

Dragon Kill Points: Loot Distribution in MMORPGs

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Abstract

One of the major reasons for playing Massive Multiplayer Online Role Playing Games (MMORPGs) is the possibility to show off your abilities to other players. The more rare your equipment is, the higher is the show off value of your character. And because rare items are hard to find cooperation between several players is often required. This introduces a conflict between the players, and a way to distribute loot is necessary.

We introduce the problem of loot distribution in MMORPG, and we suggest and give a preliminary evaluation of a new and improved Dragon Kill Points system.

Introduction

Recent research has shown that it is not only the act of playing with others that is important in MMORPGs, but also the act of showing off one’s skills to other players. Being skilled is often referred to as being *elite*. As a character reaches the maximum level in a game, further growth in *elitiness* can mainly be shown through improved equipment. Acquiring even a single new valuable item might, however, require the cooperation between many players, which again introduce a conflict between the players. Who is eligible for the loot?

MMORPGs like World of Warcraft and Age of Conan have simple in-game mechanisms for dealing with loot distribution. These loot distribution mechanisms are, however, typically found to be inadequate for encounters requiring more than 15 players. The problem of loot distribution in larger groups of players were discovered early by players of EverQuest, and in 1999 the guild Afterlife created the first *Dragon Kill Point* (DKP) system to handle loot distribution. The basic idea behind DKP is to award players points for attending boss kills. When loot is acquired, the player with the most DKP gets the item in exchange for some or all of this person’s DKP. The introduction of the first DKP system has later led to a myriad of related systems, and the abbreviation ‘DKP’ has become a common label for all of them.

It has become a common understanding that building a DKP system is an act of balancing a number of, sometimes conflicting, requirements and avoiding a set of pitfalls. Even if the requirements do differ among communities, there are some important basics. We have identified five requirements for a well balanced DKP system, as well as the three most common pitfalls to avoid.

Requirements:

- stimulate usage
- bonus support
- low complexity
- randomness
- fairness

Pitfalls:

- inflation
- collusion
- distortion

The five most common loot distribution systems in use today are *roll-only*, *bidding*, *fixed price*, *zero sum*, and *ranking list*. Their pros and cons are summarized in figure 1. In a roll-only system the distribution of loot is based on the randomness of a dice, where the player with the highest roll receives the item. In a bidding system the players interested in an item have to bid with their accumulated DKPs, and the player with the highest bid wins the loot. A fixed price system requires the raid leader to price all relevant items in advance. Then loot is distributed to the player with the highest amount of DKPs. In a zero sum system the number of points entering and exiting the system is equal. Whenever an item is looted the number of points equal to the items value is deducted from the DKPs of the player that receives loot. Then the same number of points is split evenly between all players. A ranking list system maintains a list of all players, where the player at the top of the list is first in line when loot is distributed. A player that receives loot is moved to the bottom of the list.

Roll DKP, Cut %

The RDCP system is a loot distribution system, introduced by the authors, that imposes no restrictions on how guild members earn DKP. The system rewards players with DKP for in-raid events like killing bosses and for out-of-raid events such as making potions to other raid members. It is up to the guild to make sure that all members feel that DKP is distributed in a fair way. E.g by rewarding the same level of effort by the same amount of DKP, and by rewarding tedious tasks with some extra DKP.

When an item drops, all interested players toss a dice with the size of each players own DKP. The winner is the one that rolls the highest number. In the case of a tie, the players with the highest rolls reroll using the same size of the dice as before. Notice that a player rolling with a dice twice the size of another player, has three times the chance of winning an item.

When a player wins an item, the player loses $p\%$ of DKP. The size of p is given in advance. E.g. p could depend on the quality of the item; 25% for rare items and 50% for epic items, or a more fine grained calculation of p based on various item statistics could be used. Because

“Running a guild is like running a business in a very real sense. However, instead of holding a paycheck over someone’s head to get them to cooperate you have to deal with intangibles like loot and DKP.”

Sparc, WoW player,

“Either we use a DKP system or we can’t raid. It’s that simple.”

Custos, GM, LotRO player

“Many guilds have been disbanded and dissolved due to loot arguments.”

http://www.wowwiki.com/Create_a_DKP

“All guilds have to use a DKP system to control loot. I’m GM of my guild, I have officers and stuff, everyday on my server I see guild disband, split and stuff because of DKP. My guild lost a lot of members cause DKP.”

Vahkagarvah, WoW player

“The guild is going to disband if DKP is not fixed by 8am US East!”

Marok, EverQuest2 player

	Stimulate usage	Bonus support	Complexity	Randomness	Fairness	Inflation	Collusion	Distortion
RDCP	+	+	o	+	+	o	+	+
Roll	n/a	n/a	+	+	-	n/a	n/a	n/a
Bidding	-	+	+	-	o	-	-	-
Fixed Price	-	+	o	-	o	-	+	+
Zero Sum	-	-	o	-	o	o	+	+
Ranking List	o	-	+	-	o	n/a	n/a	n/a

‘+’ = Good, ‘o’ = Average, ‘-’ = Poor

Fig. 1. Pros and Cons of different DKP systems

players lose a percentage of their DKP when winning an item, players with very low DKP will get items for close to free. To avoid “free” loot a minimum loss (ML) value should be used. ML is a predefined, minimum amount of DKP that a winning player will lose. Whatever is greatest, the $p\%$ DKP or the ML, will be subtracted from the winning players DKP. The size of ML will depend on how the players earn DKP. It should be set high enough to reflect the value of the items won, but still low enough to only come into action for players with low DKP. The introduction of ML implies that a players DKP might drop below zero, therefore a player with negative DKP will not be eligible for more loot until DKP is once again above zero.

A summary of the preliminary evaluation of the RDCP system is given in figure 1. While RDCP might be the most complex system, the required DKP management could be handled by in-game logics. In all other respects RDCP scores well. The inclusion of randomness together with the $p\%$ DKP cut prevents hoarding and lets the RDCP system balance the treatment of regular and casual players. Furthermore, the use of $p\%$ cut reduce inflation. RDCP also provides support for bonuses, and players can not influence the price of items, thus avoiding the pitfalls of collusion and distortion. The RDCP system seems to be the one system that is best able to satisfy the requirements, while still avoiding the common pitfalls. Further user studies of the RDCP system remains, however, as future work.



Onyxia’s Lair – a 40-man at maximum level instance in the original release of World of Warcraft



A 24-man raid encounter by the guild Addiction in Age of Conan