

Station Exchange: Year One

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Phil forges armor for money. This may seem like an odd profession for a 24-year-old Ohio State University electrical engineering student. But inside of the game EverQuest II, Patterson is renowned for his craftsmanship. Players pay him hefty sums of platinum, the coin of the realm, to forge them a unique piece of gear. Patterson has earned so much platinum for his work that he ran out of things to buy in the game long ago. For a time he simply gave his money away.

Then in June 2005, the Sony Online Entertainment (SOE) introduced Station Exchange. It offered EverQuest II players a way to auction virtual items from inside the game in exchange for real money¹. Patterson now earns \$400 per month by selling his platinum on Station Exchange. "It's not like I play the game to earn money," says Patterson. "My play style generates money."

Auctioning virtual items for real money is not new – third party auction houses have been around for years. Phil, like many sellers, used unsanctioned auction services in the past, and sells items from more than one online game as well. Estimates of the size of the virtual goods market ranges from \$200 million to \$1 billion. But third-party auction sites exist outside of the official strictures of a game, and have given rise to scammers who often deliver a different item than they promised, or fail to deliver at all. Station Exchange provides a protected and automated way to conduct real money player-to-player auctions in EverQuest II.

Today, a seller on Station Exchange can make thousands of dollars each month. Sony Online Entertainment has been tracking the auctions on Station Exchange over the past year to better understand the economics of EverQuest II and virtual economies in general. The findings are collected in this research paper.

Highlights:

- One piece of platinum trades for \$7.35 when averaged for the year.
- 34-year-olds spent the most money on virtual goods, accounting for nearly \$39,000 in purchases.

¹The use of words like "auction," "buy" and "sell" in this study does not imply that players actually own anything within the game: rather, players transfer the right to use characters, items and coin – to be used in accordance with the game license agreement and rules.

- The zip codes with the biggest buyers and sellers are both in Levittown, PA.
- A high level character in EverQuest II is worth as much as \$2,000.
- A single seller made \$37,435 from 351 auctions in the first year.

Context

The introduction of Station Exchange was a cause for great debate among EverQuest II community members. Many feel that buying and selling virtual goods for real money is akin to cheating. Despite the fact that unsanctioned real money trade is already taking place on every server, detractors saw Station Exchange as condoning a player's ability to subvert the game.

But sellers like Phil believe they are providing a service to the game's population. There are undoubtedly some sellers who are in it for the money alone. But many sellers also enjoy the respect they earn for their in-game skills, and having that translate into real money is an added bonus.

Based on feedback from the EverQuest II community, as well as estimates on how many players would be inclined to take part in a virtual auction of in-game goods, SOE decided to limit the number of servers that would support virtual auctions through Station Exchange. Today it is functioning on two servers: The Bazaar and Vox.

Many more players expressed interest in moving their characters to these new servers than actually did so. The most likely reason for the discrepancy is that moving servers required a player to leave behind a guild or co-player friends who were disinclined to take part in the auctions.

The introduction of Station Exchange did, however, have a marked effect on SOE's ability to mediate problems that arose as a result of illicit trading via third party auctions. Prior to the introduction of Station Exchange, 40 percent of customer service time was spent on disputes over virtual item sales. Since the debut of the Exchange, the overall customer service time spent has dropped 30 percent.

Even so, Station Exchange has had little if any effect on the popularity of trading EverQuest II goods through third party auction houses. While it is difficult to gather authoritative and accurate data from such sites, a simple comparison of

current prices for basic items shows that sales prices on Station Exchange and third party auction services are about equal. This appears to be due, in part, to the fact that Station Exchange is only available on two servers. The remaining 28 EverQuest II servers are likely to see just as much illicit buying and selling as in the past.

Station Exchange was never expected to replace or eradicate the use of third party auction services. It is, however, a business that SOE is pioneering in North America as an ancillary source of revenue. The goal of this report is to better understand the effect that real money trade has on game play. It gives SOE a window into the potential money that can be derived from the buying and selling of virtual items. And it helps SOE to understand how virtual goods auctions might be applied to massively multiplayer online games in the future.

The findings begin with an overview of net cash collected, recognized revenue and the total number of auctions. Demographic details about buyers and sellers, including age and geographic location, provide a better understanding of the increasingly mainstream adult who uses Station Exchange. That is followed by an examination of what types of items are being traded. Finally, we draw summary conclusions from the data that elucidates why players use Station Exchange.

Base Econometrics

Net Cash Collected

Net cash includes any money that passes through the Station Exchange auction service. Total cash collected between June 2005 and June 2006 was \$1.87 million. The daily amount of cash collected, on average, was \$2,588.

The net cash collected is directly tied to the number and value of the auctions, which in turn is determined by game play characteristics (such as the ease with which a player can gather materials to craft a piece of armor). Prior to the launch of Station Exchange, the assumption was that players would utilize the auctions on an irregular basis, which would lead to spikiness in the daily cash flow. Instead, the net cash collected each day was predictable to within \$100.

