

SYSTEM AND METHOD FOR DISTRIBUTING REWARDS IN ELECTRONIC GAMES

FIELD OF THE INVENTION

[0001] The invention pertains to electronic games, and in particular, a system and method for distributing rewards in electronic games.

BACKGROUND

[0002] Electronic games often employ a reward distribution system to incentivize players to play the game and improve player retention. The reward distribution system may be configured to generate a randomly selected reward when certain predetermined condition(s) are met. For example, the reward distribution system may generate a reward (e.g., an item drop) when the player's game character kills an enemy. In another example, the reward distribution system may generate a reward when the player's game character completes a task in the game environment. The player's game character can then acquire the reward to gain some advantage.

[0003] Conventional reward distribution systems randomly select a reward, and upon selecting the reward, directly generate and display the selected reward for the player's avatar to acquire. Consequently, reward distribution systems do not provide any other visual content, or graphical animation effect, aside from visualizing the selected reward on the display screen of a device. In other words, reward distribution systems rely solely on the output of a reward to incentivize players to play the game. However, the lure of a reward alone provides limited benefit for the player to stay engaged with the game.

[0004] What is thus required is an improved method for distributing rewards in electronic games, which addresses the aforementioned limitation by rendering emotionally rewarding visual content associated with the selected reward, in addition to the visualization of the selected reward, thereby increasing player engagement and enhancing the player's immersion in the game environment. Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY OF INVENTION

[0005] According to a first aspect of the present invention, a method for implementing an electronic game is described. The method may be a method for distributing rewards in electronic games. The method includes generating a first and a second game character, wherein the first game character is a game character controlled by a player. The method further includes selecting, for display on a device, a reward to be acquired by the first game character. The method further includes determining a character reaction value of the player, wherein the character reaction value represents a prediction of the emotional reaction of the player to the selected reward, and determining a dynamic action to be performed by the second game character based on the determined character reaction value. The method includes manipulating the second game character to perform the dynamic action.

[0006] According to some aspects of the subject technology, the method further comprises monitoring and analysing the behaviour of the first game character to generate a prediction data set, wherein the prediction data set is used to infer the player's reward preferences.

[0007] According to some aspects of the subject technology, determining the character reaction value of the player comprises taking into account the prediction data set.

[0008] According to some aspects of the subject technology, determining the character reaction value of the player comprises taking into account a rarity value of the selected reward.

[0009] According to some aspects of the subject technology, determining the character reaction value of the player comprises taking into account a desirability score of the selected reward, wherein the desirability score is determined by a total number of posts in online discussion forums mentioning the selected item over a specific period of time.

[0010] According to some aspects of the subject technology, the method further comprises generating and displaying a red herring item after selecting the reward, wherein the red herring item is a different item from the selected reward.

[0011] According to some aspects of the subject technology, the dynamic action performed by the second game character comprises interacting with the red herring item to transform the red herring item into the selected reward.

[0012] According to some aspects of the subject technology, the second game character performs the dynamic action before the selected reward is displayed.

[0013] According to some aspects of the subject technology, the second game character performs the dynamic action after the selected reward is displayed.

[0014] According to some aspects of the subject technology, the dynamic action performed by the second game character comprises interacting with the selected reward.

[0015] According to some aspects of the subject technology, when the determined character reaction value of the player to the selected reward is a value corresponding to a positive reaction, the dynamic action performed by the second game character comprises an expression of happiness.

[0016] According to some aspects of the subject technology, when the determined character reaction value of the player to the selected reward is a value corresponding to a negative reaction, the dynamic action performed by the second game character comprises an expression of empathy.

[0017] According to some aspects of the subject technology, the second game character is a non-player character.

[0018] According to some aspects of the subject technology, the dynamic action performed by the second game character comprises conveying information associated with using the selected reward.

[0019] According to some aspects of the subject technology, the method further comprises activating a reward distribution module, wherein the reward to be acquired by the first game character is randomly selected by the reward distribution module.

[0020] According to some aspects of the subject technology, the method further comprises increasing an activation counter value by 1 each time the reward distribution module is activated, wherein a character profile of the second game character changes when the activation counter value is increased to a threshold value.

[0021] According to some aspects, the present invention provides a system comprising one or more computers and one or more storage devices storing computer-readable instructions that, when executed by the one or more computers, cause the one or more computers to perform all steps of any of the above-described methods. The same applies to one or more non-transitory computer storage media storing instructions that, when executed by one or more computers,

cause the one or more computers to perform any of the above-described methods. The method can thus be easily transferred to other systems and carried out there.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to illustrate various embodiments, by way of example only, and to explain various principles and advantages in accordance with a present embodiment.

[0023] Figure 1 shows a simplified diagram of a system 100 for implementing an electronic game according to certain embodiments.

[0024] Figure 2 shows a flowchart of a method 200 for implementing a reward distribution system in an electronic game according to certain embodiments.

[0025] Figures 3a and 3b show flowcharts of a method 300 for implementing a reward distribution system in an electronic game according to certain other embodiments.

[0026] Figures 4a – 4c show flowcharts of a method 400 for implementing a reward distribution system in an electronic game according to certain other embodiments.

[0027] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been depicted to scale. For example, the dimensions of some of the elements in the block diagrams or steps in the flowcharts may be exaggerated relative to other elements to help improve understanding of the present embodiment.

DETAILED DESCRIPTION

[0028] The following detailed description is merely exemplary in nature and is not intended to limit the invention or the application and uses of the invention. Furthermore, there is no intention to be bound by any theory presented in the preceding background of the invention or the following detailed description.

[0029] It is the intent of certain embodiments to teach a method for implementing a reward distribution system in electronic games. The reward distribution system, for example, distributes rewards for a player's game character during gameplay. In some embodiments, the

method described herein is configured to control a game character (e.g., a player character or non-player character) to perform actions according to a determined character reaction value of a player to a selected reward. The determined character reaction value, for example, represents a predicted emotional reaction of the player to the selected reward. In some embodiments, the actions performed by the game character are designed to increase player engagement and enhance player immersion in the game environment. For example, during the reward distribution process, the method manipulates a non-player character (hereinafter “NPC”) to perform varying actions that convey emotional content in a variety of ways.

