



CORE PERSONAS REPORT

Competitive player personas data and insights for mobile teams
in partnership with Kinrate Analytics



Seven Mobile RPG Personas

This report contains the results of an empirical study on mobile role-playing game player personas. The study was conducted through a series of scientific analyses made with data of 1,415 survey participants from the U.S. collected in May 2020. The player personas were constructed by simultaneously investigating multiple measures and their dimensionality. The personas that emerged were versatile and multi-faceted.

Two completely new measures for examining player preferences were developed for this study: a 28-item inventory on players' reasons for returning to an RPG and a 27-item inventory on players' reasons for quitting an RPG. Both of these measures were based on common RPG features and on players' preferences for games that include these features.

In addition to the two new measures, the study included several validated inventories by which player preferences have been previously investigated in several countries. We will present these measures below in detail. To go straight to the personas, [click here](#).

Measures and survey design

The survey included 12 inventories—i.e., sets of 7–30 questions designed to assess different aspects of players' habits, motivations, and preferences. Demographics were established with questions about participants' age and gender, followed by a 7-item inventory about players' personal values. Similarly to all of the 12 inventories of the survey, this short inventory on players' personal values was based on measures developed by Kinrate Analytics Ltd. The full version of the personal values measure includes over 30 questions and has 7 factors. In comparison to most other GUR services and tools, measures by Kinrate Analytics have been validated with cross-cultural data and published on top-level scientific HCI journals. As a general rule, it is highly recommended to use only scientifically validated measures because other measures do not provide reliable tools for making comparative analyses.

The survey continued with questions about daily mobile play time and money spent on mobile games. We also asked about the favorite time(s) for playing mobile games. This survey section concluded with questions about participants' habits with other media besides games, including social media platforms.

The next section in the survey consisted of questions about gaming habits. Participants were asked to report how much they play single-player and multiplayer mobile games, esports, and games from well-known genres (action, strategy, puzzle, RPG, simulation, etc.). This was followed by questions about their preferences for seven RPG subgenres based on Liquid & Grit's RPG classification. The last question in this section focused on respondents' favorite RPGs and additional favorites from other genres.

The following section in the survey was based on respondents' game type preferences. The first question introduced seven typical visual styles of mobile RPGs, and the respondents rated each visual style as unpleasant or pleasant (on a 5-point Likert scale: 1=very unpleasant, 5=very pleasant). Next, the respondents stated whether they considered particular game story settings and themes to be unpleasant or pleasant using a list of 18 common themes and story settings.

This section included three extensive inventories about player preferences. The first inventory measured respondents' *gameplay type preferences* and *challenge type preferences*. This inventory has been validated in previous studies across six countries. It uses five gameplay factors (exploration, aggression, management, coordination, and caretaking) and four challenge factors (strategic challenges, physical challenges, insight/puzzle challenges, and emotional challenges) (Vahlo et al., 2017; Vahlo et al., 2018; Vahlo & Karhulahti, 2020). The second inventory measured respondents' *game experience type preferences* and *motivations to play*. Game experience types can be divided into *driven* "hardcore" experiences, *imaginative* story-focused experiences, and laid-back *casual* experiences (Vahlo & Koponen, 2020). The motivations to play inventory is based on the psychological Self-Determination Theory (SDT) of motivations and human needs, which consists of eight motivational factors: *Relatedness*, *Competence*, *Immersion*, *Fun*, *Autonomy*, *Escapism*, *Utility*, and *Boredom*. Taken together, *Relatedness* and *Competence* also measure motivation to play because of a desire to *compete* against other players (Vahlo & Hamari, 2019). This section also included an inventory about preferred emotions in gameplay. This inventory is currently being validated, but exploratory analyses indicate that it measures players' preferences in experiencing negative, positive, and ambivalent emotions during gaming.¹

The final section of the survey included a 19-item inventory about respondents' reasons for spending money on F2P games and a 20-item inventory about their reasons for downloading or purchasing new games. The final section also included two novel inventories of questions about players' reasons for continuing to play or choosing to abandon a mobile RPG. Because these two inventories are both novel measures, we present first exploratory factor analyses for these scales later in the report .

Materials and procedure

A total of 1,415 survey participants (ages 18-55) were recruited from the U.S. The survey was targeted only to those respondents who reported playing mobile games and indicated that they play digital games more than 3 hours per week. This was done because mobile RPGs are midcore games, and their main audience consists of players who like games but who perhaps do not have as much time to play as they'd like to.

The survey data was collected in cooperation with an international market research company to obtain a large sample of the U.S. population. The data was collected with a web-based survey tool, and it took about 20 minutes to take the whole survey with a computer, a tablet, or a mobile phone. Because the survey was marketed to those who