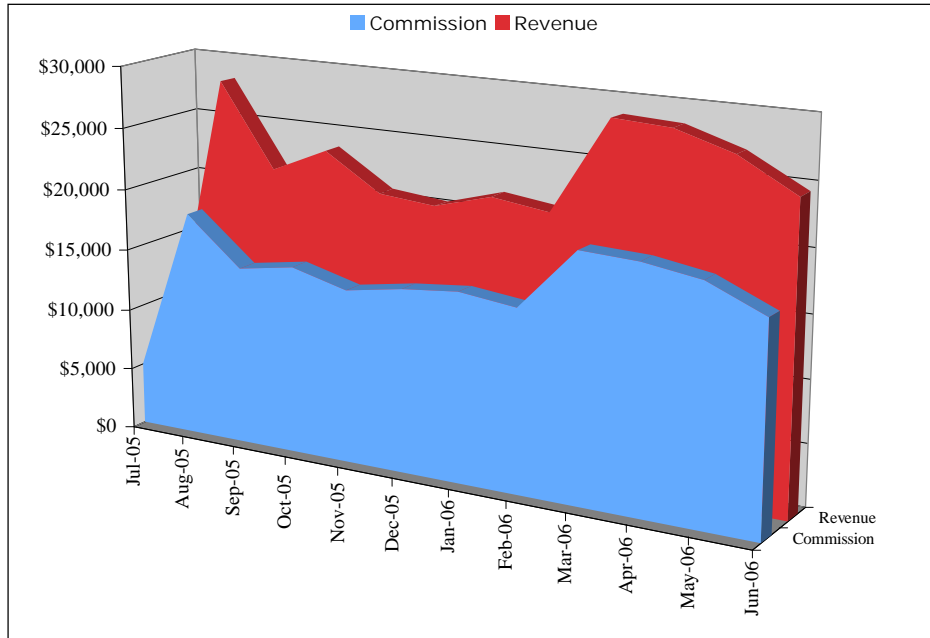


Figure 1: Commission and revenue.

Recognized Revenue

Station Exchange is not a significant source of revenue for SOE, nor was it expected to be. Revenue is generated primarily through listing fees and the commissions from settled auctions. Sellers are charged \$1 for listing items and coins, and \$10 for listing characters. SOE also collects 10 percent of the final closing price of an auction as a service fee (unsuccessful sales garner listing fees but no commission). A small amount of revenue results from the cost of renaming a character.

Recognized revenue for the first year was \$274,083. The amount of recognized revenue was as predictable as the cash flow. Commissions accounted for the majority of revenue, totaling \$187,353. Listing fees, while they generate a small amount of revenue, are primarily used as a barrier to prevent players from flooding the exchange with items that would be of little value or interest to potential buyers.

Number of Auctions and Registered Users

During any 30-day period, there are around 1,500 players actively taking part in buying or selling on Station Exchange.

There are 40,663 players on the two SE servers as of June 2006. Not everyone who plays on the servers is a registered auction user, some do not take part in buying or selling at all. The additional registration step reduces the chance of fraud and enables one of the most compelling features of the sanctioned service: instant delivery of goods to the purchaser upon

completion of the financial transaction. Despite this barrier, almost 25% of users, 9,042 in total, have registered to participate in the service.

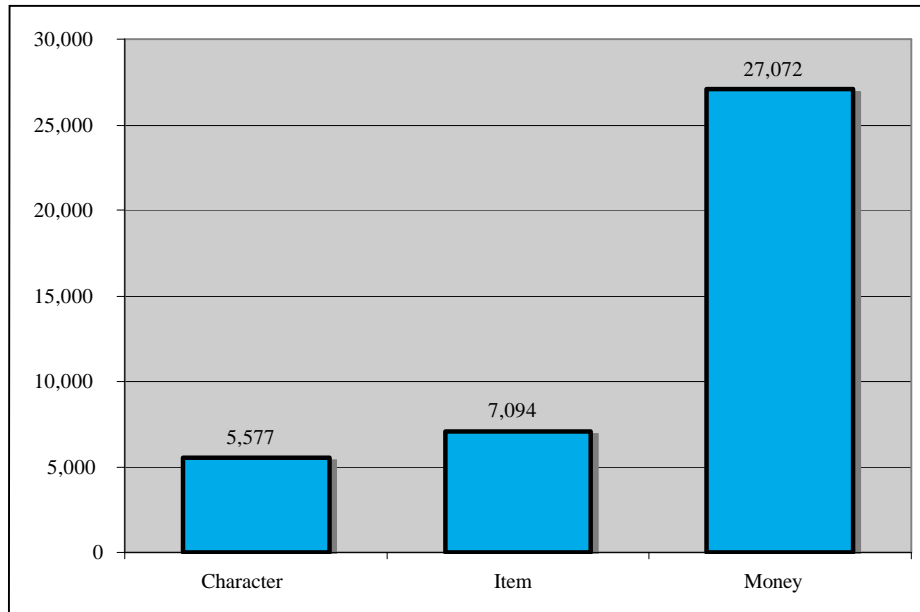


Figure 2: Number of auctions by category.

A total of 51,680 auctions were opened during the first year, and 39,743 were successfully completed. Given the number of registered auction users, it is clear that a sizeable number of people are posting virtual items for sale on the Exchange on a regular basis, and not simply because they have an extraneous item in their character's inventory.

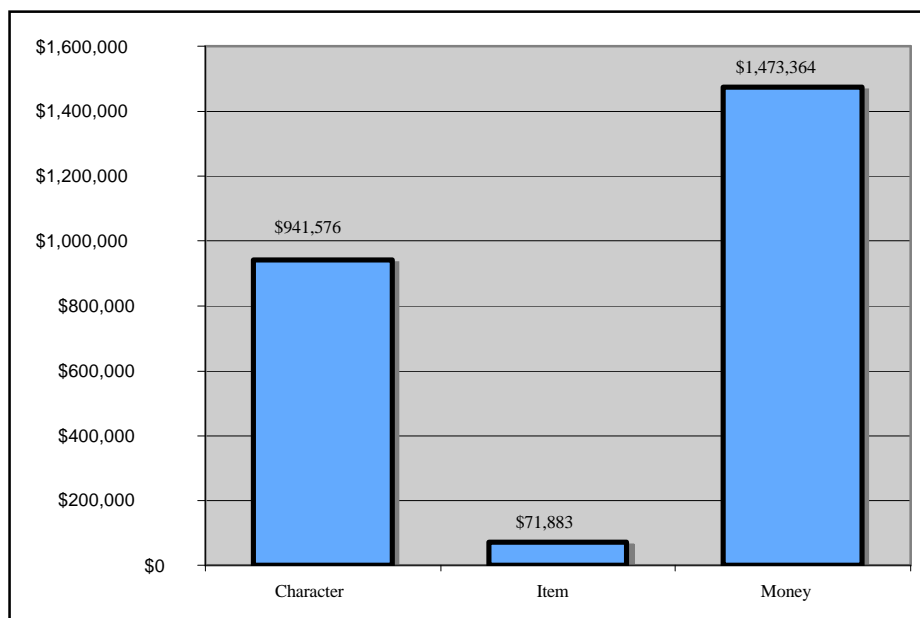


Figure 3: Value of auctions by category.

