Liquid&Grit

Puzzle Report

Competitive Research and Actionable Product Recommendations

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DECEMBER
2019

REVENUE DRIVERS

SINGLE-ELIMINATION COMPETITION EVENTS

Rowdy Rumble in *Angry Birds 2*

REVENUE ANALYSIS

Angry Birds 2's revenue was +27% WoW and downloads were +21% WoW after the release of the Rowdy Rumble competition event.

Market Input
- Competition events are proven revenue drivers in top-grossing games across genres.
  - In Casino, *POP! Slots'* revenue was +27% WoW the first time Win Zone went live (1). *Slotomania's* revenue was +12% WoW after the release of Head to Head, a one-on-one competition event.
  - In RPG, *Empires & Puzzles'* revenue was +162% WoW after the most recent release of Knights of Avalon. *Last Shelter: Survival's* revenue was +32% WoW after the release of Champion Duel.

Angry Birds 2
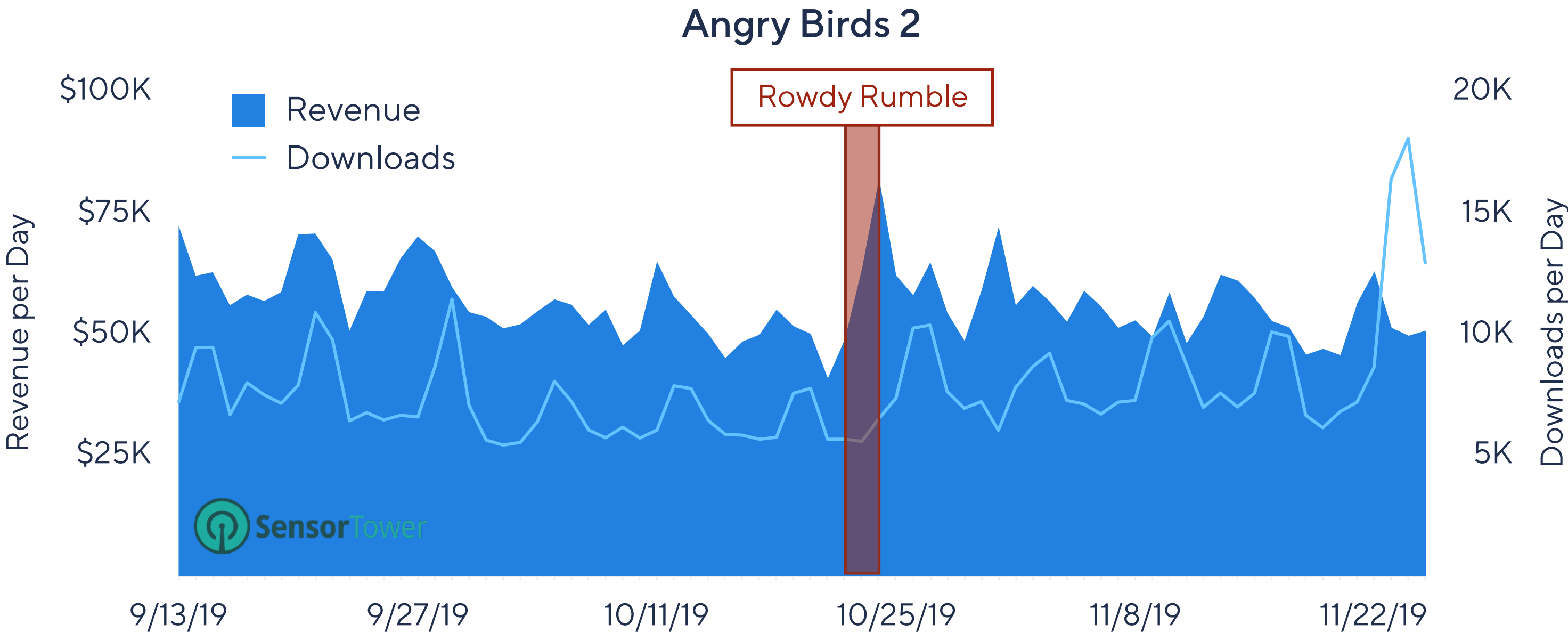
Graph data is iOS U.S. only.
WoW = week over week.

Releases

10/20–10/22: Black Pearl Party accelerator event

10/21: Version update

10/21: Challenge Streak challenge feature

10/22–10/24: Rowdy Rumble competition event

10/23: $20.99 Matilda's Marvels IAP moved +1 to #8

10/24–10/30: Bug Hat Set collection feature

10/24–10/30: The Swarm Adventure quest event

FEATURE TEARDOWN

Players compete for high scores in this 16-player, single-elimination tournament. Each tournament level can be attempted once every 3 hours, for 24 hours, with additional attempts available for purchase.