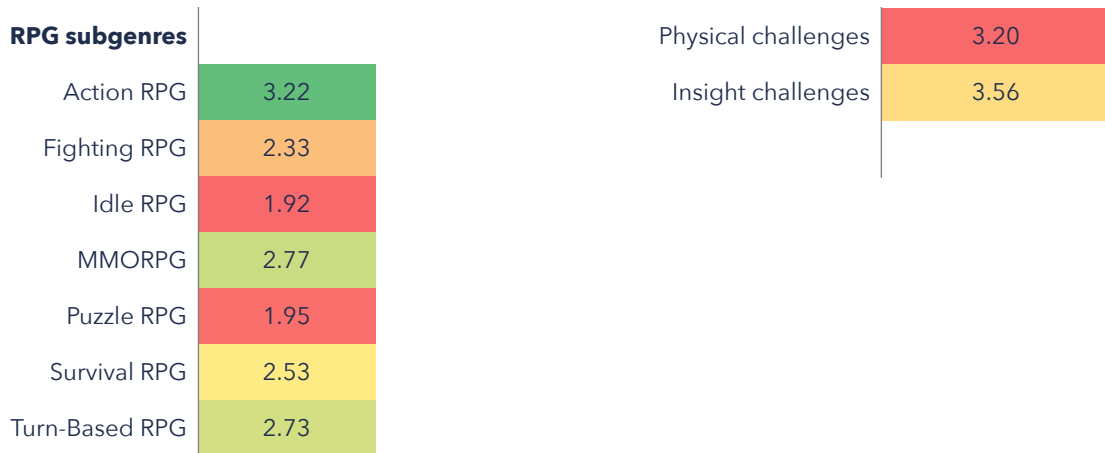
¹ Vahlo, J., Kaakinen, J., Holm, S. & Koponen, A. (2017). Digital Game Dynamics Preferences and Player Types. *Journal of Computer-Mediated Interaction*, 22(2), 88-103.
Vahlo, J. & Koponen, A. (2018). Player Personas and Game Choice. In, N. Lee (Ed.), *Encyclopedia of Computer Graphics and Games*. Boston: Springer.
Vahlo, J. & Hamari, J. (2019). Five-Factor Inventory of Intrinsic Motivations to Gameplay (IMG). *Proceedings of the 52st Hawaii International Conference on System Sciences*.
Vahlo, J. & Koponen, A. (2020). Driven, Imaginative, and Casual Game Experiences. In, Bostan, B. (Ed.), *Game User Experience and Player-Centered Design* (pp. 207-229). Springer.
Vahlo, J. & Karhulahti, V-M. (2020). Challenge Types in Gaming. *Validation of Videogame Challenge Inventory (CHA)*. *International Journal of Human-Computer Studies* (In press).

enjoy RPGs, and especially mobile RPGs, the demographics of the sample are affected by this precondition.

After collecting the data, we cleaned it by analyzing participants' response time to remove cases that replied to the survey too quickly. We also removed a few participants who were clearly outliers. Furthermore, we cleaned the data from participants who showed content non-responsivity by responding similarly to every question. Demographics and other descriptive statistics of the sample are reported in Table 1.

Table 1. Demographics and other descriptive statistics of the sample

Mean age	29.2	Personal values	
Gender		Kindness	4.17
Male	62.7 %	Hedonism	4.53
Female	34.3 %	Justice	4.14
Other	2.5 %	Creativity	4.16
Not disclosed	0.5 %	Excitement	3.74
Game genres		Power	2.82
Action	3.57	Traditionality	2.83
Action-adventure	3.66	Gaming mode preferences	
Adventure	3.62	Single-player mobile games	3.07
Visual novel	2.09	Multiplayer mobile games	2.36
Racing	2.25	Esports games	2.07
Puzzle	2.71	Collectible card games	1.69
Role-playing (RPG)	3.96	Gameplay factor preference	
Simulation	2.95	Aggression	3.75
Sports	2.08	Management	3.62
Strategy	3.22	Exploration	4.07
Platformer	2.73	Coordination	3.00
Sandbox	2.87	Caretaking	3.14
Fighting	2.59	Challenge type preferences	
Party	2.21	Strategic challenges	3.83
Educational games	1.79	Emotional challenges	3.65



The sample of 1,415 participants included 886 male players (62.7%), 486 female players (34.3%), 35 persons who did not identify as male or female (2.5%), and 8 individuals who chose not to specify their gender. The mean age of the sample was 29.2 years. The largest age group was ages 18–25 years (40%), followed by ages 26–35 (38%), ages 36–45 (16%), and 46–55 (5%).

RPG was the most played game genre: 95% of survey participants reported playing RPG games at least a little, while 45% reported playing regularly and an additional 24.5% very often. Action-adventure games, action games, and adventure games were other frequently played genres. From RPG subgenres, action RPGs were the most popular choice, followed by MMORPGs and turn-based RPGs. Only 2.9% of the respondents said that they had not played any of the RPG subgenres. RPG players reported that they enjoyed single-player mobile games more than other modes of gaming.

RPG players reported that *Hedonism* was their primary personal value, followed by *Kindness*, *Creativity*, and *Justice*. Based on our large sample, RPG players do not value *Power* or *Traditionality* highly in their everyday life experiences.

Not surprisingly, RPG players enjoy gameplay activities of *Exploration* the most. This dimension of gameplay appreciation is measured with survey items such as character development, looting, making meaningful choices, character creation and customization, and unveiling the game story. The second most preferred gameplay dimension was *Aggression* (exploding, engaging in battles, shooting, and warfare, sneaking), followed by *Management* (building and construction, crafting, trading, and resource management). RPG players had neutral feelings about *Caretaking* (decorating, dressing up, dating, and taking care of pets) and *Coordination* (racing, sports, match-3, and jumping on platforms).

RPG players enjoyed *Strategic challenges* the most. These challenges include challenges of optimization, tactics, strategy, logical problem-solving, and planning ahead. The survey participants also appreciated *Emotional challenges* (challenges of moral and ethics, dealing with emotionally difficult subjects) and *Insight challenges* which are typical of puzzles (riddles, mazes, etc.). They did not enjoy physical challenges of fast reaction, precision, and acting under time pressure as much.