The same auctions looked at from a value perspective show that players are willing to spend a hefty sum of money on characters, with an average of \$91.55 spent per customer. This is not merely a fact of their scarcity (as we will see later). The items category, which includes armor, weaponry and quest items, have very little value overall (\$6.99 per customer on average). This is primarily because they can be more easily purchased inside of the game with platinum.

The value and number of auctions for platinum, or coin, has led to a stable, real-money exchange rate. One piece of platinum on The Bazaar trades for \$7.35 when averaged for the year ending June 2006. Average spending per customer on coin was \$143.25.

Who Trades

Age

The average active Station Exchange buyer is 32 years old. This is much older than the average age of EQII players overall, which is 25 years old.

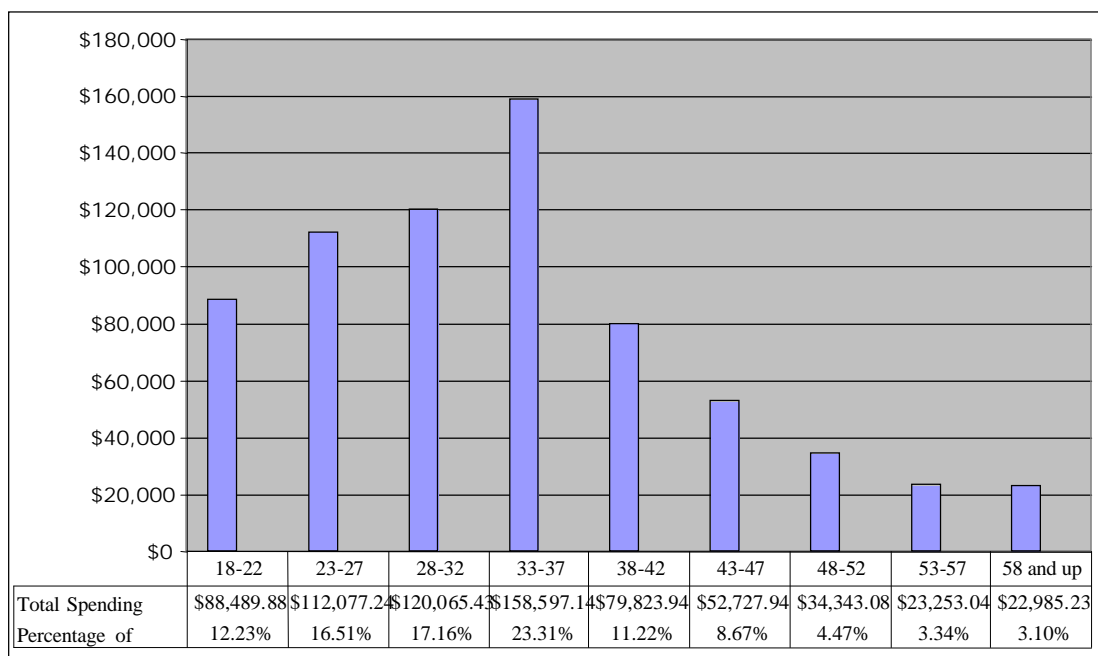


Figure 4: Spending by age group, total spending and the percentage of buyers represented by each age group (ages under 18 omitted).

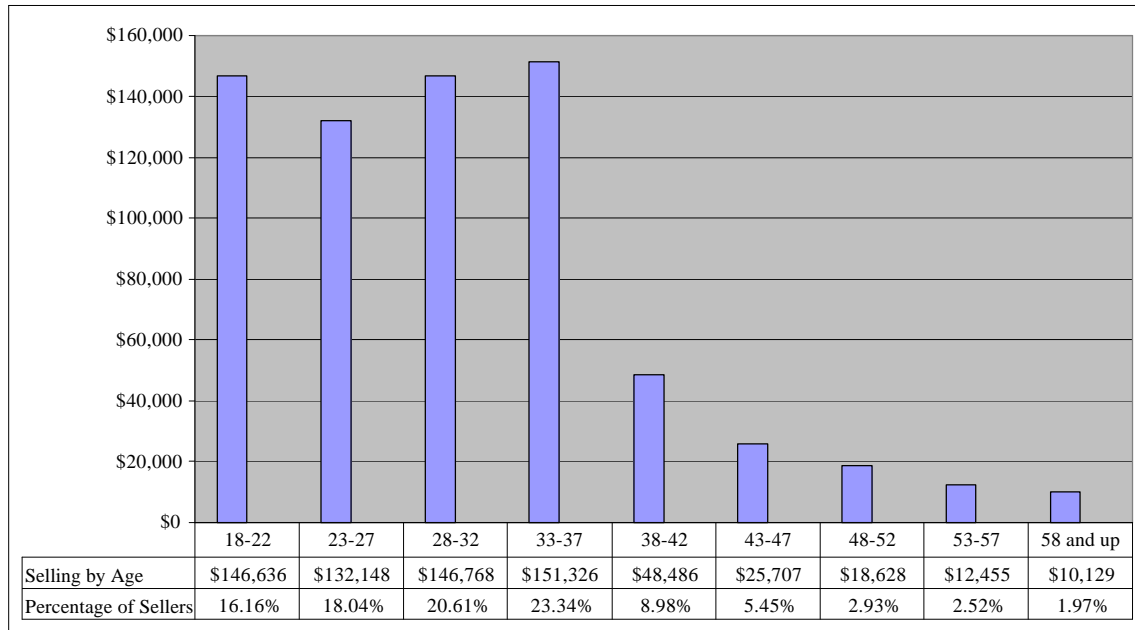
As a single age group, 34-year-olds spent the most money on virtual goods. They accounted for nearly \$39,000 of the total purchases this year.