[0030] It is appreciated that different forms of games may contemplate different types of “game characters”, and may include any element of the game environment that interacts with or influences the actions, choices, or progression of the game. Non-limiting examples of game characters can include, in addition to antagonists/enemies, protagonists/allies, neutral/bystanders, also other elements within the genre or context of the game that may furnish information to the player, which could include animate or inanimate elements of the natural or built environment, such as weather patterns, roadways or pathways, omniscient narrators, magical, celestial, or science fiction elements, in addition to many others that would be apparent to practitioners in the art.

[0031] In one example, the actions performed by the game character (e.g., NPC) include expressing happiness for the player (or the player’s game character) when a reward is selected and the determined character reaction value of the player to the selected reward is a value corresponding to a positive reaction (e.g., positive emotional reaction). In another example, the actions performed by the NPC include exhibiting empathic behavior towards the player (or the player’s game character) when a reward is selected and the determined character reaction value of the player to the selected reward is a value corresponding to a negative reaction (e.g., negative emotional reaction). In yet another example, the actions performed by the NPC include an attempt to transform an undesirable reward as will be described in more detail later.

[0032] Aspects of the present invention significantly add to the value of the reward distribution module of a game engine or gaming system. By configuring the NPC to perform different actions to convey targeted emotional content to the player based on the player’s determined character reaction value to a selected reward, the method provides an interactive game character who can collectively share in the player’s emotional responses. This in turn increases the player’s joy when a desirable reward (e.g., a rare item, a high usage item, etc.) is

acquired, reduces the player's frustration when an undesirable reward (e.g., a common item, a low usage item, etc.) is acquired, and increases the player's engagement with the game environment (e.g., the NPC or other elements of the game environment). Moreover, when the NPC attempts to transform (e.g., upgrade) the reward on display and succeeds, the positive emotion evoked within the player is stronger because the player's original expectation of the reward is exceeded. Even if the NPC's attempt to transform the reward on display is unsuccessful, the player's expectations for a better reward would be tempered, which in turn alleviates the player's negative emotions when the undesirable reward is not transformed. Thus, the method utilizes the reward distribution process to beneficially provide interactive and emotionally rewarding game content.

[0033] Although it is expected that additional computing resources may be required to render the NPC's actions described herein, it is contemplated that the immersive experience created by the method described herein will elevate the player's gaming experience and justify the increase in computing resource consumption.

[0034] Figure 1 shows a simplified diagram of a system 100 for implementing an electronic game according to certain embodiments. The system 100 may include any number of players 102 and one or more components, which may be implemented using software and/or hardware, optionally across multiple locations or using multiple devices or units. The components (e.g., client devices, server computer) of the system 100 can be connected to each other in any suitable configuration, using any suitable type of connection. The components may be connected directly or over a network 110, which may be any suitable network. For example, one or more portions of the network 110 may be an ad hoc network, an intranet, an extranet, a virtual private network (VPN), a local area network (LAN), a wireless LAN (WLAN), a wide area network (WAN), a wireless WAN (WWAN), a metropolitan area network (MAN), a portion of the Internet, a portion of the Public Switched Telephone Network (PSTN), a cellular telephone network, another type of network, or a combination of two or more such networks.

[0035] In some embodiments, the system 100 includes a client device 120 that can communicate with a remote game server 130 via the network 110. The client device 120 may include or host the electronic game. The client device 120 can be any manner of computer or computing device with, for example, local memory and processor. Various types of portable and/or non-portable computing devices may serve as a client device. The client device 120 may include, for example, a processor, a memory, a network communication connector, and a

display screen. In some embodiments, the term “client device” as used herein includes a smartphone, tablet computer, game console, personal computer (PC), laptop, a home entertainment system, a portable gaming device, and a mobile computing device.

[0036] A memory may be volatile or non-volatile types of non-transitory computer-readable media, such as magnetic media, optical media, random access memory (RAM), read-only memory (ROM), removable media, or any other suitable local or remote memory unit. The memory can include digital data that can be accessed by the processor. A processor may be any type of device, or multiple devices, capable of manipulating or processing information from a non-transitory computer-readable media (e.g., a memory). For example, a processor includes a central processing unit (CPU) for processing computer-executable program instructions to perform one or more processes.

[0037] In some embodiments, the electronic game may execute entirely on the client device 120. For example, the electronic game may be an adventure game played on the client device 120 without interacting with the remote game server 130. In other embodiments, the electronic game may execute at least partially on the client device 120 and at least partially on the remote game server 130. In still other embodiments, the electronic game may execute entirely on the remote game server 130, but a player may interact with the electronic game on the remote game server 130 via the client device 120. For example, the electronic game may be a multiplayer online gaming system that includes a client portion executed by the client device 120 and a server portion executed by one or more application host systems (not shown) that may be included as part of the remote game server 130.

[0038] In some embodiments, the system 100 may include a game engine (not shown) for managing the game state of the electronic game. Game state comprises all game play parameters, including player character state, non-player character (NPC) state, in-game object state, game world state (e.g., internal game clocks, game environment), and other game play parameters. Each player 102 controls one or more player characters (PCs). The game engine controls all other aspects of the electronic game, including non-player characters (NPCs), and in-game objects.

[0039] Figure 2 shows a flowchart of a method 200 for implementing a reward distribution system in an electronic game according to certain embodiments. The steps identified in Figure 2 are exemplary and may include various alternatives, equivalents, or derivations thereof

including but not limited to the order of execution of the same. The steps illustrated in Figure 2 (and its various alternatives) may be embodied in hardware or software including a computer-readable storage medium including instructions executable by the likes of a processor in a computing device. The exemplary method may be performed repeatedly during gameplay.