Table 2. Daily media consumption

Daily media consumption	Not at all	1-30 mins	30-60 mins	1-2 hours	2-3 hours	3-4 hours	Over 4 hours
TV	605	252	166	176	81	47	90
Streaming services	167	193	279	389	216	86	87
Twitch	722	313	139	116	53	32	42
YouTube	70	352	243	316	183	122	131
Instagram	543	529	187	86	41	16	15
Facebook	552	553	168	77	31	16	20
Twitter	589	478	158	98	54	21	19
Reddit	207	381	305	281	129	75	39
Pinterest	1110	240	38	18	4	6	1

From Table 2, we can conclude that most RPG players do not spend any time on Pinterest on a typical day. They do not consume too much Twitch or TV content either. However, a typical RPG player watches streaming services (e.g., Netflix, Amazon, HBO) 1-2 hours daily. Many RPG players also watch YouTube videos 1-2 hours each day and spend some time on Reddit. Only 5% of the respondents said that they do not consume any YouTube content on a typical day. This information can be applied in RPG marketing and UA.

Motivations, game experiences, emotions, themes, and visual styles in RPGs

RPG players' gaming motivations, preferred game experience types, and liked/disliked emotions in gaming were investigated by Kinrate Analytics' measures. In addition to these, we also studied what kind of themes, story settings, and visual styles RPG players enjoy.

Kinrate Analytics' model of gaming motivations is based on the psychological grand theory of Self-Determination (SDT). Similarly to that theoretical tradition, we have validated in several countries that players play because of *Relatedness*, *Competence*, and *Autonomy*. In addition to these intrinsic motivations, players also play because they want to experience *Immersion* and just for *Fun*. When a person is intrinsically motivated, she feels that she can act independently and that her decisions matter (Autonomy), that her skills align with the demands of the activity (Competence), and that she is connected to others in meaningful ways (Relatedness).

Motivational models ask *why* we play games in general and why we play specific types of games. Fleshing out players' motivations for playing RPGs gives us tools for understanding habitual play, but this information is of limited use for predicting players' game choices or feature preferences.

As described above, Kinrate's game experience inventory measures three dimensions of game appreciation: *Driven*, *Imaginative*, and *Casual*. Driven experiences are competitive experiences in which players have to use their skills and wits. Imaginative

experiences are story-driven experiences of aesthetic beauty and deep meaning. Casual experiences are typically short-term experiences of relaxing laid-back gaming and quick rewards.

In this study, we combined Kinrate's motivations to play inventory with the model for measuring Driven, Imaginative, and Casual game experiences. This was done because both of these inventories measure players' gaming appreciation as a whole—their reasons for playing (motivations) and their expected or desired outcomes (experience types). An exploratory factor analysis revealed that the combined motivations to play and game experience inventory consisted of five factors:

1. *Achievement*: Making progress and unlocking content, facing challenges and overcoming them, achievement, completing every task and mission, and epic win after a struggle
2. *Immersion*: Experiencing meaningful and emotional stories, exploration and discovery, identifying with game characters, aesthetic experiences of art-like games, and being part of a game world and its events
3. *Social Interaction*: Playing together, interacting with other players, being recognized by other players, and helping others succeed, sharing a common goal)
4. *Tension*: Hardcore gaming with high difficulty, gambling and taking risks, competing and being the last one standing, and thrill and excitement
5. *Ease*: Laid-back relaxing gaming, short-term game sessions, and experiences of being lucky

RPG players are motivated by game experiences of *Achievement* and *Immersion* to the same extent. RPG players do not desire *Intense* experiences and have mixed feelings about *Social* experiences. From the complete list of game experience types, RPG players are most highly motivated by experiences of *exploration and discovery*, *unlocking new content*, and *achievement* (Table 3).

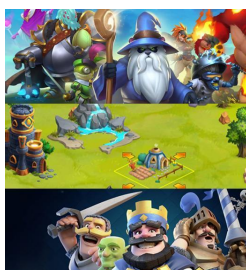
Next, we analyzed what kind of emotions RPG players like and dislike in gaming. Our inventory on emotions in gameplay measures four latent dimensions: *Excitement and Joy* (excitement, joy, triumph, satisfaction, pride, relief, etc.), *Fear and Terror* (fear, terror, shock, anxiety, uncertainty, etc.), *Anger and Frustration* (anger, frustration, rage, disappointment, vengeance, etc.), and *Empathy and Love* (empathy, love, and melancholy). We report the results in Table 3.

Finally, Table 3 also includes the mean values of an 18-item theme and story setting inventory and a 7-item visual style preference inventory. RPG players' visual style preferences were inquired by showing them example images of each art style (see below) and by asking whether they considered these styles to be undesirable or desirable (on a 5-point Likert scale).

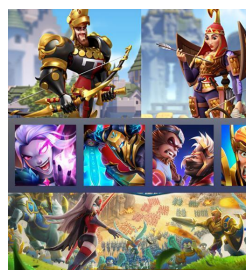
RPG players reported enjoying *Semi-Realistic* visual styles more than the other options. Both Japanese/Asian art styles had the next highest mean preference values, together with Stylized Mature. Stylized Casual was clearly the least liked art style. Not surprisingly, RPG players consider fantasy and science fiction to be the two most attractive game story frameworks and settings. Modern and realistic settings also had quite high means, while western, military/war, and superhero had relatively low preference sums.