There is a spike in spending among 22- and 23-year-olds, but the upward curve is most significant between the ages of 29 and 37. As an age group, 33- to 37-year-olds dominate in total dollar spending. It is also the age group with the highest number of active SE buyers. Spending drops by half at age 38 and declines rapidly thereafter.

There is no accurate way to determine average spending by age at this time. This is partly due to the enormous difference in the value of goods available at auction. An in-game item such as a sword fetches only a few dollars, while a single character attracts thousands of dollars. Also, the data collection tools employed by SOE do not parse the data with enough granularity to make this calculation. The data that is available shows a fairly

predictable curve that correlates with the total spending figures.

Figure 5: Selling by age.



When it comes to selling, younger age groups are far more active; 22-year-olds lead with \$45,000 in total sales this year. The 33-to 37-year-olds still dominate as an age group, but mainly because they represent the largest block of sellers. 18-to 22-year-olds, while only 16% of all sellers, are nearly as active as their older counterparts who dominate when it comes to buying.

One likely reason for this is that 18-to 22-year-olds have more free time to spend playing the game, and thus gathering virtual goods to resell. Older players, on the other hand, have less time to devote to the game but more disposable income to use for buying the virtual goods they need in order to advance.

Location

The majority of active SE buyers and sellers - close to 18% in both categories - are based in northern California.

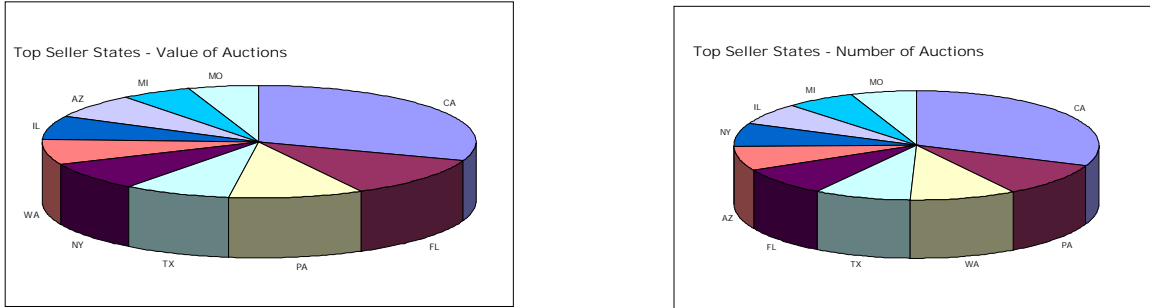


Figure 6: Top seller states, by value and number of auctions.

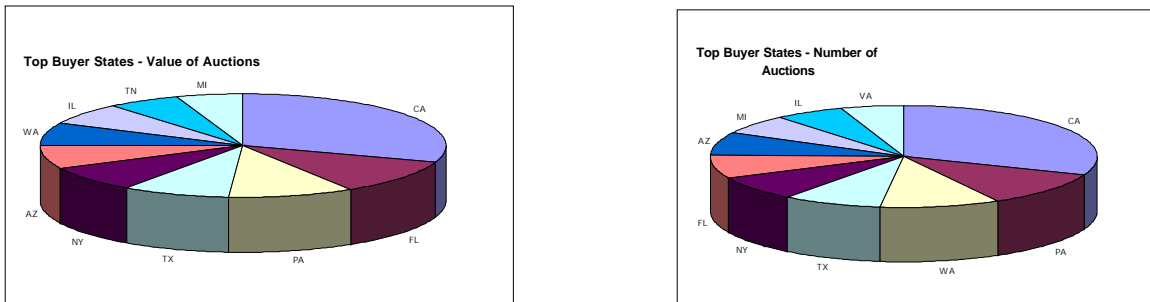


Figure 6a: Top buyer states, by value and number of auctions.

The number drops by more than half, to 6 percent, for Florida. But the spread of sellers is fairly even among the top ten states that follow.

Buyer			Seller		
CA	\$326,349	5,522	CA	\$294,975	4,502
FL	\$115,807	1,970	PA	\$96,285	1,427
PA	\$109,882	1,799	WA	\$69,894	1,353
TX	\$91,878	1,486	TX	\$79,600	1,238
NY	\$86,310	1,387	FL	\$110,416	1,211
AZ	\$78,294	1,323	AZ	\$66,565	1,022
WA	\$76,356	1,300	NY	\$75,283	1,012
IL	\$72,757	1,081	IL	\$66,672	925
TN	\$62,830	1,054	MI	\$51,432	889
MI	\$57,178	953	MO	\$51,098	836

Table 1: Raw data for buyer and seller states, value and number of auctions.

A more granular look at the top buyer and seller zip codes reveals some unexpected results. The top buyer and seller zip codes, by number of auctions as well as value of auctions, are all in PA.