[0040] The use of the term “electronic game” herein includes all types of games, including, but not limited to web-based games, console games, personal computer (PC) games, computer games, games for mobile devices (for example, smartphones, portable consoles, or gaming machines), or virtual-reality games, as well as other types of games.

[0041] In step 202, the method generates a virtual game environment (hereinafter “game environment”) in a video game system or module. In some embodiments, the game environment may be a game level or world populated with a plurality of game characters, including but not limited to a player-controlled game character (hereinafter “player character”) and one or more computer-controlled game characters (hereinafter “non-player characters”). In one embodiment, the game environment includes a player character and a non-player character (NPC) that interacts with the player character as the player character moves around the game environment. The NPC may be, for example, a friendly NPC or ally NPC. In other embodiments, NPCs may include rivals, enemies, bystanders, other game characters with varying relationships to the player character, or game characters without any relationship to the player character. The game environment may be displayed on a display screen of an electronic device, such as but not limited to a mobile device, a personal computer, a game console, and a television. For example, the game environment may be displayed from a top-down (or isometric) perspective. When the player maneuvers the player character around the game environment, the display of the game environment may be adjusted to reflect the changes around the player character. The terms “player” and “player character” are used interchangeably herein.

[0042] In step 204, the method monitors the behaviour of the player character during gameplay. Generally, the method monitors the behaviour of the player character to identify, determine, analyze, and/or perform calculations regarding various pieces of information and/or data associated with the player and/or player character, including but not limited to characteristics, preferences, statistics, attributes. As used herein, the terms characteristics, preferences, statistics, and attributes are used interchangeably to reference information or data associated with the player and/or player character for the purposes described herein. For

example, the method monitors the player character's actions, including but not limited to usage of each weapon type, selection of equipment and the like, during gameplay to generate a rich set of prediction data set (or model) based on the past actions performed by the player character.

[0043] In some embodiments, the method automatically identifies, analyzes, and determines, with computer hardware comprising one or more computer processors, player character actions and statistics and transforms these identified player character actions and statistics to generate predictive analytics associated with the player, for example to aid in player characterization, prediction, etc. as further described herein. These actions can include tactics employed during a battle (e.g., types and order of spells used, types of weapons used, etc.), characteristic of the items equipped by the player character (e.g., attributes of the weapon or equipment in use), usage statistics (e.g., a time duration of usage, usage frequency, etc.) for each weapon or spell type.

[0044] The method may also analyze characteristics of the player character to generate, enrich, and/or otherwise modify the prediction data set. For example, the system may identify a player character's gender, race, level, class, relative equipment level or strength, abilities, and other similar identifiers. Based on this rich prediction data set, the method transforms the data set, for example by generating metrics for the player, such as preferred equipment attributes, preferred weapon (or spell) types, and other metrics described herein. These metrics help to provide a reference point to characterize and quantify the player character's general play patterns (or behavior patterns) and therefrom infer reward preferences of the player to thereby more accurately predict the player's reaction (e.g., emotional reaction) to any selected reward. For example, the prediction data set is used to determine a character reaction value associated with the player, the character reaction value being a value indicative of whether the player will likely or not likely desire the selected reward. Apart from the prediction data set, the character reaction value can also be impacted by one or more factors, such as but not limited to, a rarity and/or desirability of the selected reward, as will be described in more detail.

[0045] In step 206, the method conditionally activates a reward distribution module. In some embodiments, the method activates the reward distribution module when the player character satisfies one or more predefined activation conditions during gameplay, such as defeating an enemy character, interacting with a game element (e.g., opening a treasure chest or locked door), or completing a task in the game (hereinafter "game task"). In one exemplary implementation, the reward distribution module is activated when the player character kills an

enemy character (e.g., when the enemy's health point is less than or equal to zero). In this case, the reward may correspond to an item drop from the enemy character. In another exemplary implementation, the reward distribution module is activated when the player character successfully completes a game task. In this case, the reward may correspond to a task reward. In some embodiments, the selected reward is not displayed until after the NPC performs an action, as will be described in more detail later.

[0046] Although the method is described as activating the reward distribution module whenever the one or more activation conditions are satisfied, it is understood that the method may also be configured to include a probability value indicating a likelihood that the reward distribution module will be activated when the predefined activation conditions are satisfied. The probability value may be an integer ranging from 1% - 100%. For example, the method may be configured to include a 20% chance of activating the reward distribution module when the player character kills a first type of enemy character, and a 100% chance of activating the reward distribution module when the player character kills a second type of enemy character. Other conditions for activating the reward distribution module may also be useful.

[0047] In some embodiments, the reward distribution module is configured to randomly select a reward from a plurality of different rewards upon activation. The plurality of different rewards includes items that can be used by the player character to gain an advantage in the game or unlock additional game content. For example, the plurality of different rewards includes items such as weapons, gold, spells, skills, equipment, new tasks or missions, game hints or insights, or other game content. The terms "reward", "item", "weapon", "equipment", and the like are used interchangeably herein.

[0048] In some embodiments, each of the plurality of different rewards may be assigned with a rarity value or function, and/or a desirability score. The rarity value of an item may be determined by the item's degree of distribution in the game and/or the probability that the item is selected by the reward distribution module. A higher rarity value may correspond to a higher degree of scarcity in the game. For example, an item with a higher rarity value has a lower probability of being selected by the reward distribution module and thus a smaller amount of circulation in the game.

[0049] In one embodiment, the rarity value ranges from "1" to "3". For example, a rarity value of "1" is associated with a common item, a rarity value of "2" is associated with an

uncommon item that is more scarce than the common item, and a rarity value of “3” is associated with a rare item that is more scarce than the uncommon item. An item may be characterized by its parameters (or attributes), which may generally be considered proxies for improving the ability of the character to interact with or impact the environment in ways directed by the player, which could include e.g., offensive power, defensive power, mobility, special effects, etc. In some embodiments, items having higher attribute values will be associated with a higher rarity value. For example, an item whose use increases the ability of a player to interact with or impact the game environment, for example with higher offensive power, defensive power, and/or mobility will have a higher rarity value relative to an item with lower offensive power, defensive power, and/or mobility. Therefore, items with a higher rarity value are more likely to be desired by the player as they provide the player with greater advantages when playing the game.