Table 3. Motivating game experience types, preferred emotions, themes, and visual styles.

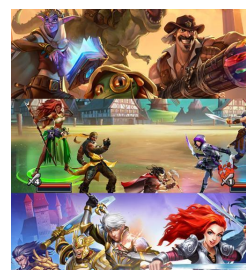
	N	1,415		N	1,415
Motivating game experience types			Theme and story settings		
Achievement		4.19	Historical		3.39
Immersion		4.19	Crime		3.42
Social		3.81	Dark/Gothic		3.47
Intense		3.43	Fantasy		4.16
Ease		4.02	Military/War		3.13
Emotions in gaming			Mystery		3.62
Excitement and joy		4.13	Medieval		3.64
Fear and terror		2.82	Science Fiction		4.05
Anger and frustration		2.31	Anime		3.23
Empathy and love		3.40	Western		3.12
Visual styles			Retro		3.52
Cartoon Casual		3.16	Realistic		3.77
Stylized Casual		2.90	Superhero		3.19
Stylized Mature		3.31	Humorous		3.62
Cartoon Asian		3.30	Cyberpunk		3.60
Stylized Asian		3.33	Abstract		3.28
Semi-Realistic		3.54	Licensed		3.41
Realistic		3.11	Modern		3.77



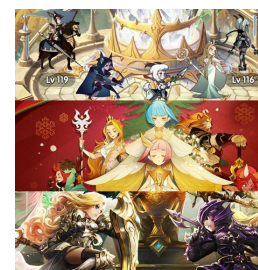
Cartoon Casual



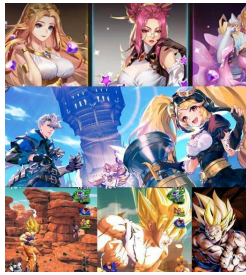
Stylized Casual



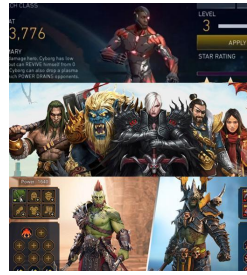
Stylized Mature



Cartoon Asian



Stylized Asian



Semi-Realistic



Realistic

Daily play time, monthly spending on games, and purchasing reasons

The survey included questions about RPG players' typical daily play time with mobile devices and PC/consoles. We also asked their favorite time to play as well as how much money they spend on these games per month.

On average, respondents reported playing mobile games 1.5 hours per day (median 1 hour). Based on their time investment in gaming, it is fair to say that the survey sample is a good representation of *core RPG gamers*. Below, we report typical times for playing mobile games:

	12AM-2AM	2-4 AM	4-6 AM	6-8 AM	8-10 AM	10AM-12PM	12-2 PM	2-4 PM	4-6 PM	6-8 PM	8-10 PM	10PM-12AM
Mobile gaming	222	116	49	173	86	165	260	304	334	335	388	374

The numbers in the chart above signify how many survey respondents indicated that they played mobile games at the given time. RPG players play mobile games throughout the day, including during typical working hours (6AM-4PM). Mobile gaming does not have a clear peak, which is more typical for PC and console gaming. Instead, the absolute number of mobile game players remain above 300 (approx. 20-25% of the sample) from 2PM to 12AM. A total of 81% of players reported that they played mobile games at home. In addition, 33% reported playing mobile games at work, and 43% said that they played mobile games when traveling (e.g., from home to work).

A total of 722 respondents (51%) said that they did not spend any money on mobile games in a typical month. The second most typical answer to this question was \$5 per month. On average, RPG players spent \$9 on mobile games each month. The highest amount of monthly spend on mobile games was \$500.

The survey included a 19-item inventory about players' reasons for making in-app purchases ("How important the following reasons were for you when you made an IAP": 1=not at all important, 5=very important). The inventory measures three latent dimensions for making in-app purchases (the mean value for each item is in the parentheses):

1. *Social Reasons*: I wanted to show off to my friends (1.9), I wanted to give gifts to other players (2.0), I wanted to make my kids happy (1.7), I did not want to bother others (2.1)

2. *Unobstructed Play*: I wanted to complete a level (2.6), I wanted to speed up timers (2.3), I wanted to continue playing (2.9), I did not want to spend time repeating the same tasks (2.6)
3. *Content-Based*: I wanted to support a F2P game that is good (3.3), the game was reasonably priced (3.2), I wanted to open new content (3.1), I wanted to invest in my gaming hobby (2.6)

For RPG players, the most important reason for making in-app purchases is to support a good F2P game. This was followed by a desire to open new playable content. In short, RPG gamers make IAPs mostly because of *Content-based* reasons (mean 2.9), followed by *Unobstructed play* (mean 2.5), and then *Social reasons* (2.0). The differences between these three factors are statistically significant, and it can be concluded that RPG players appreciate mobile games with great design and production value, and they want to support such games because of intrinsic interest in role-playing games.