Some 1,121 buys totaling \$18,685 were made from Levittown, PA. One of the earliest planned suburbs, it now has a median household income of \$52,123. Given the small population of Levittown, it is likely that one or more entrepreneurs there are

attempting to earn a regular income through real money trading on Station Exchange. (Levittowners are down \$5,172 for the year, with 696 sales totaling \$13,513 as of June 2006.)

Tiny Northumberland, PA, population 7,463, also saw heavy buying and selling, accounting for \$41,000 in purchases and \$40,000 in sales. It was followed closely by Antioch, TN with \$39,000 in purchases and \$27,909 in sales.

None of the top 20 zip codes showed a profit for the first year, although the June 2006 end date may not represent a full year of trading for these sellers.

Top Buyers and Sellers

A handful of players made a significant amount of money from selling virtual goods during the first year. Two sellers made in excess of \$37,000. The top 15 sellers all earned upwards of \$10,000 from trading.

Top 10 Sellers	Total Payout	Number Of Auctions
1	\$37,435.47	351
2	\$37,127.59	252
3	\$18,447.75	483
4	\$15,474.42	354
5	\$15,246.66	96
6	\$13,500.17	292
7	\$12,773.37	245
8	\$11,957.39	143
9	\$11,887.87	89
10	\$11,504.65	59

Table 2: Top 10 sellers, payouts and number of auctions.

It is extremely unlikely that any of these sellers are achieving their gains through fraudulent means. SOE constantly monitors usage patterns both inside the game and on Station Exchange for any abnormal activity. Illicit buying or selling would have been detected given the number and size of the trades in these cases.

Active Station Exchange sellers confirm that it is possible to earn steady income through real money trading. For most sellers, the amount that can be earned each month is relatively low, between \$200 and \$500 after costs (listing and subscription fees). This requires between 5 and 6 hours of game play per night according to one trader, a 51-year-old network analyst who

is employed by the county government. "Right now there isn't enough of a market," he said. "There just isn't enough people playing." He did, however, earn enough to purchase \$1,400 computer with his profits.

The top buyer for the year, meanwhile, spent nearly \$19,000 on 200 purchases. This player is notably absent from the list of top 20 sellers, nor does he or she appear on the lists of top coin, character or item sales. The same is true of the second and third biggest buyers on the list.

This shows that active sellers are not gaming Station Exchange (i.e. buying low and selling high). Rather, they are playing the game, questing or crafting objects of value, and selling them at auction. In some cases, a seller crafts weapons or armor, exchanges them inside of the game for coin, and then puts the coin up for sale on Station Exchange for real money. Other sellers create a new character of a popular class and race, level it up as quickly as possible and then sell it to another player.

Gender

Station Exchange traders are predominantly male, in keeping with the player base as a whole. Spending among men totaled \$1.65 million versus just \$212,000 for women (not including taxes, listing fees and character rename fees). Average spending, however, was nearly the same for both genders: \$63 for men, \$66 for women.

What They Trade

There are three categories of goods that can be traded through Station Exchange, coins, characters and items.

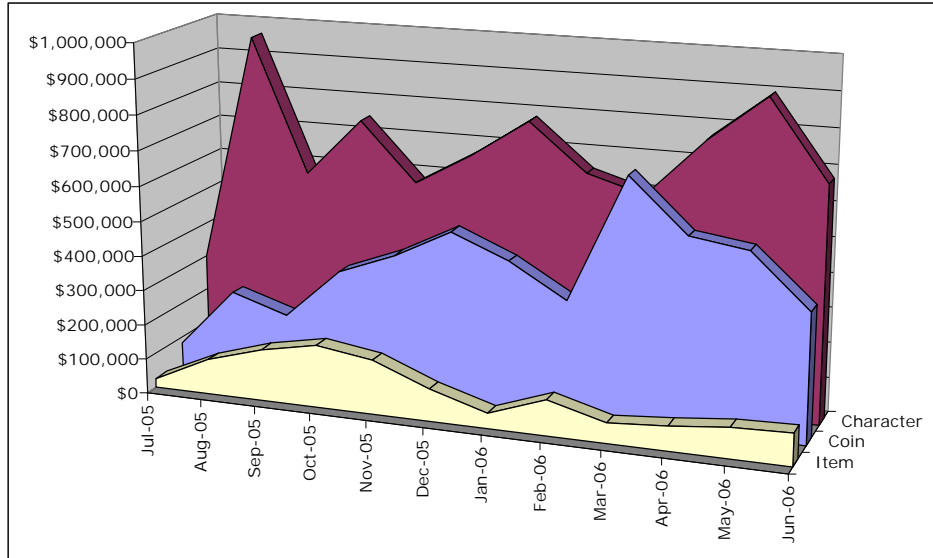


Figure 7: Value of open auctions by category.

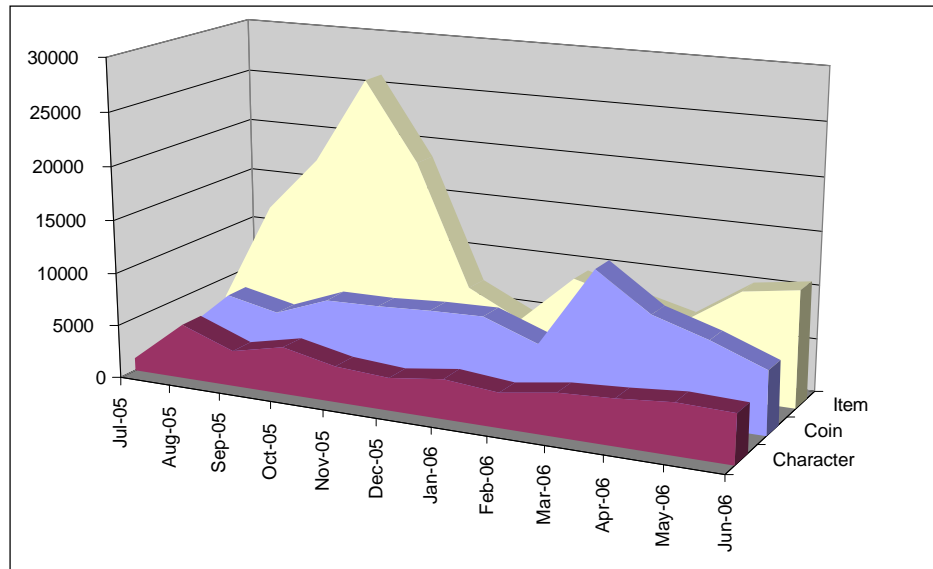


Figure 8: Number of auctions opened by category.