[0050] In some embodiments, the desirability score of each reward may be based on the number and/or frequency of posts in online discussion forums mentioning the particular reward. For example, the desirability score of an item is determined by the total number of posts mentioning that item over a specific period of time. A higher number of posts mentioning an item is taken to indicate a greater public interest in that item and thus a greater likelihood that the player will be interested in that item. For example, the desirability score is a measure of how potentially desirable an item could be to the player, and an item associated with a higher number of posts will be assigned with a higher desirability score. In one embodiment, the desirability score ranges from “0” to “2”. For example, a score value of “0” is indicative of an item not mentioned in any posts, a score value of “1” is indicative of an item mentioned in a number of posts less than or equal to a predetermined threshold number (e.g., “5”), and a score value of “2” is indicative of an item mentioned in a number of posts more than the predetermined threshold number (e.g., “5”).

[0051] The desirability score can be influenced by one or more factors based on public sources such as that described previously, or in the alternative, by other data sources such as data compiled through the operation of the game reflecting the desirability of a particular reward, either alone as an independent score, or in a dependent way based on other attributes or characteristics of the player, the player character, or the specific challenges presented in the specific game’s environment. For example, when an item is an in-game purchasable item, the desirability score of that item may be also be determined or influenced by selected game data

associated to that item, such as the purchase price of that item, or the purchase frequency of that item (e.g., number of times that item has been purchased by any player over a specific period of time). For example, a higher desirability score may be assigned to an item with a higher purchase price or a higher purchase frequency.

[0052] It is appreciated that data sources such as public online discussion forum posts mentioning an item may include positive, negative, or neutral sentiment towards that item. Therefore, the method may also be configured to identify positive, negative, and neutral language which can be used to correlate with a desirability score in accordance with the design principles used for the specific game environment. The presence of positive, negative, or neutral language, or a combination thereof, within a given post can lead to approaches in different embodiments that aggregate only the posts that contain positive sentiment towards an item to score that item, or in the alternative determining a desirability score based on the blended prevalence of each type of language in such posts. These methods for determining the desirability score of an item are not limiting and other methods for determining the desirability score of an item may also be useful.

[0053] In step 208, the method identifies the reward selected by the reward distribution module. In some embodiments, the method identifies the selected reward immediately after the reward is selected and prior to rendering the visual representation of the selected reward. For example, the method identifies the selected reward to determine a character reaction value of the player to the selected reward.

[0054] In step 210, the method determines a character reaction value of the player to the selected reward. The character reaction value may be a value corresponding to a positive or a negative reaction. In some embodiments, the method determines the character reaction value of the player to the selected reward in response to identifying the selected reward. The determined character reaction value is representative of a predicted reaction of the player to the selected reward. The predicted reaction of the player may be a positive emotional reaction (e.g., happy) or a negative emotional reaction (e.g., disappointment). For example, a first character reaction value (e.g. "1") may correspond to a positive emotional reaction to the selected reward, and a second character reaction value (e.g. "0") may correspond to a negative emotional reaction to the selected reward. Other configurations of the character reaction value may also be useful.

[0055] In some embodiments, the method uses input from a plurality of sources and/or types of data to determine the character reaction value of the player to the selected reward. The plurality of sources and/or types of data include, for example, the player character's attributes, history, behaviour patterns, and/or the factors influencing the desirability of the selected reward (e.g., rarity value, desirability score). For example, the method uses the prediction data set described herein (e.g., in step 204); a rarity value of the reward; and a desirability score of the reward as input data to determine the player's character reaction value.

[0056] It is also understood that the various values and scores used as inputs to the determining step can comprise values that are objective, absolute, or otherwise relatively invariant between the circumstances of different characters, game environments, or challenges, and can also comprise values that are subjective, relative, and highly dependent on the circumstances of different characters, game environments, or challenges. For example, as is understood by practitioners in the art, different characters may conform to specific archetypes or classes limited in the types of rewards or items that may be used, such that an item that is by the operation of game rules usable only by the player's character archetype may have a higher desirability for that player than for another player whose character conforms to a different archetype that is not permitted by operation of game rules to use the same reward. By way of further example, as is understood by practitioners in the art, certain items or rewards in a game may be consumed at different rates such that, notwithstanding that the item may be common, its desirability fluctuates based on the amount of that item already possessed by a player's character, e.g. ammunition for a character's ranged weapon, which may have significantly diminishing marginal utility when a character is already at or near game-imposed limitations on capacity for the same, but which may have an extremely high marginal utility when the character's inventory of the same item is depleted.

[0057] In some embodiments, the method includes a weighting function that assigns weights (e.g., numerical values) to the plurality of sources and/or types of input that include (i) the rarity value of the reward; (ii) the prediction data set described herein; and (iii) the desirability score of the reward. Each of the various inputs are assigned a different weight to determine a ranked relevance (e.g., priority) of each input for predicting the player's emotional reaction. For example, a greater weight (or higher ranking) is assigned to an input having a higher relevance to the prediction relative to an input having a lower relevance. In one embodiment, the method considers the rarity value to be the most relevant input, the prediction data set to be the second

most relevant input, and the desirability score to be the third most relevant input for predicting the player's emotional reaction. For example, the rarity value of a reward is ranked highest, the prediction data set described herein is ranked second highest, and the desirability score of the reward is ranked third highest. Assigning a different relevance ranking to the various inputs may also be useful.