Details

- Signing up for the tournament awards a pick'em chest (1).
- The tournament consists of a series of one-on-one rounds.
- Each round, players have 24 hours to try to get the highest score on a level (2).
  - Levels can be attempted once every three hours.
  - Additional attempts can be purchased with in-game currency.
- During each level attempt, players use all cards and spells collected in the main game (video).
  - Earning points during the attempt fills a meter.
  - Filling the entire meter awards one extra card (turn).
- The winner of each round advances and the loser is eliminated (3).
- Players earn increasing feather rewards for each victory (4).
- Winning the tournament awards 15,000 feathers (5).
- At the end of the event, players earn additional rewards based on their ranks (6).
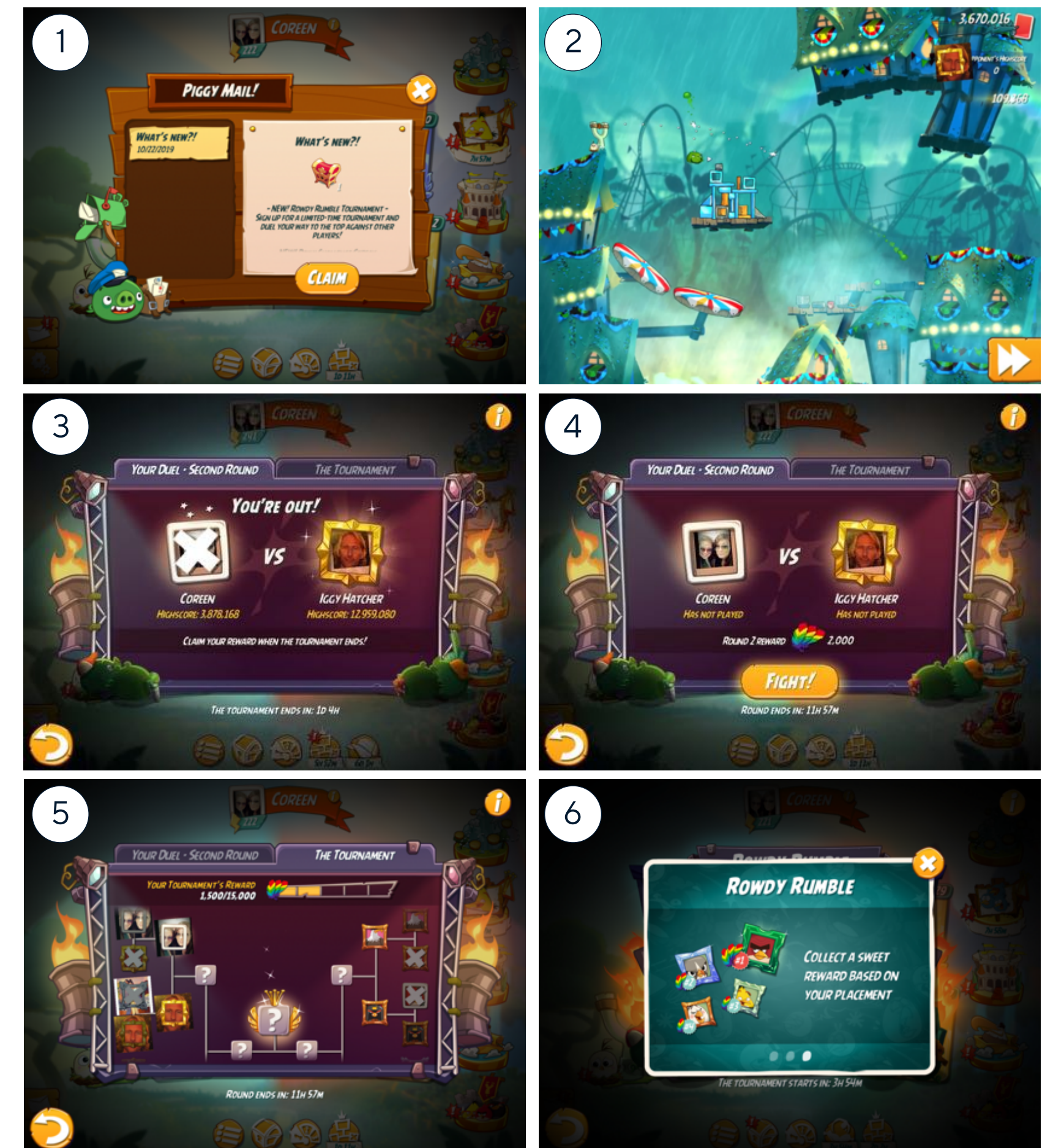
Feature Changes After the Initial Release

The event was released on 10/22 and these changes were made on 10/25.

- The time limit for each round was extended from 12 to 24 hours.
- The option to purchase additional cards during an attempt was removed.

Additional Information

- See the Rowdy Rumble Library for more images and videos.
- View Rovio's event information here.

PRODUCT INSIGHTS

Balance fair play with spending incentives to maximize engagement and revenue in competition events. If necessary, make quick product changes to improve balance.

Balance Purchasable Advantages

- Limit the impact of purchasable boosts on competitive play. After the initial release of Rowdy Rumble, players complained that the ability to purchase additional cards (turns) during an attempt was an unfair advantage.

Practice Lean Development

- Gather early feedback and make product improvements quickly. Rovio adjusted Rowdy Rumble just three days after the event went live. To gather feedback *before* usage data becomes statistically significant, add a link in the event area to an online questionnaire.

Increase Event Engagement

- Place losing players into relegation tournaments. In Rowdy Rumble, the losing players of each round are eliminated, capping their engagement in the event. In *Angry Birds Match's* Leagues (+39% revenue 2Wo2W), players are promoted and demoted between nine tiers (1).

- Reward players for participation, wins, and rank. In *Last Shelter: Survival's* Champion Duel (+32% revenue WoW), players are rewarded for entering the tournament, wins in the first stage of the tournament, and final rank if they advance to the champions stage.