Items are the least valuable among the three categories. The reason for this is simple: there is a barter system inside the game where items can be bought and sold more easily than through Station Exchange. Platinum is usually required to purchase those in-game items, which explains the steadily high value of coin at auction.

The spike in item auctions early in the year is related to seller expectations that items would be of more value than they are. (The graphic above represents opened auctions as opposed to settled auctions.) This is also related to problems with the way items are listed – many players feel that the information that

accompanies a listing is not sufficient for evaluating the item's true value.

Coin

The biggest single auction of platinum was worth \$1,666. But the value of coin is more variable than characters or items. Platinum can also be sold in large lots. But the percentage of coin traded remained steady throughout the year.

On February 23, 2006 there was a spike in the demand for coin, which led to a one-day average of \$497 for one piece of platinum.

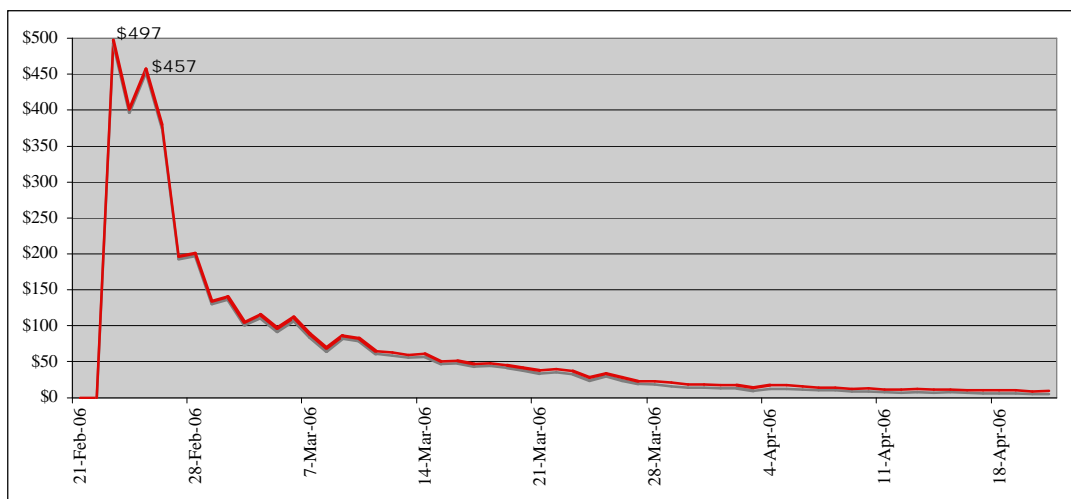


Figure 9: On February 23, a new Station Exchange server opened for trading, causing a spike in the average value of one piece of platinum.

The cause of this spike is well known. Originally, the two Station Exchange enabled servers were named The Bazaar and Shadowhaven. On February 17, 2006, Shadowhaven was merged with The Bazaar. This increased the amount of coin available on The Bazaar, but had little if any effect on the auction value of platinum (there was a slight increase in the two days after the merger).

A few days later, on February 23, a new Station Exchange server named Vox opened to the public. As with the debut of any EverQuest II server, the in-game resources are scarce because of the low number of inhabitants to quest, harvest and craft (the primary ways of making money in the game). Players are not allowed to move their coins or items across servers, so everyone starts with the same disadvantage.

The scarcity of resources on Vox, and resulting rush on platinum, offers a window into the potential of Station Exchange

auctions because the increase in activity had a spillover effect.