[0058] In one exemplary implementation, the player's emotional reaction to a selected reward is predicted to be a positive emotion when the rarity value is high (e.g., "3"), the desirability score is low (e.g., "0"), and the prediction data set indicates that the player will likely desire the selected reward. In another exemplary implementation, the player's emotional reaction to a selected reward is predicted to be a positive emotion when the rarity value is low (e.g., "1"), the desirability score is high (e.g., "2"), and the prediction data set indicates that the player will likely desire the selected reward. In yet another exemplary implementation, the player's emotional reaction to a selected reward is predicted to be a positive emotion when the rarity value is high (e.g., "3"), the desirability score is high (e.g., "2"), and the prediction data set indicates that the player will likely not desire the selected reward.

[0059] In step 212, the method manipulates a non-player character to perform a dynamic action based on the determined character reaction value of the player to the selected reward. In some embodiments, the non-player character (NPC) being manipulated is a computer-controlled player character that may interact with the player character as the player character moves around the game environment. The NPC may be an ally NPC (e.g., an NPC that follows the player character without attacking the player character). For example, the NPC forms part of the player character's team (e.g., NPC is a teammate) that follows the player character in the game. It is to be understood that in the case where different NPCs follow the player character at different times during gameplay (e.g., the NPC(s) following the player character changes over time), the method can be configured to manipulate the actions of any one of the different NPCs that is following the player character at any given time.

[0060] Although the method is described as manipulating an NPC, it is understood that the method can also be adapted to manipulate the actions of player-controlled game characters, such as a second player character selectable by the player during gameplay or a player character controlled by a different player (or user). In some alternative embodiments, a system executing the method may be configured to manipulate the actions of the current (or first) player character receiving the selected reward. For example, the system may be configured to cause the current

player character to display a reaction (e.g., facial or body expression), say a phrase, or otherwise express the predicted emotional reaction. Furthermore, there may be one or more actions of the NPC and/or player characters may be done individually, at the same time, or in combination with other characters (e.g., multiple characters giving a “high-five” or “fist bump”).

[0061] In some embodiments, the method manipulates (or controls) the game character (e.g., the NPC) to perform a variable action that is changeable from one implementation to the next depending on the determined character reaction value of the player. For example, the NPC’s performance can dynamically change during gameplay to reflect the determined character reaction values of the player for different selected rewards. In contrast with controlling the NPC to repeatedly perform an unchanging or static action (e.g., cheering every time a reward is selected), the dynamic nature of the present invention is more robust and visually interesting and provides the player with a more emotionally engaging gaming experience. This is in contrast to an NPC performing an action that is unchanging and predictable, which would make the game’s visual content boring and monotonous.

[0062] The NPC’s performance is configured to include actions that provide emotional appeal to the player such that the predicted emotional response of the player to receiving the selected reward is adjusted (e.g., increased or decreased). In some embodiments, the method determines the character reaction value of the player to the selected reward to determine the NPC’s performance (e.g., action to be performed). The NPC’s performance repertoire includes, for example, expressing emotional content through facial expressions, bodily movements, speech, or a combination thereof.

[0063] In one exemplary implementation, the NPC is manipulated to express happiness when the determined character reaction value of the player is a value corresponding to a positive reaction (e.g., delight). The NPC’s expression of happiness can include, but are not limited to, grinning happily at the player character or directly at the player (e.g., breaking the fourth wall), jumping for joy, cheering, verbally expressing happiness for the player to have gained the selected reward, or a combination thereof. For example, when verbally expressing happiness, the NPC may say a statement such as “Congratulations. Your efforts have earned you this golden sword”, or the like. The positive emotional feedback from the NPC serve to strengthen, reinforce, and affirm the player’s own positive emotions. This NPC’s expression can also be used to convey information or encouragements that may guide a player to recognize

applications or uses of unknown items, or an identification of game goals that may be advanced by the possession or use of the selected reward.

[0064] In another exemplary implementation, the NPC is manipulated to express empathy when the determined character reaction value of the player to the selected reward is a value corresponding to a negative reaction (e.g., disappointment, frustration). The NPC's expression of empathy can include, but are not limited to, frowning, looking sympathetically at the player character or directly at the player (e.g., breaking the fourth wall), slumping the shoulders and upper back, shaking the head in dismay, verbally empathizing with the player for obtaining the selected reward, or a combination thereof. For example, when verbally empathizing with the player, the NPC may say a statement such as "We will get better rewards next time" or "I know you do not want this shield, but I think it is underrated and I like it very much", or the like. The positive verbal or emotional feedback from the NPC serve to reduce the player's own negative emotions, and provide emotional compensation (or consolation) to the player.

[0065] It is understood that the NPC can be manipulated to perform different actions at different instances of executing step 212. For example, the actions performed by an NPC can include jumping for joy in a first instance of executing step 212, looking sympathetically at the player in a second instance of executing step 212, and praising the player's good fortune in a third instance of executing step 212. Thus, an NPC's performance is changeable across implementations depending on the determined character reaction value of the player.

[0066] In step 214, the method displays the selected reward. For example, a visual representation of the selected reward is rendered and displayed on the display screen. In one embodiment, the method displays the selected reward while the NPC is performing the dynamic action described in step 212. For example, the selected reward is displayed while the NPC is cheering and giving a positive comment, e.g., "You finally got a samurai sword". In another embodiment, the method displays the selected reward after the NPC has performed the dynamic action described in step 212. For example, the selected reward is displayed immediately after the NPC has jumped for joy. Once the selected reward is displayed, the player is then able to identify and acquire the selected reward on display.

[0067] The method returns to step 204 from step 214 after displaying the selected reward. For example, upon displaying the selected reward, the method continues to monitor the behaviour of the player character during gameplay to fine-tune or update the prediction data

set according to the player character's subsequent behaviour. This enables the method to account for any changes in the player character's behaviour when subsequently determining a character reaction value of the player to an ensuing reward. Indeed, the method continuously analyses the player character's actions during gameplay to accurately predict the player's emotional reaction to different rewards distributed at different points in time.