Limit Tournament Drop-off

- Add a multiplier or jackpot bonus to the end of each stage. In the final of three rounds during *POP! Slots'* competitive event Win Zone (+27% revenue WoW), a tournament points multiplier is awarded to encourage players to complete all three rounds. Alternatively, consider adding a jackpot bonus that awards non-tournament value to maintain a skill-based competition, while still increasing stage completion rates (2).
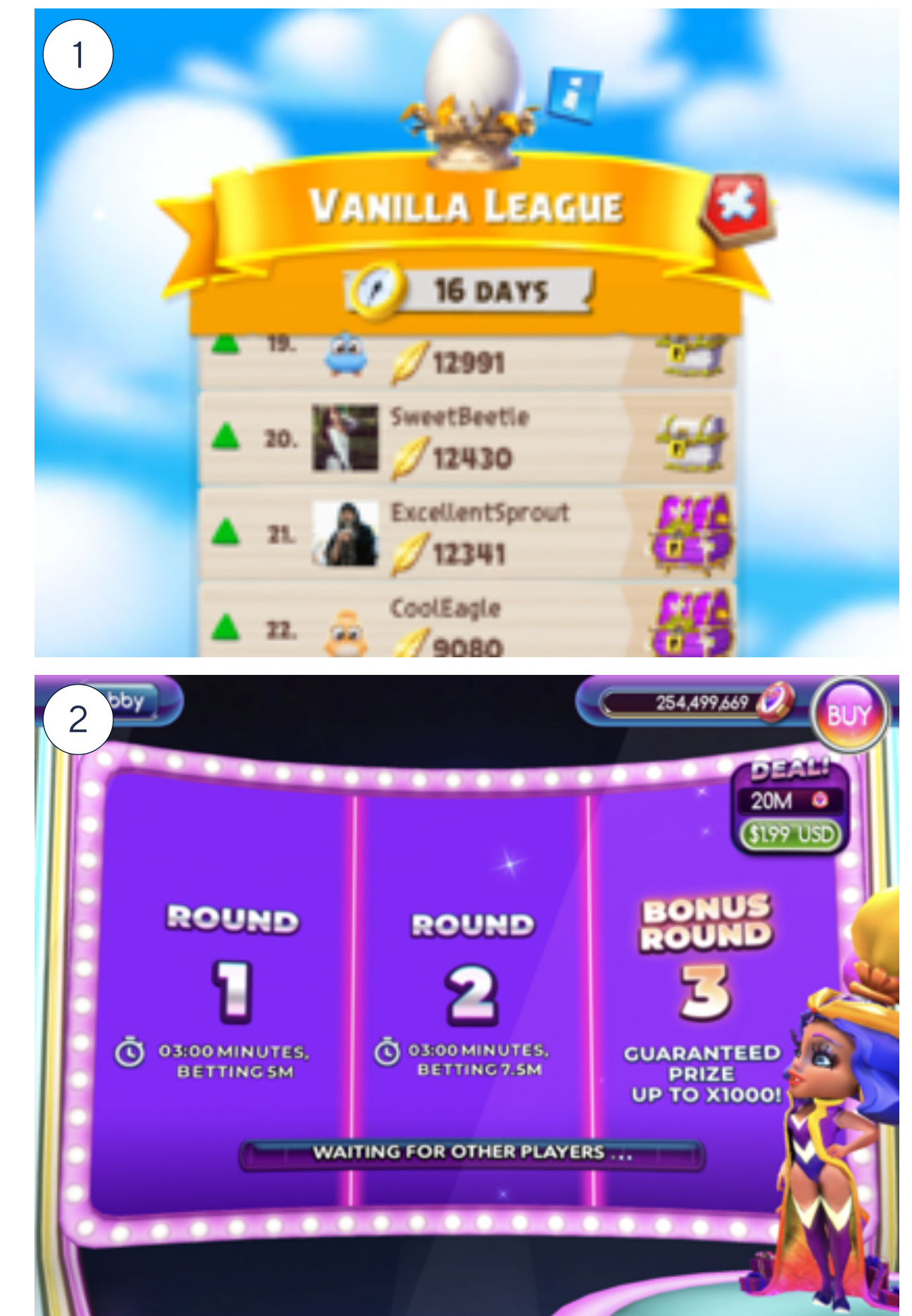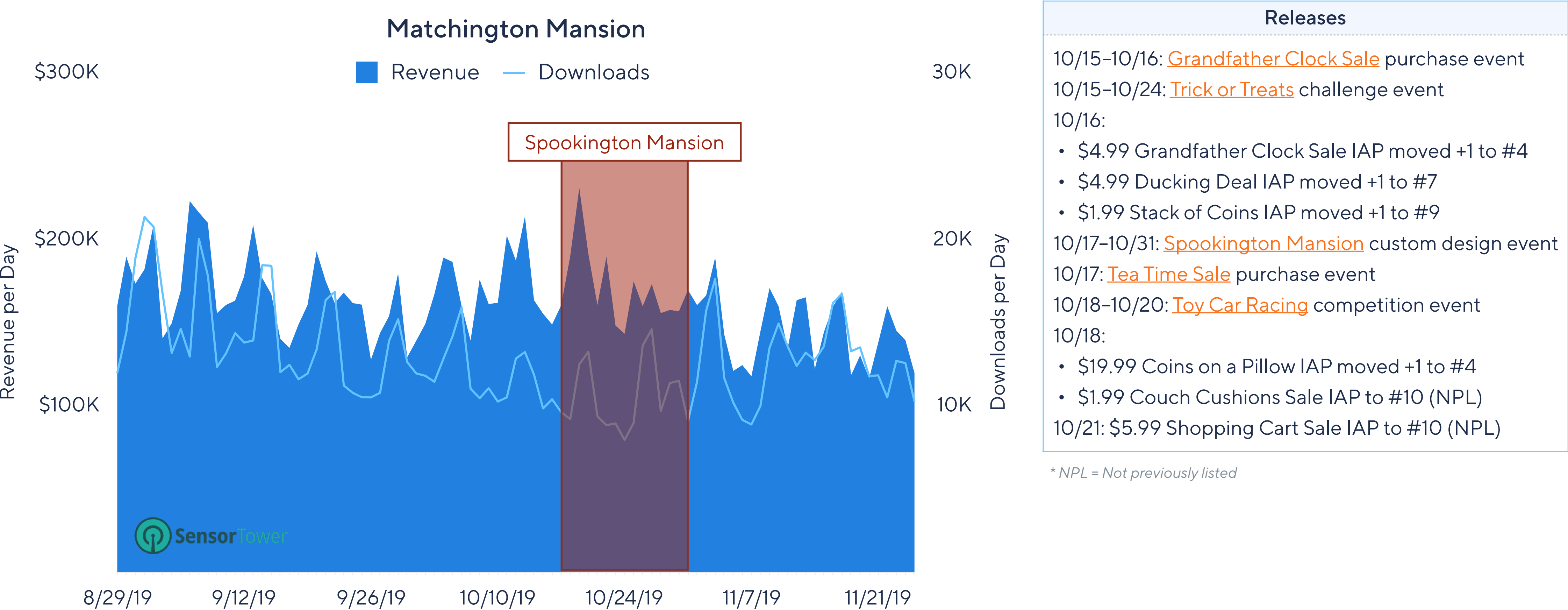
EVENT CURRENCIES WITH IAP BUNDLES

