
- Jump over kill-zone
- Smash containers
- Earn bonus Quota Token – through bonus sections or HTR areas
- Jump over horizontally moving floor hazard

Followed by:

- Getting to a HTR area for a bonus pick-up
- Collecting enough finance to be granted bonus stage entry
- Bouncing off containers and enemies and successively onto others without touching the floor
- Killing floor-based enemy by jumping on it or attacking it head on
- Using a power-up to reach an otherwise inaccessible area, bonus or otherwise
- Hitting an enemy when it reveals its vulnerability
- Killing enemies mid-inertia

Least occurring were predictably the title unique actions. Sonic 2 and Sonic Adventure have a large number of momentum and inertia based navigational puzzles, which no other game uses.

SMB3 has a range of actions specific to it's enemy types and power-ups – like flying with the racoon suit, using the fallen shell enemies as projectiles to attack other enemies, or for breaking the bricks in the level.

2006 Addition: Same goes for NSMB with it's Giant Mario power-up and traditional Mario staples. /]

Another observation is that current generation platformers have a smaller variety of actions within their first moments, with Mario Sunshine presenting the most at 20 and Jak the least at 10.

The first 5-10 minutes in Mario Sunshine and Jak and Daxter are essentially tutorial levels and a majority of Mario's initially permitted actions are unrewarding – like climbing up trees to find nothing, breaking boxes to find nothing and navigating structures to find – you guessed – nothing.

Sonic Adventure has the most exciting first moments of the next-gens - being that it contains 17 types of action and the majority of these are rewarding, as opposed to being ungifted actions.

Conclusion

The results of the analysed data are summarised as follows:

- A big head-to-body ratio on a character is likely to increase the probability of it becoming memorable to a large audience.
- Giving the player a power-up almost immediately is likely to increase immediate player enjoyment and perhaps your review scores.
- A tropical environment, jungle or any other excuse to display lush, rich colour compositions is a popular choice for any first level.
- To allow players to see their character – and a good amount of what lies ahead - you need to make the character between a 5th or 6th of the screen high if in a 2D game or side-on scrolling view. If your game is full 3D, it is advisable to add a look-around button and the ability to zoom out as far as possible with the default camera angle set so the character's height fills a 6th of the screen.
- 3D software cameras in platform games are still largely imperfect when the player changes direction quickly or jumps from room corners - thus this feature could benefit from more R+D time in all cases.
- Constant flow and smooth transitions between and throughout all moves is a popular design choice throughout all games.
- The majority of the critically acclaimed titles *and* the most successful ones choose to use as few buttons as possible for movement and action. Median average of maximum buttons used was three.
- The current generation of games choose the newer reward system of token quotient activated bonuses. They also tend to favour rewarding the desire to explore over a player's overall gameplay skill and performance.
- In terms of gameplay variety within the first ten minutes, the 2D games were the most varied in gameplay types. Being as they are the all-time best sellers, that may be a clue as to how we can recapture the astronomical sales figures of past. Most of the varied gameplay in the 2D games also grants reward, whereas in the newer game, there is less reward – with none in some cases – per minor task accomplished.
- Control tutorials are non-existent in the early generation games analysed. Only the latest games – 3D ones - contain them.

- *All* platform games have input-sensitive control – even the ones that were released with digital controls.
- Most popular pick-up types are: Finance, Extra Life, Power-up and Hit-point-up.
- A unique power-up system is a great way to add further distinction to your game.
- Average power-ups per level for puzzle-based platform games, was four. Jak and Daxter is the only action-based platform game and contains between 4 and 15 per stage.
- Game ending rewards that promote replayability in any shape or form are a popular choice throughout.
- Permanent upgrades are used in many varied ways throughout the analysed titles, and when used, they have proved successful in their execution.
- In most of the games, Hazards early on regularly consist of floor touch/kill hazards, a few Kill-zones and enemies that have a part of their body protected. Hurt-hazards are also common and in the current generation of platform games a surrounding area of water or empty space where your character can be drowned or instantly killed is the common choice.
- Scores are being weeded out in favour of Token collection. This has also introduced unlockable bonuses relative to your total collected quotient. Exploration and patience rewards are now being favoured over skill based rewards.
- Re-occurring HTR area exploration bonuses consist of Quota tokens, Extra lives, large chunks of Finance, Portals to a bonus level and Platform visibility triggers.
- Most recurring pick-up bonus is the granting of an Extra life for every 100 finance tokens collected. Interestingly, a lot of the games use finance as a dual-property pick-up – mainly having finance double up as a hit-point-up or as a Quota Token to grant entry into a Bonus area.
- The most popular bonus for completing levels is an Extra life. This is often subject to meeting a certain score or quota condition. The other popular reward, which is standard throughout all games, is gifted access to newer levels in the game. The games explored herein, do not show any other similarities in regards to level-end rewards, but their individual takes are very interesting – particularly SMB3's roulette block, Sonic Adventure's A-

Life feature and Crash Bandicoot's immensely tough to achieve box-smash bonus.