[0068] As described above, the present invention anticipates the player's emotional reaction to a randomly selected reward, and controls an NPC to perform dynamic actions based on the predicted emotional reaction (or determined character reaction value) of the player to the selected reward. The present invention advantageously provides interactive and variable visual content during the reward distribution process to adjust the player's original expectation (whether positive or negative) of the reward.

[0069] To influence the player's expectation of the selected reward, the method manipulates a game character (e.g. NPC) to perform a variable action based on the determined character reaction value of the player, before the selected reward is displayed on the display screen. It is understood that the player may harbour some expectations of gaining a desirable reward. However, the player will not know what the reward is until after the selected reward is rendered and displayed on the display screen. Therefore, before the selected reward is revealed, the method presents interactive visual content designed to adjust (e.g., increasing or decreasing) the player's original expectation of the selected reward, thus enhancing the player's engagement when the selected reward is revealed.

[0070] By enabling an NPC to react to the selected reward by expressing positive or negative emotions as determined by the predicted emotional reaction of the player to the selected reward, the present invention uses the NPC's emotional expressions and interactive behaviour to connect with the player on an emotional level and let the player feel understood, supported, and/or comforted. This increases the immersion of the player into the game. In addition, having a second game character who collectively shares in the player's positive and negative emotional reactions to the select reward also increases the player's joy when a desirable reward is acquired, and reduces the player's frustration when an undesirable reward is acquired. The present improvement to the reward distribution process enhances the visual content and emotional appeal of the game.

[0071] It is appreciated that adding animation and interactive visual content during the reward distribution process will inevitably increase the consumption of valuable computing resources. Therefore, the logic operations of the method as described herein is configured to allow the additional computing resource burden to be controllable. For example, by configuring the method to determine the NPC's performance (or action) after the reward is selected, the present invention avoids large consumption of computational resources caused by synchronization. In some embodiments, the system begins determination of the character performance (or action) after the reward is selected, but prior to rendering the visual representation of the selected reward thereby mitigating any latency perceived by a player. Moreover, the added interactive visual content from the NPC's performance can increase the diversity of both the game content and the interaction between the player character and NPCs, which increases the overall appeal of the game for players. Therefore, it is contemplated that the benefits of the present invention far outweighs any increase in computing resource burden.

[0072] Figures 3a and 3b show flowcharts of a method 300 for implementing a reward distribution system in an electronic game according to certain other embodiments. The flowcharts shown in Figures 3a and 3b are similar to the flowchart of Figure 2 described above, and the same steps are denoted by the same reference numerals. In the interest of brevity, common elements (or steps) will not be described or described in detail.

[0073] Referring to Figure 3a, the method determines a character reaction value of the player to the selected reward at step 210. In some embodiments, the method continues to step 312 after the character reaction value of the player is determined.

[0074] In step 312, the method includes determining whether or not the determined character reaction value correspond to a positive reaction. In some embodiments, the method proceeds from step 312 to step 314 when the determined character reaction value is a value corresponding to a positive reaction.

[0075] In step 314, the method generates and displays an item that is different from the selected reward. The newly generated item serves as a "red herring" item, which is an item that misleads (or misdirects) the player from identifying the actual selected reward. For example, when a visual representation of the red herring item is rendered and displayed on the display screen, the player is led to think that the item on display (i.e., red herring item) corresponds to the actual selected reward. The red herring item may include similar or different

attributes to the actual selected reward. In one embodiment, the method generates a red herring item having one or more lower parameter values than the selected reward. For example, the red herring item is less useful to the player as compared to the selected reward. In one exemplary implementation, when the selected reward is a flaming sword, the method generates and displays a plain sword (i.e., red herring item) with lower parameters, e.g., lower offensive power, lower defensive power, lower mobility, no special effects, or any combination thereof.

[0076] It is understood that the red herring item may also be an item having a different class, type, and/or rarity value as the selected reward. For example, when the selected reward is a rare diamond sword, the method may generate and display a common plain dagger (i.e., red herring item) with one or more lower parameters. In this way, the method keeps the actual selected reward hidden from the player while misleading the player to think that the red herring item corresponds to the selected reward. The method continues to step 316.

[0077] Proceeding further to step 316, the method manipulates a non-player character to perform a dynamic action based on the determined character reaction value of the player to the selected reward. For example, the non-player character (NPC) being manipulated is a computer-controlled player character that is following the player character as the player character moves around the game environment.

[0078] In one embodiment, the method includes manipulating the NPC to perform a dynamic action on, and interacting with, a displayed item, such as an attempt to transform (or modify) the red herring item on display. In this case, the NPC's actions are configured to modify the displayed item so as to present the actual selected reward to the player. For example, the NPC's actions correspond to a successful attempt at transforming the red herring item into the selected reward. In one exemplary implementation, when the red herring item on display is a plain dagger and the selected reward is a flaming sword, the NPC's actions include picking up the plain dagger and pouring magical power into the plain dagger, thereby transforming the plain dagger into the flaming sword. In some embodiments, the NPC is manipulated to express happiness during or after performing the action on the displayed item (i.e., red herring item). For example, the NPC displays a smiling facial expression and/or verbally expresses happiness to be able to transform the plain dagger (i.e., red herring item) into a better item, in this case a flaming sword, for the player when the determined character reaction value of the player to the flaming sword (i.e., selected reward) is a positive reaction. By way of further example, the NPC's actions can include a prompt asking the player to allow the NPC to investigate or inspect

the red herring reward, and in the course of such actions reveal that the red herring item is in fact the selected reward, and replacing the red herring item with the selected reward.

[0079] Although the method is described as executing steps 314 and 316 separately, it is understood that the method may also be configured to combine step 314 and step 316 into a single step. In one alternative embodiment, the red herring item is revealed to the player (i.e., first displayed) when the method begins to manipulate the NPC. For example, the red herring item is generated and displayed during the NPC's performance in step 316.