Spookington Mansion in *Matchington Mansion*

REVENUE ANALYSIS I

After the release of Spookington Mansion, revenue was actually -1% 2Wo2W due to consecutive weeks of strong revenue. A revenue comparison of four weeks prior shows a +9% during the event.

Matchington Mansion

■ Revenue — Downloads

Spookington Mansion

Revenue per Day: $300K, $200K, $100K

Downloads per Day: 30K, 20K, 10K

X-axis: 8/29/19, 9/12/19, 9/26/19, 10/10/19, 10/24/19, 11/7/19, 11/21/19

SensorTower

Releases

10/15–10/16: Grandfather Clock Sale purchase event

10/15–10/24: Trick or Treats challenge event

10/16:
- $4.99 Grandfather Clock Sale IAP moved +1 to #4
- $4.99 Ducking Deal IAP moved +1 to #7
- $1.99 Stack of Coins IAP moved +1 to #9

10/17–10/31: Spookington Mansion custom design event

10/17: Tea Time Sale purchase event

10/18–10/20: Toy Car Racing competition event

10/18:
- $19.99 Coins on a Pillow IAP moved +1 to #4
- $1.99 Couch Cushions Sale IAP to #10 (NPL)

10/21: $5.99 Shopping Cart Sale IAP to #10 (NPL)

NPL = Not previously listed

Graph data is iOS U.S. only.

REVENUE ANALYSIS II

Custom design events with event-specific currency sales substantially increased revenue in *Fishdom* and *Homescapes.*

FISHDOM

	Date	Event	Currency	WoW	2Wo2W
2019	9/26–10/6	Harvest Festival	IAP bundles include event currency	+19%	+18%
	7/17–7/29	Days of Summer	IAP bundles include event currency	+29%	+11%
	4/17–4/30	Easter Event 2019	Free bundle includes event currency	+22%	+17%
	2/5–2/18	Valentine's Day	Free bundle includes event currency	+16%	+17%

HOMESCAPES

	Date	Event	Currency	WoW	2Wo2W
2019	6/14–6/27	William's Birthday	IAP bundles include event currency	+11%	+11%
	1/29–2/11	Festival of Lights	IAP bundles include event currency	+32%	+30%
2018	12/12–12/25	Holiday Season	Option to purchase event currency with coins	+1%	+9%

FEATURE TEARDOWN

Players complete levels, or buy IAP bundles, to collect event-specific currency. This currency is used to purchase event-exclusive furniture.

Details

- In this 14-day event, players beat levels to collect ghost stickers (1).
- Ghost stickers can be spent on event-exclusive Halloween furniture to decorate the mansion.
- Players can preview the fully decorated mansion.
    - During the preview, all purchasable decorations are highlighted (2).
- Event-exclusive IAP bundles allow players to purchase additional ghost stickers (3).
- For three days during the event, levels award double the number of ghost stickers (4).
- At the end of the event, players can keep all unlocked furniture, and any unused ghost stickers turn into boost rewards (5).

Additional Information

- See the Spookington Mansion Library for more images and videos.

PRODUCT INSIGHTS

Drive revenue in custom design events by locking the most desirable items behind a linear progression and releasing IAP bundles that include event-specific currency.

Increase Revenue

- **Make players unlock decorations in a linear progression.** Spookington Mansion—which allows players to purchase decorations in any order—had a smaller revenue impact (+9% 2Wo4W) than custom design events with linear progressions of unlockable items (an average of +16% 2Wo2W) (1).
- **Add IAP sales of event-specific currency.** Of the custom design events analyzed, the largest revenue increases came from events with both progressive unlock systems *and* IAP currency sales—Festival of Lights (+32% WoW), Days of Summer (+29% WoW), Harvest Festival (+19% WoW), and William's Birthday (+11% WoW).