- Task types present in the first ten minutes are often rewarded with finance or token bonuses upon completion – at least in the best sellers. The only exception where around 40% of tasks are without financial or token reward is Mario Sunshine.
- All games analysed contain the following: Finance collection, Jumping over Kill-zones - aka bottomless pits - Breaking open containers and jumping over moving floor hazards.
- A majority of the games contained HTR areas that contained rewards relative to the level of player skill required to reach the area.
- Some games use finance as a key to enter bonus rounds. The key is often a set quotient requirement, Example: Sonic 2 requires 50 rings are in player possession to enter the bonus round and Rayman's bonus entry quotient requirement changes as the game progresses.
- Action-based gameplay is favoured over puzzle-based gameplay in initial stages, with puzzles only appearing later in the game, or exclusively in bonus levels.

Closing Opinion

The information above leads me to believe that nowadays, we as developers have fallen into a habit of spoon-feeding the player with tutorials and far fewer things to do or play within the initial stages of the game.

The goal of any developer conforming to this trend is clearly to make their game accessible to as many players as possible. This “widening the market” style of design can indeed make a game easier to get into, but at the same time, it can feel patronising and also put a player off playing any more. Although the aim ‘widen the market’ is a valid one, the solution of making things easier to meet this aim, is perhaps misfocused.

This brings me back to the argument that the newer games – even in light of the fact that there is a far larger installed base of consoles than there was in the 8 and 16-bit days – will not match the astronomical sales of their older counterparts, because decision makers have simply fooled themselves – and others - into believing that older consoles weren’t mass market and that market trends and lessons learnt from this era serve little validity in our current market.

Let’s put this in perspective. Super Mario Brothers 3 has sold more than Grand Theft Auto 3 and Vice City. Both these games are available on the most culturally accepted platform there has ever been. The game itself is a massive critical and commercial success, with celebrities even making jokes related to the game in passing comment on popular television programmes.

This alone tells me that games have been mass market since the NES days – a machine which enjoyed a long and dominant life on the market, sold 75 million consoles worldwide, and lay resident within one in three American households.

It is my belief that Playstation’s cool factor allowed gamers to come out of the proverbial closet and thus, the Sony console was credited for conceiving the gaming mass market, with PS2 having achieved almost as many sales as the NES in half the time within a three-brand, 100-million console sold market.

Since then, a gradual but highly visible change in game design styles has meant losing the popular confident progression style of past, to a new style that treats the player as if they’ve never seen a game before. Added player responsibility to control imperfect cameras obviously doesn’t help.

Part of the joy of a game is discovering your abilities, your limits and being able to master them within an engaging environment, yet the current mass-design philosophy replaces these joyful moments of playful discovery into a ‘Simon says’-style of grammar-school-obedience and restriction.

Don't the young and old play games to get away and forget the pressures brought on from those 'do as I say' school teachers, bosses and parents? Don't you find yourself picking up your most simple, arcade-style games when in times of stress, as opposed to the more linear and hoop-through games that take time to get fun?

Going back to a point of previous, Grand Theft Auto 3 *does* have a tutorial in the form of pop-up messages and certain missions, but it and they appear in a subtle and non-obtrusive manner and can be completely ignored. You can also enjoy the game at multiple levels of difficulty from the off, by taking on gradually taxing Taxi missions, Fire Engine missions, wiping out gangs and so on... Of course, GTA's concept is also a bastion of the freedom the digital world can give, but the point remains.

We trusted the market before to handle Mario's eight or nine moves and his outlandish power-ups, without a tutorial. His game sold more than GTA3.

We trusted the market to pick-up and play Sonic's loop-the-loop filled world without patronising them with a relatively hazardless first level. His game helped briefly propel Genesis sales to make the NES passe at its peak.