[0080] In step 318, the method displays the selected reward. For example, a visual representation of the actual selected reward is rendered and displayed in place of the red herring item following the NPC's performance. Once the selected reward is displayed, the player is then able to identify and acquire the actual selected reward. In some embodiments, the method returns to step 204 from step 318 upon displaying the selected reward.

[0081] In some other embodiments, the method proceeds from step 312 to step 320 when the determined character reaction value does not correspond to a positive reaction. For example, the determined character reaction value is a value corresponding to a negative reaction

[0082] In step 320, the method displays the selected reward. For example, a visual representation of the selected reward is rendered and displayed on the display screen before the NPC is manipulated to perform an action. The method continues to step 322.

[0083] Proceeding further to step 322, the method manipulates a non-player character to perform a dynamic action based on the determined character reaction value of the player to the selected reward. For example, the non-player character (NPC) being manipulated is a computer-controlled player character that is following the player character as the player character moves around the game environment.

[0084] In one embodiment, the method includes manipulating the NPC to perform a dynamic action on, and interacting with, a displayed item, such as an attempt to transform (or modify) the selected reward on display. In this way, the method misleads (or misdirects) the player from identifying the actual selected reward. For example, when the NPC begins to perform the dynamic action on the displayed item, the player is led to think that the item on display (i.e., selected reward) can be transformed into a better item. In this case, however, the NPC's actions do not modify the displayed item. For example, the NPC's actions correspond to an

unsuccessful attempt at transforming the selected reward. In one exemplary implementation, when the selected reward on display is a plain sword, the NPC's actions include picking up the plain sword and pouring magical power into the plain sword, but the plain sword remains unchanged. In some embodiments, the NPC is manipulated to express empathy during or after performing the action on the displayed item (i.e., selected reward). For example, the NPC displays a frowning facial expression and/or verbally expresses disappointment at having failed to modify the plain sword (i.e., selected reward) into a better item when the determined character reaction value of the player to the plain sword (i.e., selected reward) correspond to a negative reaction.

[0085] Although the method is described as executing steps 320 and 322 separately, it is understood that the method may also be configured to combine step 320 and step 316 into a single step. In one alternative embodiment, the selected reward is revealed to the player (i.e., first displayed) when the method begins to manipulate the NPC. For example, the selected reward is displayed during the NPC's performance in step 322.

[0086] In step 324, the method displays the selected reward. For example, the method continues displaying the selected reward following the NPC's performance. At this point, the player is able to confidently identify the reward on display as the selected reward and acquire the selected reward. In some embodiments, the method returns to step 204 from step 324 after the NPC has performed the dynamic action.

[0087] The present invention advantageously provides interactive visual content during the reward distribution process to adjust the player's original expectation of the reward. By displaying a red herring item at step 314, the present invention first lowers the player's original expectation of the actual reward, and then proceeds to exceed the player's expectations of the reward by revealing a better item as the actual selected reward. This evokes a stronger positive emotion within the player than if the selected reward is directly revealed to the player after being selected. In addition, the NPC's performance (e.g., success attempt at transforming the red herring item) serves to build up suspense and anticipation for the reward, which enhances the strength of the player's positive emotions (e.g., greater excitement and enjoyment) when the actual selected reward is revealed.

[0088] Similarly, at step 322, the NPC's performance (e.g., unsuccessful attempt at transforming the reward on display) also serves to lower the player's original expectation of

the reward while giving the player hope that the reward on display can be transformed into a better item. Therefore, when the reward on display is revealed to be the actual selected reward at step 324, the player's expectations would have been tempered and the player's negative emotions to the selected reward would be reduced. Thus, the present improvement to the reward distribution process provides the game with both a strong visual and emotional appeal.

[0089] Figures 4a-4c show flowcharts of a method 400 for implementing a reward distribution system in an electronic game according to certain other embodiments. The flowcharts shown in Figures 4a-4c are similar to the flowcharts of Figure 2 and Figures 3a-3b described above, and the same steps are denoted by the same reference numerals. In the interest of brevity, common elements (or steps) will not be described or described in detail.

[0090] Referring to Figure 4a, the method conditionally activates a reward distribution module at step 206. In some embodiments, after activating the reward distribution module, the method continues to step 430.

[0091] In step 430, the method updates an activation counter value to monitor the number of times the reward distribution module has been activated. For example, a counter value of the activation counter is instantly or near-instantly increased by 1 after the reward distribution module is activated. In some embodiments, the activation counter is associated with an NPC that is manipulated by the method described herein. For example, the activation counter counts the number of times the reward distribution module has been activated since the NPC started following the player character.

[0092] In step 432, the method determines whether the counter value is equal to a threshold value. For example, upon updating the activation counter, the method determines whether or not the counter value of the activation counter is equal to a threshold value. In some embodiments, the method proceeds from step 432 to step 208 when it is determined that the counter value of the activation counter is not equal to a threshold value. In other embodiments, the method proceeds from step 432 to step 434 when it is determined that the counter value of the activation counter is equal to a threshold value.

[0093] Proceeding further to step 434, the method includes modifying certain aspects of a non-player game character when the activation counter is increased to the threshold value. The non-player game character is, for example, an ally NPC that is manipulated by the method described herein. In some embodiments, the method modifies the character profile (e.g., image

and characteristics) of the NPC to give the player new interactive experiences with the same NPC after the activation counter is increased to the threshold value. For example, the NPC is configured to provide a first set of interactive visual content that is associated with an original image and characteristics before the threshold value is reached, and to provide a second set of interactive visual content that is associated with a modified image and characteristics after the threshold value is reached.