Raise Revenue per Transaction

- **Use higher price points and three IAP options.** Customers assess values relative to the other prices offered. Consider a study testing the percentage of beer purchases across three different pricing structures:
  - Test 1: $1.80 (20% of purchases) and $2.50 (80% of purchases)
  - Test 2: $1.60 (0%), $1.80 (80%), and $2.50 (20%)
  - Test 3: $1.80 (5%), $2.50 (85%), and $3.40 (10%)
- Most customers bought at the middle and highest price points *regardless of the actual prices*. Higher price points increased overall revenue by changing customers' perception of value (Pricing Psychology, "Different Levels of Pricing").

Increase Event Engagement

- **Let players preview the completed custom design.** In Spookington Mansion, a preview of the fully-decorated mansion is available (2). According to research, acquiring objects—and the sense of possession it produces—is a basic human need (Player Motivations, p. 8). Consider using the loading screen to showcase the completed custom design.

Improve Post-Event Satisfaction

- **Turn excess event currency into potentially high-value rewards.** In one of *Slotomania*'s most successful features, Slotocards, collecting duplicate cards during the event awards a spin on the Wheel of Stars.

LEVEL MECHANICS

NEW LEVEL DESIGNS I

Aquathorn — *Best Fiends*
- This variant of the Thorn character includes a +50 attack boost.
- Aquathorn is unlocked by completing the Ocean Day event (video).
- Players can also unlock Thorn and Aquathorn by spending gold (1).

Turkey Dennis — *Best Fiends*
- This variant of the Dennis character includes a +50 attack boost.
- Turkey Dennis is unlocked by collecting pies during the Thanksgiving event (2 and video).

Astro Ru — *Best Fiends*
- This variant of the Ru character includes a +100 attack boost (3).
- Astro Ru is unlocked by completing the Minutian Space Program event.

Color Streak — *Candy Crush Saga*
- Making consecutive matches with the same color fills a meter (4).
- When full, the meter changes random candies on the board to that color (video).