Why we don't trust the player to pick-up and enjoy our games nowadays without nervously showering them with in-game instruction, or greeting them with relatively eventless, sterile and stupidly easy first moments? Yes, there are camera controls and three dimensions to worry about now. Perhaps our focus needs to address these problems that are not yet fixed; effective cameras in 3D games and simpler control?

It is my belief that if we free ourselves from the fallacy that mass market = inability to figure out how to move a character along a screen, we will focus on making accessible, intuitively designed, innovative, solid, consistent, powerful, enjoyable, culturally relevant game content and not rehash old ideas within a proverbial new set of clothes.

If you feel that tutorials or mindless opening moments are still a necessity, you could always do what GTA3 did and provide your players with a tutorial that can be completely ignored.

Of course, this is only an opinion and one that I've drawn from the information in the previous factual conclusions. There is enough information for you to form your own opinions and hopefully help yourself make your games better.

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2006 Closing Thoughts

When I wrote this, it was because I was annoyed with games become easier and easier, meaning players like me who wanted challenge were getting fed up.

I wanted to prove that people being perceived as stupid on the whole was not the problem; rather designers being arrogant or just poor at designing games that were simple to understand mechanically, as well as conceptually, was. I also figured having this data in an organised format would help sell in ideas based on mechanical fun; games like Katamari (not out at the time, but it's a good example) or Monkey Ball.

The seed of the idea originated from when I worked at SCEE ten years ago and paper in-house pitches without tech were the way things were done. The problem – or so I believed – was that all ideas would be run through marketing folk who were not game savvy.

The real problem was the language barrier and a lack of understanding each other's creative goals. When I would pitch say, a 'platform shooter with racing bits inbetween levels, set in space', they told me it was unmarketable. There was no hook for them. For me, I was imagining the potential fun aspect, but for them, it was about trying to find something sexy or 'MTV' within the concept they could sell to a shop. Fair enough.

Meanwhile, it got me thinking that maybe if I provided them a list of the game's USPs, at the highest and lowest levels, matched with ones that were in successful selling games, they'd see how it could be a success and actually try and figure out how to sell the product.

Eventually, I came up with this. Since then, I've worked on improving the language side and coming up with terms that encompass a range of ideas across genres, without being too specific or vague. In short, it's a pain.

I've also learnt that my personal favourite games often provide a range of play types and challenge levels from a very early stage, if not the beginning. Funnily enough, games containing this sort of thing tend to consistently sell well. GTA, Super Mario Bros and Burnout spring to mind.

I figure it's a similar factor like Joseph Campbell discovered: satisfying a larger number of archetypes in a story allows more viewers to relate to it. I believe the same principle applies in gaming, in that satisfying a large number of related 'player archetypes' or player personalities competently, will grant you more players in regard to their suitability in that game.

Through understanding the needs of each individual player archetype / personality, developers will learn how best to target and develop their games and

bring more success to their games, as well as more new genres and play experiences to market.

For instance, a game designed with a 'Sim's' player in mind may not work well with a Virtua Fighter style combat engine when a lover's tiff occurs, however comical it may be. However, with enough imagination and consideration, such combinations shouldn't be entirely ruled out; know the rules before breaking them as the old adage goes.

Since I wrote this report, I've used tables such as the ones enclosed to monitor games from genres I've worked within to explore what shared commonalities made those games fun or otherwise. It's taught me a lot thus far and I plan on releasing the lot at some point in the near future. I've also learnt that the problem wasn't that games were necessarily becoming easier, it was merely a by-product of decision makers not understanding their audience and having an unrealistic creative attitude toward courting a perceived 'mass market gamer' game.

Till then, if you're interested in other games research, you could try Chris Bateman's research into gaming audiences (great stuff) at lhobo.com, or gameinnovation.org's list of game innovations throughout time. There's more out there, but the sad reality is, it's just not that popular and doesn't make much money, so it's not that easy to find.

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APPENDIX

Sonic 2 and Adventure Sales figures confirmed by Sega Japan Insiders

Super Mario 3 sales figures sourced from David Sheff's 'Gamer Over'.

Mario Sunshine sales figures from combined TRST, Dengeki and Chart Track reports

Jak and Daxter and Crash sales figures from an official SCEE spokesperson

Rayman sales figures confirmed by Ubi Soft European PR and Marketing in 2003

New Super Mario figures from compiled Media Create and NPD data