We inquired about RPG players' reasons for downloading and purchasing new games by using a 21-item Likert-5 inventory. We asked the participants to state how important each factor was in their decision to download or purchase a new game. This inventory consists of four dimensions that factor into download/purchase decisions:

1. *Visibility*: Competitive esports livestreams, Twitch streams, a marketplace promotes the game, the game has been published recently, blog writings or video blogs reviewing the game
2. *Own Experiences*: The genre of the game is my favorite, my earlier game experiences with similar games, the game fits my current mood and feeling, the game visuals fit my preferences
3. *Peer Recommendations*: Friends' recommendations and praises, my friends play the game in question and I can play with them, the game is recommended by other players who enjoy similar games as me
4. *Accessibility*: The game is available to play for free, the game is instantly available to be downloaded and played

Of these main reasons to download and purchase new games, RPG players consider *Own Experiences* to be most important (3.64). *Peer Recommendations* (3.51) and *Accessibility* (3.46) are the next most important reasons to download and purchase new games. However, *Visibility*, including traditional marketing, was not considered nearly as important as all the other main reasons to get new games (2.50). Again, of the individual reasons, the RPG genre was clearly the most important driver for getting new games (4.12), followed by earlier experiences with similar games (3.81), good reviews about the game (3.77), attractive visuals (3.76), and friends' recommendations (3.62).

In the data of 1,415 players, there were only 161 respondents who reported that they spent significantly more time playing mobile games than playing computer and console games. This sub-sample of *pure mobile game users* had the highest mean value for *Accessibility* (3.68), followed by *Own Experiences* (3.52) and *Peer Recommendations* (3.32). The three most important reasons for downloading a new game were the RPG genre (4.16), the fact that the game in question was free to download and play (3.91), and that the game had attractive visuals (3.69).

Exploratory factor analyses for the novel “Continue/Quit playing” inventories

Survey participants were instructed to think about their reasons for continuing to play an RPG and specify how important (5-Likert, 1 = completely unimportant, 5 = very important) a total of 28 reasons were for their continued play. Descriptive statistics for the full 28-item inventory are reported in Table 2.

Table 4. Descriptive statistics for the 28-item reasons to continue play RPGs inventory

Question	Mean value
Compelling and well-written story	4.21
It was free to continue	4.17
Likeable characters	4.07
Uniquely told story	4.05
Story-related missions, tasks, or quests	4.02
Visual style that fits your preferences	4.02
Expansions such as unexplored worlds, new seasons, or updates	4.01
Decisions you make affect the game and its story	3.96
Proper difficulty level	3.95
New skills or abilities that can be unlocked	3.94
Innovative challenges	3.88
Impressive graphics	3.81
Optional missions, tasks, or quests	3.80
Great and beautiful game music	3.73
High-quality sound design/voice acting	3.72
Getting experience points to level	3.72
Rare items to collect or heroes to recruit	3.55
Loyal players receive extra rewards (gifts, bounties, prizes)	3.19
Entertaining mini-games	3.16
Social interactions such as sharing or chat with friends	3.11
Optional cosmetics, skins, or decorations	3.08
Returning players get check-in rewards	3.08
You can make custom designs	3.05
You belong to a team, a guild, or a club	2.92

Competitions, tournaments, or duels between players	2.82
Bundles, offers, or special campaigns	2.80
Accelerators to speed up your progress or to catch up	2.59
Leaderboards	2.36

From Table 4 we can note that a compelling and well-written story is the most important feature for continuing to play an RPG. The second most important feature for continued play is that the game is or remains free to play. Likeable characters, uniquely told stories, and story-related missions are also important reasons for continuing to play, but all of these features had clearly lower mean values than “Compelling and well-written story” and “It was free to continue”. Players considered leaderboards the least important feature for continuing to play, followed by accelerators, competitions and tournaments, and special offers.

An exploratory factor analysis (EFA) was conducted for the “Reasons to continue to play an RPG” scale to investigate its underlying latent structure and dimensionality. The number of extracted factors was identified by utilizing a parallel analysis. To conduct a parallel analysis, we first ran an EFA on the data and then a parallel analysis (PA), which generated an artificial data set for identifying the correct number of factors. The PA test suggested that four factors were to be extracted, and therefore we proceeded to investigate four-factor solutions. The Kaiser-Meyer-Olkin (KMO) test was then used to measure sampling adequacy for conducting a factor analysis. The KMO value was very good (0.93), suggesting that a factor analysis was appropriate.

Table 5. Factor loadings for the 28-item reasons for continuing to play RPGs inventory

	Factor 1	Factor 2	Factor 3	Factor 4	Uniq.
Compelling and well-written story	0.81				0.41
Uniquely told story	0.79				0.39
Story-related missions, tasks, or quests	0.63	0.31			0.42
High-quality sound design/voice acting	0.62				0.52
Likeable characters	0.61				0.55
Great and beautiful game music	0.6				0.61
Decisions you make affect the game and its story	0.56				0.6
Visual style that fits your preferences	0.44			0.32	0.65
Innovative challenges	0.39	0.31			0.59
Impressive graphics	0.34			0.33	0.61

Proper difficulty level	0.31			0.72
New skills or abilities that can be unlocked		0.6		0.52
Rare items to collect or heroes to recruit		0.58		0.53
Getting experience points to level		0.57		0.52
Optional missions, tasks, or quests		0.51		0.56
Expansions such as unexplored worlds, new seasons, or updates		0.37		0.7
Competitions, tournaments, or duels between players			0.82	0.41
Leaderboards			0.71	0.46
Social interactions such as sharing or chat with friends			0.7	0.53
You belong to a team, guild, or club			0.68	0.48
Accelerators to speed up your progress or to catch up			0.34	0.61
Optional cosmetics, skins, or decorations				0.61 0.56
Returning players get check-in rewards		0.41		0.48 0.46
You can make custom designs				0.46 0.6
Loyal players receive extra rewards (gifts, bounties, prizes, etc.)		0.41		0.45 0.41
Bundles, offers, or special campaigns				0.31 0.6
Entertaining mini-games				0.73
It was free to continue				0.84
Mean	3.97	3.75	2.80	3.10
Std	0.74	0.85	1.07	1.00
Alpha	0.86	0.78	0.82	0.76

An exploratory factor analysis using principal axis factors and promax rotation was used with the data of 1,415 respondents. Promax rotation allows correlations between identified factors and does not force them to be orthogonal to each other. We had no reason to hypothesize that players could not have multiple reasons to continue to play, and therefore promax rotation was selected over other methods which in this case could have misrepresented the results. We applied the factor loading of 0.40 as a criterion to define if an item loaded on a factor. The results are reported in Table 6.