NEW LEVEL DESIGNS II

Frosting — *Disney Emoji Blitz*
- Players make matches over frosting to clear the frosting from the board (1).
- Clearing all frosting awards a slice of cake (video).
- Players collect cake to earn rewards in Mickey's Birthday Clear Event.
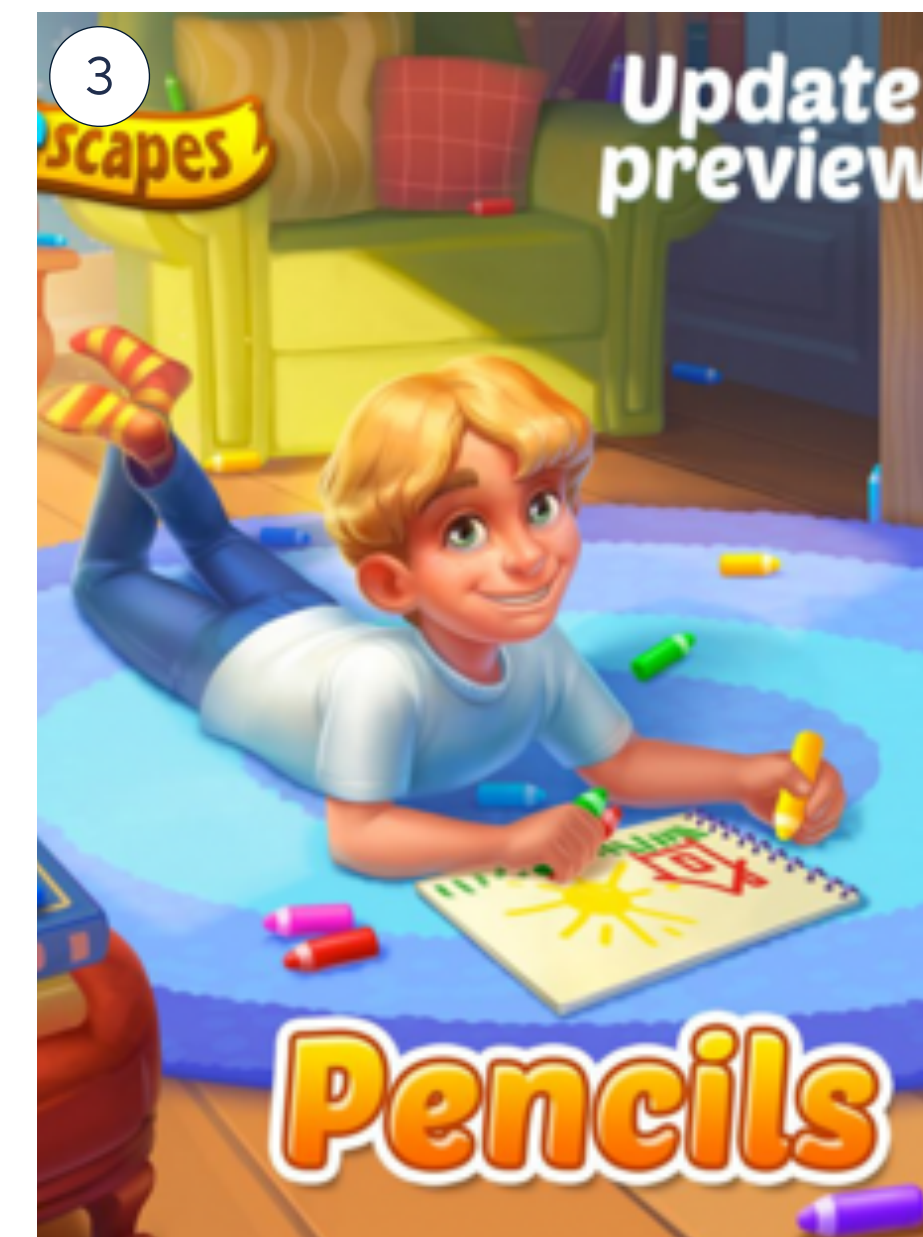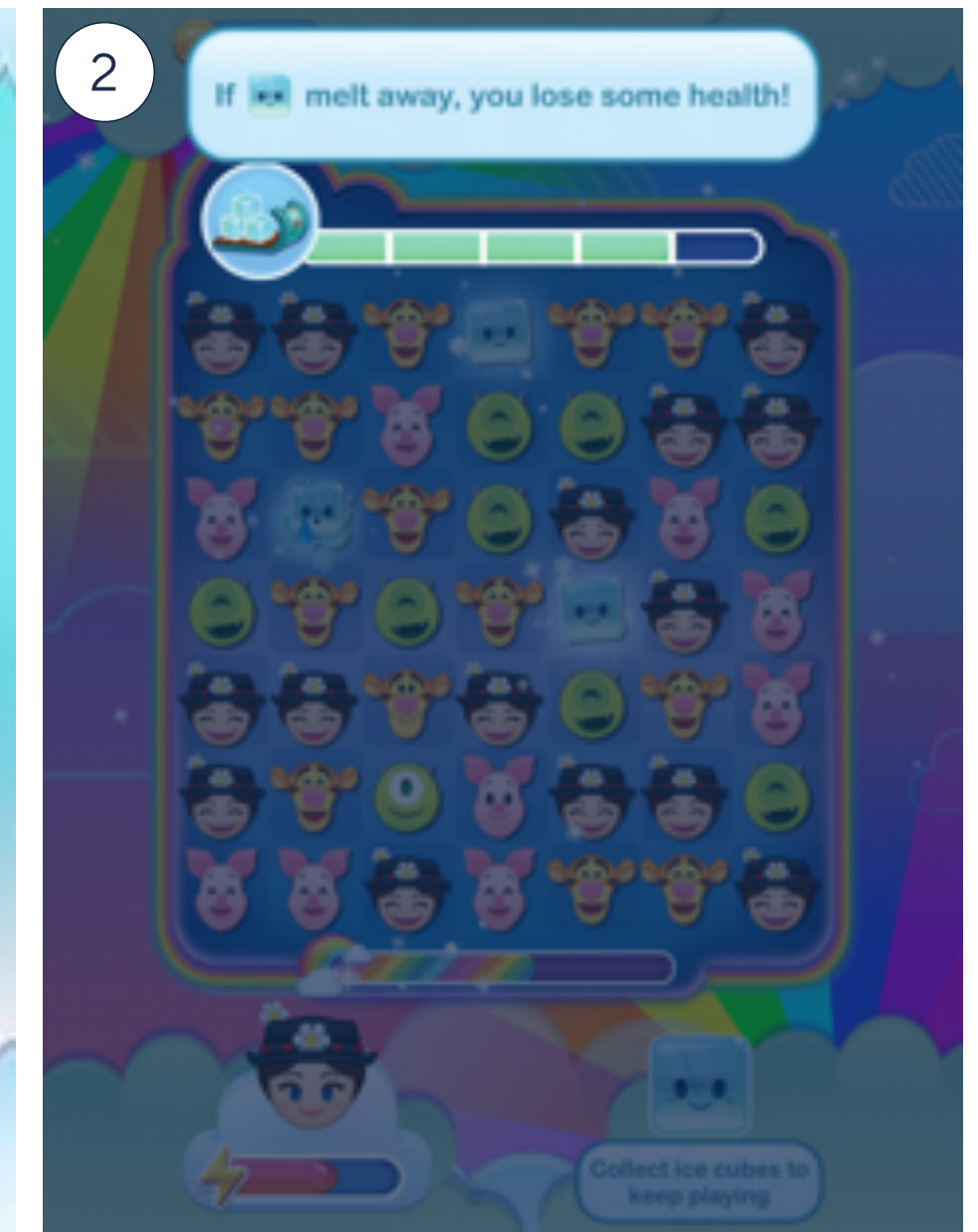
Ice Cubes — *Disney Emoji Blitz*
- During the Frozen Survival Event, players use power-ups to collect ice cubes.
- Each turn, uncollected ice cubes melt.
- When ice cubes melt all the way, players lose health (2).
- The round ends when players run out of health.

Colored Pencils — *Homescapes*
- Boxes containing up to four differently-colored pencils appear on the board (3).
- Pencils are collected by making matches in each pencil's color or using power-ups next to the box.
- Collecting all pencils clears the box.