[0094] In one exemplary implementation, the reward distribution module is activated each time the player character kills an enemy (e.g., evil witch) in the game. In this example, the NPC following the player character is also a witch with a negative personality that speaks harshly to the player character during the reward distribution process. For example, the NPC is an evil character that has formed an alliance with the player. In this case, at step 212, the actions performed by the NPC may include cheering sarcastically for the player when the determined character reaction value of the player to a selected reward is a value corresponding to a positive reaction, or sarcastically consoling the player when the determined character reaction value of the player to a selected reward is a value corresponding to a negative reaction. Returning to the exemplary implementation, when the player character kills a sufficient number of evil witches in the game such that the counter value of the activation counter reaches a threshold value (e.g., “20”), the evilness within the NPC is purified and the character profile of the NPC is transformed from a witch to a goddess with a positive personality that speaks kindly to the player character during the reward distribution process. In some embodiments, after the NPC is modified (e.g., transformed into a goddess), the modified NPC may also perform actions such as that described in steps 316 and 322.

[0095] It is contemplated that an NPC may be configured to provide a limited number of interactive visual content based on the NPC’s profile, characteristics, and/or image. Therefore, the method as described in Figures 4a-4c allows the player’s cumulative effort in earning rewards to modify the NPC’s profile, characteristics, and/or image, which unlocks new interactive visual content associated with the modified NPC. This advantageously keeps the interactive visual content interesting and strengthens the emotional appeal of the game, thereby increasing player engagement and enhancing the player’s immersion in the game environment.

[0096] The present methodologies described herein are fully intended to be operable on a variety of devices or game systems. Any hardware platform suitable for performing the methodologies described here is suitable for use with the invention. Computer-readable storage

media refer to any medium or media that participate in providing instructions to a CPU for execution. Such media can take many forms, such as but not limited to, non-volatile and volatile media including optical or magnetic disks and dynamic memory, respectively. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, a hard disk, magnetic tape, any other magnetic medium, a CD-ROM disk, digital video disk (DVD), any other optical medium, RAM, PROM, EPROM, a FLASH EPROM, any other memory chip or cartridge.

[0097] Various forms of transmission media may be involved in carrying one or more sequences of one or more instructions to a CPU for execution. A bus carries the data to system RAM, from which a CPU retrieves and executes the instructions. The instructions received by system RAM can optionally be stored on a fixed disk either before or after execution by a CPU.

[0098] Unless specifically stated otherwise, and as apparent from the following, it will be appreciated that throughout the present specification, discussions utilizing terms such as “receiving”, “identifying”, “initiating”, “tagging”, “transmitting”, “running”, “incrementing”, “determining”, “assigning”, “approving”, “selecting”, “sending”, “calculating”, “determining”, “replacing”, “generating”, “initializing”, “outputting”, or the like, refer to the action and processes of a computer system, or similar electronic device, that manipulates and transforms data represented as physical quantities within the computer system into other data similarly represented as physical quantities within the computer system or other information storage, transmission or display devices.

[0099] In the application, unless specified otherwise, the terms "comprising", "comprise", and grammatical variants thereof, intended to represent "open" or "inclusive" language such that they include recited elements but also permit inclusion of additional, non-explicitly recited elements.

[00100] It will be apparent that various other modifications and adaptations of the application will be apparent to the person skilled in the art after reading the foregoing disclosure without departing from the spirit and scope of the application and it is intended that all such modifications and adaptations come within the scope of the appended claims.

CLAIMS

1. A method for implementing an electronic game, the method comprising:
generating a first and a second game character, wherein the first game character is a game character controlled by a player;
selecting, for display on a device, a reward to be acquired by the first game character;
determining a character reaction value of the player, wherein the character reaction value represents a prediction of the emotional reaction of the player to the selected reward;
determining a dynamic action to be performed by the second game character based on the determined character reaction value; and
manipulating the second game character to perform the dynamic action.
2. The method of claim 1, further comprising monitoring and analysing the behaviour of the first game character to generate a prediction data set, wherein the prediction data set is used to infer the player's reward preferences.
3. The method of claim 2, wherein determining the character reaction value of the player comprises taking into account the prediction data set.
4. The method of any one of claims 1-3, wherein determining the character reaction value of the player comprises taking into account a rarity value of the selected reward.
5. The method of any one of claims 1-4, wherein determining the character reaction value of the player comprises taking into account a desirability score of the selected reward, wherein the desirability score is determined by a total number of posts in online discussion forums mentioning the selected item over a specific period of time.
6. The method of any one of claims 1-5, further comprising generating and displaying a red herring item after selecting the reward, wherein the red herring item is a different item from the selected reward.
7. The method of claim 6, wherein the dynamic action performed by the second game character comprises interacting with the red herring item to transform the red herring item into the selected reward.

8. The method of any one of claims 1-7, wherein the second game character performs the dynamic action before the selected reward is displayed.
9. The method of any one of claims 1-5, wherein the second game character performs the dynamic action after the selected reward is displayed.
10. The method of claim 9, wherein the dynamic action performed by the second game character comprises interacting with the selected reward.
11. The method of any one of claims 1-10, wherein the determined character reaction value of the player to the selected reward is a value corresponding to a positive reaction, and the dynamic action performed by the second game character comprises an expression of happiness.
12. The method of any one of claims 1-10, wherein the determined character reaction value of the player to the selected reward is a value corresponding to a negative reaction, and the dynamic action performed by the second game character comprises an expression of empathy.
13. The method of any one of claims 1-12, wherein the second game character is a non-player character.
14. The method of any one of claims 1-13, wherein the dynamic action performed by the second game character comprises conveying information associated with using the selected reward.
15. The method of any one of claims 1-14, further comprising activating a reward distribution module, wherein the reward to be acquired by the first game character is randomly selected by the reward distribution module.
16. The method of claim 15, further comprising increasing an activation counter value by 1 each time the reward distribution module is activated, wherein a character profile of the second game character changes when the activation counter value is increased to a threshold value.

17. A system comprising one or more computers and one or more storage devices storing computer-readable instructions that, when executed by the one or more computers, cause the one or more computers to perform one or more operations according to the method of any one of claims 1 to 16.

18. One or more non-transitory computer storage media storing instructions that, when executed by one or more computers, cause the one or more computers to perform one or more operations according to the method of any one of claims 1 to 16.