Based on the analysis with extensive RPG player data of 1,415 responses, there are four prevalent feature-based reasons for continuing to play an RPG. The first factor consisted of eight individual features. These features signify that a player continues to play because of the compelling and uniquely told story, story-related missions, and likable characters. He

also values high-quality sound design, beautiful game music, and impressive graphics, as well as the fact that his decisions have an impact on how the story of the game proceeds. All of these features stand for *High Production Value*.

Four items loaded on the second factor. These items indicate that a player continues to play because he can unlock new skills or abilities, collect rare items or recruit new characters, get experience points and level up, do optional tasks or quests, and explore new worlds or areas. These features are all at the core of the RPG gameplay experience, therefore we call this factor *Gameplay Elements*.

Four items also loaded on the third factor. These features cover competitions, leaderboards, social interactions such as chat, as well as memberships in teams, guilds, or clubs. Accelerators to catch up with others loaded on this factor as well, but with a low loading (0.3). All of these features are *Social*. Finally, four items also loaded on the fourth factor. These features were optional cosmetics, check-in rewards, custom designs, extra rewards for loyal players, and special offers or campaigns. We call this factor *Optional Rewards*.

The most important feature factor for continued RPG play was *High Production Value* (3.97), followed by *Gameplay Elements* (3.75). The other two factors had significantly lower mean values, and therefore *High Production Value* and *Gameplay Elements* can be considered primary feature types and *Social* and *Optional Rewards* secondary feature types for predicting continued RPG play.

Similar analysis procedure was then conducted for the 27-item “Reasons to quit playing an RPG” inventory. Exploratory factor analyses and tests suggested that the inventory consisted of five factors. The five factors were:

- *Low Production Value*: Bad sound design, poor story, irritating music, disappointing visuals, unlikable characters
- *Detachment*: Not connected to other players, too much social pressure, too much catching up, too long game sessions, inactive players were punished
- *Indifference*: Player did not get anything new from playing sessions, there was too much repetition, actions did not matter, nothing new to collect or explore
- *Monetization*: The game asked for money too often, too expensive to continue, had to watch too much advertisements
- *Difficulty*: The game felt unfair, it was too competitive, there was a sudden rise in the difficulty level

Of these factors, the most important reason to quit playing RPGs was *Monetization* (4.1), followed by *Indifference* (3.8), *Low Production Value* (3.3), *Difficulty* (3.1), and finally *Detachment* (2.8).

Cluster analysis and the RPG Personas

Next, we conducted a cluster analysis to investigate RPG player personas. We computed z-standardized factor scores for each survey participant by the following inventories presented above: *Reasons to continue to play RPGs*, *Motivating game*

experience types, Gameplay and challenge preferences, Visual style preferences, Emotions in gaming, Gaming modes, and Theme and story setting preferences. Taken together, these inventories constitute what we call “Player Preference Tools” (PPT). Because all of these inventories highlight different aspects of player preferences, it makes sense to cluster RPG players over all of these measures. By doing so, we ensured that different dimensions of player traits would clearly have an impact on constructing actionable personas.

Taken as a whole, each of the 1,415 RPG players were clustered together according to more than 100 variables. We first compared each survey response over the whole data of 1,415 responses to standardize the mean values. This was done because the premise of persona cluster analysis is to identify meaningful *player profiles*. However, some survey participants answer every question systematically with lower/higher values. If we do not take this information into account, statistical clustering algorithms always generate a player type who enjoys everything, a player type who has neutral feelings about everything, and another type who dislikes everything. These kind of player personas would not add new knowledge about latent player personalities.

After standardizing responses over the whole data set, we then standardized every respondents’ data over his/her own responses in order to highlight latent personal player traits. This data was then utilized in k-means complete linkage clustering analysis. Since k-means clustering groups similar data points together to discover underlying patterns in the data, the method typically also generates one group which shows much less content non-responsivity than the other group. In practice, this means that the k-means clustering produces a cluster that can be used to further identify bad responses. As a result of our clustering process, we removed a total of 225 observations from the data because these responses were either bad, ill-suited for profiling, or both. Below, we report results of the seven identified RPG player personas with *RPG Player Persona Tables* (N=1,190).

Note that **demibold** text in the tables below indicate that these items are primary in contrast to the other items mentioned in the same cell.