Pumpkin Bombs — *Wizard of Oz Magic Match*
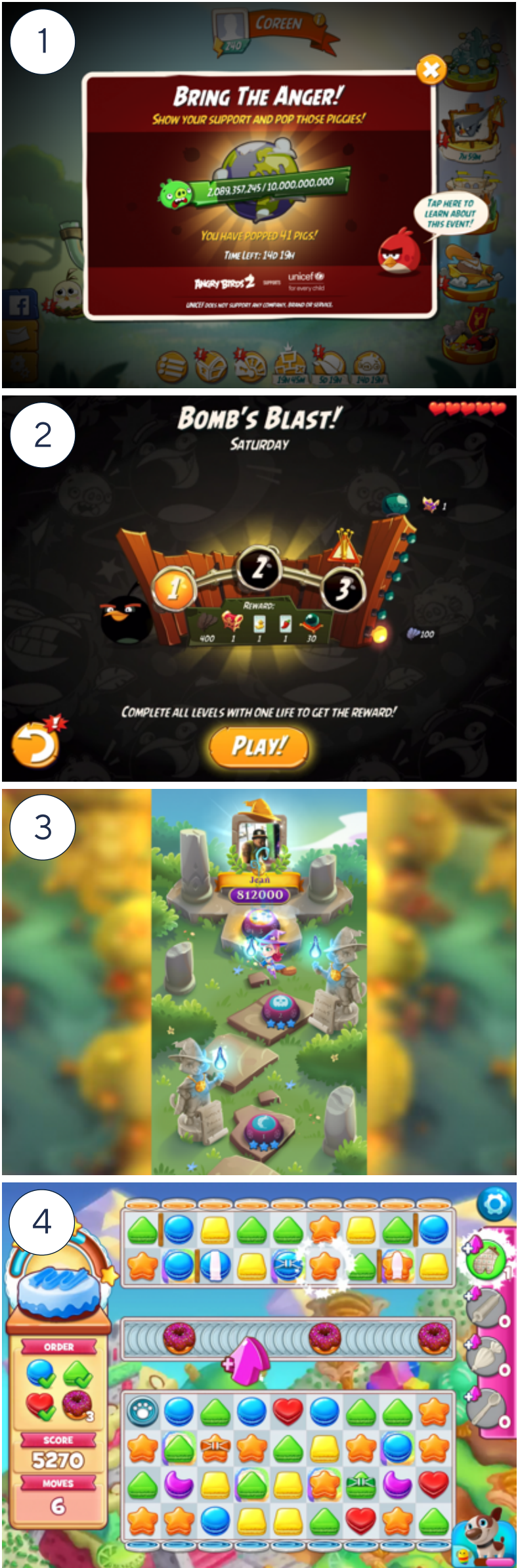- Swapping any piece with a pumpkin bomb triggers the bomb, clearing all adjacent pieces (4 and video).

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MARKET WATCH

NOTABLE RELEASES I

App	Library	Description
Angry Birds 2	Bring the Anger challenge event	• In this app-wide challenge, players must pop 10 billion pigs by the end of the month (1). • If the community reaches the goal, Rovio will donate $100K to UNICEF.
	Challenge Streak mission feature	• Beating three daily challenges in a row, without losing, unlocks an extra award (2).
Bubble Witch 3	Legend of the Month competition feature	• Players beat three levels on a mini-map. • On the third level, players compete to get the highest score. • The player with the current highest score is displayed on the mini-map (3). • At the end of the month, the player with the highest score becomes the Legend of the Month and is listed in the Hall of Fame.
Cookie Jam	Boost-a-Move rewards event	• During this event, using an in-level boost awards one additional move (4 and video).

NOTABLE RELEASES II

App	Library	Description
Matchington Mansion	Gourmet Express collection event	• Completing levels earns ingredients. • Ingredients are used to complete recipes for coins (1 and video). • Completing a recipe fills a daily meter. • Filling the meter unlocks an additional reward and closes the feature for the rest of the day.
Solitaire Grand Harvest	Crop Master collection feature	• Completing levels earns stars and progresses players along a map with periodic reward crates. • Collecting stars fills a meter that upgrades reward crates when full. • Reaching a crate on the map triggers a pick'em mini-game for boosts and currency (2). • Upgraded crates award additional picks.
	Witches vs Vampires competition event	• Players are divided into two teams: witches and vampires. • Completing missions earns team points. • At the end of the event, the team with the most points shares a 100M gold coin prize (3).
Wizard of Oz Magic Match	Emerald City Bazaar collection event	• Players collect event items by making matches in levels. • Event items can be exchanged for boosts or emerald points that count toward leaderboards (4).
Breakout App *Hotel Blast* by WhaleApp	*Hotel Blast* puzzle game	• Beating levels unlocks custom decorations for a hotel in this soft-launch match-2 app. • *Hotel Blast* is currently available in Canada, Ukraine, Australia, and Israel.

Quickly review all features and events

• Filter the Library Tool by month and year to see all the new releases.

APPENDIX

L&G Puzzle Personas

Using the motivational buckets developed by Liquid and Grit, five distinct puzzle personas emerge: Gamer Gary, Escapist Emily, Trainer Tracy, Challenger Chris, and Casual Carol.

Table: Player personas by demographics, monetization, engagement, and motivational buckets.

Input	Gamer Gary	Escapist Emily	Trainer Tracy	Challenger Chris	Casual Carol
Demographics					
Size (N)	24%	15%	22%	18%	21%
Female (%)	53%	68%	73%	59%	66%
Age (mean)	35	36	42	40	34
Monetization					
Propensity to spend across all platforms	15.0	7.0	4.8	7.0	4.3
Propensity to spend on F2P games	1.8	1.1	0.7	0.6	0.7
Engagement					
Weekly play hours	6.6	7.4	7.6	7.8	6.7
Puzzle motivation	3.1	2.9	2.6	2.7	2.4
Motivational Buckets					
Engrossment	0.7	-0.3	-0.2	-0.2	-0.2
Escape	0.0	0.6	-0.3	-0.1	-0.1
Utility	-0.2	-0.3	0.7	0.0	-0.3
Challenge	-0.2	-0.1	0.1	0.7	-0.3
Boredom	-0.3	0.0	-0.2	-0.3	0.9

PUZZLE PRODUCT COUNCIL

To boost our Expert Insights and Level Analysis, Liquid and Grit gathers recommendations and intelligence from industry-leading product experts.