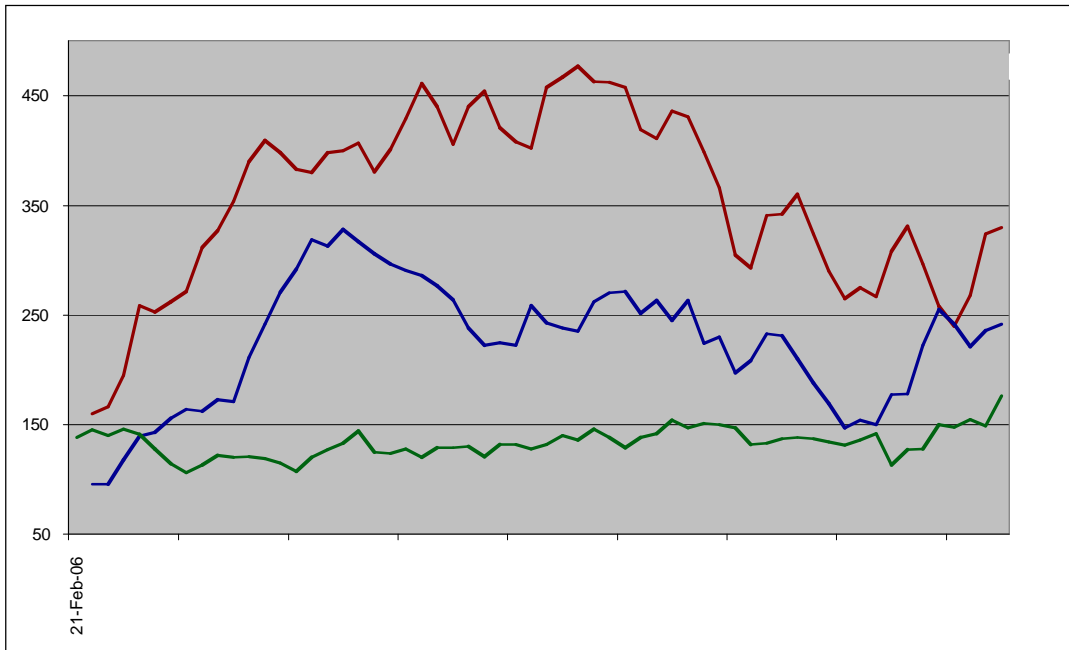


Figure 10: Number of auctions per day and the debut of the Vox server.

The volume of trading for both coin and items increased after the debut of Vox. And the volume of transactions was higher across all categories for the remainder of the year. Recognized revenue increased by \$7,690 between February and March, held steady through April and as of June had yet to return to pre-Vox levels.

Character prices and trading volume did not increase as much as other categories after the debut of Vox because no valuable characters had been created. Two months later, however, the number and price of Vox characters for sale through Station Exchange begins to increase. This is in line with data about the number of hours of play required to create a high level character (achieving level 50 out of 70 requires around 41 days on average). As we will see later, buying an advanced character is a means of experiencing the more exciting parts of the game without investing the time required to level up.

Character

While character trading is low in overall volume, the value of a character can be enormous. Of the top 20 auctions of characters, none was for less than \$1,000. The top four character auctions were worth \$2,000 each. And these prices held steady throughout the first year.

9-Jun-06	6-Jun-06	1-Jun-06	30-Apr-06	19-Apr-06
\$1,500	\$1,500	\$1,150	\$1,255	\$2,000
26-Mar-06	28-Jan-06	12-Jan-06	11-Jan-06	3-Jan-06
\$1,400	\$1,800	\$2,000	\$1,205	\$2,000
15-Dec-05	17-Nov-05	17-Nov-05	2-Nov-05	20-Sep-05
\$1,500	\$1,025	\$1,000	\$1,200	\$1,000
16-Sep-05	23-Aug-05	1-Aug-05	31-Jul-05	31-Jul-05
\$1,600	\$1,200	\$1,000	\$2,000	\$1,500

Table 3: Top 20 character auctions by price.

Further study of character trading shows what wise sellers likely know already: Elves are the most valuable and popular character race in EverQuest II. Note that there are four separate races of elves.

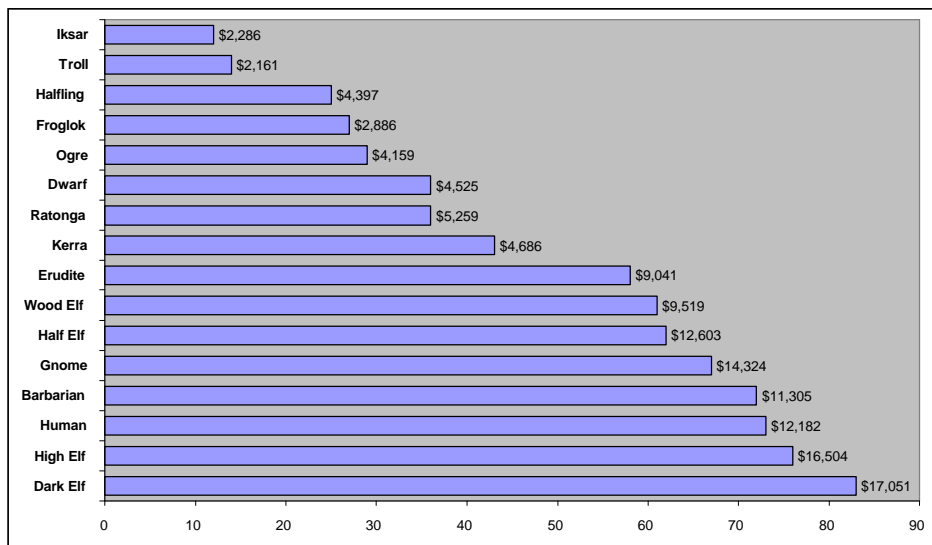


Figure 11: Character race organized by number of auctions and corresponding total sales price.

In all but a few cases, the race with the largest number of auctions was also the one that achieved the highest total sales for the year.

Class of character is less of a draw than the race. The number of auctions again roughly corresponds to the total sales position for the year.

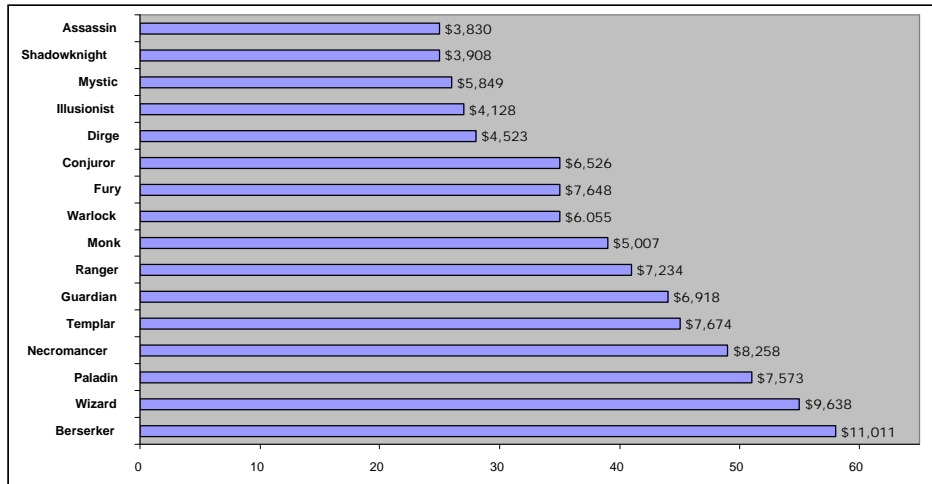


Figure 12: Character class organized by number of auctions and corresponding total sales price.