Felicia Fiction		
KNOW	Age	28.3 (1.26 younger than the mean)
	Size	N=215, 18.1%
	Gender	37.7% male, 53.0% female, 8.4% other, 1% not disclosed
	Personal values	Creativity, justice, hedonism
	Mobile daily play time	1.53 hours
	Mobile spend/month for payers	\$13.1. A total of 56.7% do not spend money in a typical month
	Gaming mode	Single-player mobile
	Motivations to play	Fiction , immersion, deep meaning, aesthetics, escapism
	RPG subgenres	Turn-based RPG , action RPG
REACH	Alternatives to gaming	Twitter, Reddit, YouTube
	Played mobile RPG games	<i>Fate/Grand Order, Final Fantasy Brave Exvius, Marvel Strike Force, Animal Crossing: Pocket Camp, Star Wars: Knights of the Old Republic, Old School RuneScape, Final Fantasy III, Black Desert Mobile, Evoland</i>
	Theme and story setting	Dark/gothic , <i>anime</i> , fantasy
	Visual style	Cartoon Asian, stylized Asian
ACQUIRE	Gameplay types	Dressing up, customizing a character, making meaningful choices
	Challenge types	Dealing with emotionally difficult subjects and themes, considering issues of moral and ethics
	Emotions in play	Love, empathy, curiosity
RETAIN	Reasons to continue	Compelling and well-written story, likable characters, uniquely told story, story-related missions
	Reasons to quit	Game was too competitive, badly written story , I did not like characters, too difficult
MONETIZE	Reasons for IAPs	I wanted to personalize characters
	Reasons to get new games	RPG genre , own earlier experiences, publisher/developer of the game

Caleb Competition		
KNOW	Age	25.0 (4.55 younger than the mean)
	Size	N=181, 15.2%
	Gender	90.1% male, 9.4% female, 0.5% other
	Personal values	Hedonism, traditionality
	Mobile daily play time	1.05 hours
	Mobile spend/month for payers	\$19.8. A total of 60.7% do not spend money in a typical month
	Gaming mode	Esports, multiplayer mobile
	Motivations to play	Competition , social interaction, social status, hardcore gaming
	RPG subgenres	MMORPG
REACH	Alternatives to gaming	Twitch, YouTube, Reddit
	Played mobile RPG games	<i>Dragalia Lost, Old School RuneScape, Summoners War, Postknight, Epic Seven, Idle Heroes, Arknights, Stardew Valley, Clash Royale, Clash of Clans</i>
	Theme and story setting	Military/war, realistic, western
	Visual style	Cartoon casual
ACQUIRE	Gameplay types	Waging war, shooting enemies, engaging in a battle
	Challenge types	Acting under time pressure, fast reaction, mastering complex controls
	Emotions in play	Rivalry, shock, vengeance, terror
RETAIN	Reasons to continue	Competitions and tournaments, social features, club membership, leaderboards
	Reasons to quit	Not connected to other players, the game was too easy, I did not get anything new from game
MONETIZE	Reasons for IAPs	I wanted to be the best in the game, I wanted to play with my friends, speed up timers
	Reasons to get new games	Competitive esports livestreams, my friends play it, Twitch streaming, friends' recommendations

Andrew Achievement		
KNOW	Age	34.2 (4.65 older than the mean)
	Size	N=148, 12.4%
	Gender	64.2% male, 33.8% female, 2% other
	Personal values	Traditionality
	Mobile daily play time	1.43 hours
	Mobile spend/month for payers	\$12.0. A total of 52.2% do not spend money in a typical month
	Gaming mode	Single-player mobile
	Motivations to play	Completing all tasks , laid-back casual gaming, overcoming challenges
	RPG subgenres	Puzzle RPG
	Alternatives to gaming	TV, streaming services (e.g., Netflix), Facebook
REACH	Played mobile RPG games	<i>AdVenture Capitalist, Clash of Clans, Arknights, Final Fantasy, RAID: Shadow Legends, Dragalia Lost, Final Fantasy Record Keeper, Final Fantasy Tactics</i>
	Theme and story setting	Crime, historical, military/war
	Visual style	Realistic
ACQUIRE	Gameplay types	Matching tiles, racing at a high speed, performing in sports
	Challenge types	Navigating in mazes, figuring out puzzles
	Emotions in play	Rage, frustration, anxiety
RETAIN	Reasons to continue	Innovative challenges , entertaining mini-games, proper difficulty level
	Reasons to quit	Game is too easy, game is too difficult, I was not the right audience for the game
MONETIZE	Reasons for IAPs	I wanted to complete a level/building, I did not want to bother others, wanted to make kids happy
	Reasons to get new games	The game is available for free, the game is instantly available

Ethan Epic	
KNOW	Age 29.2 (close to the mean age)
	Size N=147, 12.4%
	Gender 80.3% male, 18.4% female, 1.3% other
	Personal values Hedonism
	Mobile daily play time 1.5 hours
	Mobile spend/month for payers \$18.4. A total of 43.8% do not spend money in a typical month
	Gaming mode Collectible card games, multiplayer mobile, single-player mobile
	Motivations to play Hardcore gaming, epic win , overcoming challenges, story-driven, deep meaning
	RPG subgenres Turn-based RPG , action RPG, puzzle RPG, MMORPG
REACH	Alternatives to gaming N/A
	Played mobile RPG games <i>Final Fantasy III, Fate/Grand Order, Idle Heroes, Black Desert Mobile, Marvel Strike Force, Final Fantasy Brave Exvius, Fire Emblem Heroes, Star Wars: Knights of the Old Republic, Final Fantasy Record Keeper, Postknight</i>
	Theme and story setting Anime, fantasy, cyberpunk
	Visual style Stylized Asian, cartoon Asian
ACQUIRE	Gameplay types Jumping on platforms, engaging in battle, exploring the game world, weapons selection
	Challenge types Optimizing , thinking out-of-the-box, tactics, strategy
	Emotions in play Satisfaction, triumph, wonder, curiosity
RETAIN	Reasons to continue Beautiful music, story-related missions, uniquely told story, compelling story
	Reasons to quit The game asked money too often, too expensive to continue
MONETIZE	Reasons for IAPs The F2P was reasonably priced, I wanted to support a F2P game I liked
	Reasons to get new games The genre was my favorite, good reviews, own earlier experiences