Helen Grabarchuk	Florian Steinhoff	Florian Ziegler

Co-Founder and COO of PuzzleMove Inc.

LinkedIn Profile

Helen is a level design expert. At PuzzleMove Inc., Helen develops new puzzle products for different platforms, focusing on mobile devices.

Helen spent over two years at Zynga as a puzzle content creator.

After Zynga, Helen created concepts, puzzles, testing, and puzzle content in dozens of iOS and Kindle apps.

Helen's comments can be found predominately in the Level Mechanics section.

Mobile F2P Consultant

LinkedIn Profile

Florian has built and led teams that created top-grossing mobile casual games.

For the last 10 years, he has overseen game projects during all phases—research, concept, prototyping, pitching, pre-production, production, and live-ops.

His most successful title is Jelly Splash, which reached a monthly player base of +30M.

To find out more, check out his GDC talk on casual puzzle games, difficulty curves, and the importance of randomness here.

Consultant in Mobile Gaming

LinkedIn Profile

After over a decade of making games, Florian now advises game studios and companies on improving their game products through his own consultancy, Lava Lake Games Consulting.

Before launching his own consultancy, Florian worked at Electronic Arts on flagship titles, such as *Need for Speed: No Limits*. He also spent time at King as a Principal Designer.

At Mind Candy, he was the Lead Game Designer on titles that include the mobile hit World of Warriors. This gained Apple's Editor's Choice Award and scaled the charts to the No. 1 game position in most major markets.

PREMIUM PARTNERSHIPS

Liquid and Grit partners with these premier market research and analytics companies to infuse our reports with the most relevant and detailed gaming user personas, data, and statistics available.

Quadrant Strategies	Kinrate Analytics	Sensor Tower
Market Research	**Player Personas**	**Mobile App Store Intelligence**
Quadrant Strategies website	Kinrate Analytics website	Sensor Tower website

Quadrant Strategies

Quadrant Strategies is a market research consultancy that uses research to help the world's most prominent technology, gaming, and entertainment companies develop strategies for building their user base, increasing user engagement and spend, and strengthening their marketing and brand plans.

We do that using a range of quantitative and qualitative methodologies, including gamer segmentation and persona development, feature testing, message creation, and loyalty and engagement modeling. The work of our senior leadership goes back many years, and includes long-term engagements for console and gaming-PC hardware-makers, individual games in a range of genres, and across consoles, PCs, and mobile, and for some of the top game franchises.

Kinrate Analytics

Kinrate Analytics offers game developers, consultants, publishers, and cloud gaming operators the best cross-platform game recommendation engine for targeted marketing, as well as a novel profiling-as-a-service solution for intelligent market segmentation and social networking.

Other services include advanced market prediction analyses for identifying emergent gaming trends, and access to unique AI-enhanced data of 140 thousand game titles and 48 million game players.

The products of Kinrate Analytics have been developed in university-led research projects in collaboration with economists, psychologists, game scholars, and data scientists.

Sensor Tower

Sensor Tower is relied upon by financial analysts, VCs, and publishers who need to leverage data to identify the fastest growing apps, emerging markets, and more.

Clients harness Sensor Tower's suite of app intelligence tools to…

- Evaluate app economies and app vitality
- Drive organic growth with the leading App Store Optimization platform
- Get the best global download and revenue estimates for the App Store and Google Play
- Discover top creatives and better shape user acquisition strategy

Puzzle Mechanics Taxonomy

Family	Definitions
Accelerators	Increases the power, impact, or efficiency of play
Banks	Saves a % of spend that can be unlocked later
Bonuses	Free bonuses given to players (e.g., retention or W2E)
Challenges	Players must play, complete, and win
Clubs	A group accomplishing goals or competing with other groups
Collections	A set of items players collect (often for a completion prize)
Competitions	Players competing against other players
Cosmetics	Improvements or updates to the app or a feature
Currencies	Changes to currencies, economies, stores, and items
Custom Design	Options to customize the look
Expansions	Additional rooms, worlds, play modes, VIP lounges, etc.
Flows	Specific flows, like the NUX, ratings, and surveys

Family	Definitions
Hazards	Level elements/blockers that increase difficulty
Interactions	Any social feature with direct or indirect interaction
Leaderboards	Stand-alone leaderboards
Levels	Anything to do with leveling
Mini-Games	Smaller, shorter games within a game (e.g., scratcher cards)
Missions	A linear set of tasks that players must accomplish
Notices	Feature or product announcements
Other	Miscellaneous features and outliers
Profiles	Related to a player's setup, profile, settings, and controls
Purchases	Anything to do with purchases
Quests	Completing tasks to progress along a map or map-like feature
Rewards	Any reward players receive for engagement or spend (other than the bonuses family)

"I suppose my formula might be: dream, diversify, and never miss an angle."

— Walt Disney

LiquidandGrit.com

Brett.Nowak@LiquidandGrit.com