Chloe Casual		
KNOW	Age	29.2 (close to the mean age)
	Size	N=182, 15.3%
	Gender	12.1% male, 83.5% female, 3.3% other, 1.1% not disclosed
	Personal values	Justice, creativity, kindness
	Mobile daily play time	1.9 hours
	Mobile spend/month for payers	\$12.8. A total of 38.3% do not spend money on a typical month
	Gaming mode	Single-player mobile games
	Motivations to play	Relaxing casual gaming , short-term gaming, boredom
	RPG subgenres	Puzzle RPG
REACH	Alternatives to gaming	Streaming (e.g., Netflix), Facebook, Pinterest
	Played mobile RPG games	<i>Final Fantasy Tactics, Animal Crossing: Pocket Camp, Stardew Valley, Final Fantasy XV, The Elder Scrolls: Blades, Arknights, AdVenture Capitalist, Fire Emblem Heroes, Summoners War</i>
	Theme and story setting	Humorous, licensed, mystery
	Visual style	Cartoon casual, cartoon Asian
ACQUIRE	Gameplay types	Decorating, dressing up, customizing characters, matching tiles, breeding
	Challenge types	Figuring out puzzles, making meaningful choices
	Emotions in play	Carefree, calm, comfort
RETAIN	Reasons to continue	Optional cosmetics , loyal players get extra rewards, returning players get rewards, custom designs
	Reasons to quit	Too difficult , I could not customize characters, too competitive
MONETIZE	Reasons for IAPs	I wanted to personalize my characters, I wanted to participate in special events
	Reasons to get new games	The game is available for free, the game fits my current mood, game visuals seem attractive

Dean Desktop		
KNOW	Age	31.7 (2.2 years over than the mean)
	Size	N=13.4%
	Gender	80.6% male, 18.1% female, 0.6% other, 0.7% not disclosed
	Personal values	Creativity
	Mobile daily play time	0.63 hours
	Mobile spend/month for payers	\$10.3. A total of 67.9% do not spend money on a typical month
	Gaming mode	N/A
	Motivations to play	Story-driven, deep meaning, epic win, overcoming challenges, solitary experiences
	RPG subgenres	Action RPG, survival RPG, turn-based RPG
REACH	Alternatives to gaming	N/A
	Played mobile RPG games	<i>Evoland, Idle Heroes, Dragalia Lost, Chrono Trigger, Epic Seven, Old School RuneScape, Final Fantasy Record Keeper, AFK Arena, Final Fantasy Tactics</i>
	Theme and story setting	Historical, dark/gothic, military/war, science fiction, cyberpunk
	Visual style	Realistic, semi-realistic
ACQUIRE	Gameplay types	Waging war, making meaningful choices, engaging in battle, shooting
	Challenge types	Moral challenges, tactics, strategy, emotionally difficult themes
	Emotions in play	Terror, fear, curiosity, shock, empathy
RETAIN	Reasons to continue	Compelling story, story-related missions, decisions affect the story, proper difficulty level
	Reasons to quit	Badly written story , too easy, I did not get anything new from play sessions
MONETIZE	Reasons for IAPs	N/A
	Reasons to get new games	RPG genre, fits my current mood and feeling, good reviews

Steven Social		
KNOW	Age	30.7 (1.2 years over than the mean)
	Size	N=13.2%
	Gender	65.6% male, 33.8% female, 0.6% other
	Personal values	Kindness, excitement
	Mobile daily play time	1.65 hours
	Mobile spend/month for payers	\$22.1. A total of 41.8% do not spend money on a typical month
	Gaming mode	Multiplayer mobile games, online casino games
	Motivations to play	Social interaction, social status , competition, achievement
	RPG subgenres	MMORPG, fighting RPG
REACH	Alternatives to gaming	TV, Streaming (e.g., Netflix), Facebook,
	Played mobile RPG games	<i>Pokémon Go, Final Fantasy, RAID: Shadow Legends, AdVenture Capitalist, Final Fantasy XV, The Elder Scrolls: Blades, Clash Royale, AFK Arena, Clash of Clans, Summoners War, Star Wars: Knights of the Old Republic, Final Fantasy Tactics</i>
	Theme and story setting	Licensed, military/war, superhero, realistic
	Visual style	Realistic, stylized-casual , stylized-mature, semi-realistic
ACQUIRE	Gameplay types	Waging war, trading, generating resources, building and constructing, racing at a high speed
	Challenge types	Mastering complex controls, strategy
	Emotions in play	Satisfaction, rivalry, joy, triumph
RETAIN	Reasons to continue	Loyal and returning players get extra rewards, social interactions with friends, club membership, competitions, leaderboards
	Reasons to quit	I did not feel connected to other players , I had too much catching up, no special campaigns
MONETIZE	Reasons for IAPs	I wanted to show off my achievements, I wanted to play with my friends, I wanted to be the best
	Reasons to get new games	My friends play the game, the game has been published recently, game recommendations, the game is free