Not shown on the chart is a steep drop in popularity for certain classes. Sorcerers, fighters, and bards were sold just twice during the entire year. Warriors, summoners, rogues, druids, clerics and brawlers are among the classes sold just once.

Differences In Play

There is no controlled way to compare servers that are Station Exchange enabled with those that are not because every server is prone to real-money-trades conducted via third-party auction services. Still, a comparison of The Bazaar with the non-Station Exchange server Permafrost shows some divergences in the play styles on the two servers.

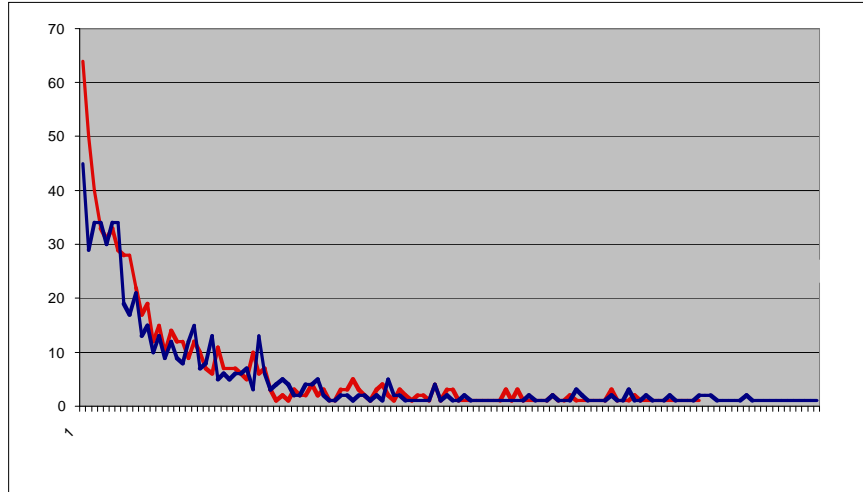


Figure 13: Guild activity, when measured by number of members and number of guilds, is only slightly larger on non-Station Exchange servers.

The overall average size of guilds is larger on Permafrost (34 versus 26). This could be chalked up to Permafrost being an older server, but may also be indicative of a difference in play style. A more informed conclusion requires further study.

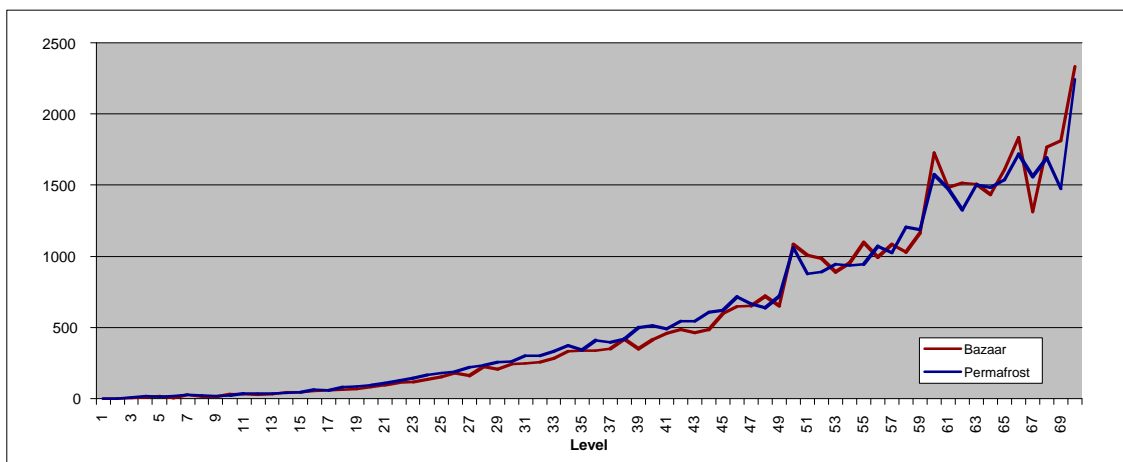


Figure 14: Character advancement rate on average is close to the same on Station Exchange and non-Station Exchange servers, but players with access to quest items advance slightly more quickly especially at the higher levels.

The average number of hours of playtime required to advance through a level is nearly the same on both servers. Players on The Bazaar, with access to Station Exchange, level up slightly more quickly at levels below 50. Players on the non-Station Exchange server Permafrost level up more quickly at levels above 50.

One reason the non-Station Exchange players are advancing more quickly is that Permafrost is an older server. Not long ago, the highest achievable level in the game was 50; that gave way to level 60 and the top-most level is now 70. Players on Permafrost were probably 'parked,' or waiting at each of the top-most levels until game expansions allowed them to quickly advance through new territory.

The reason Station Exchange players advance more quickly at lower levels can partially be explained by the next two findings.

Players on The Bazaar are wealthier than their Permafrost counterparts. The easiest conclusion to be drawn from this is that players on The Bazaar are purchasing coin at auction to use in the game. Permafrost does show greater wealth at the highest character levels. Since it is an older server, players are likely to have stockpiled platinum while parked at those uppermost levels.

This is only a theory, however. Coin is just as available to Permafrost players as to the people on The Bazaar, albeit through different means. The difference in the amount of money on the two servers may be an indication of different play styles, or the relative value of currency.

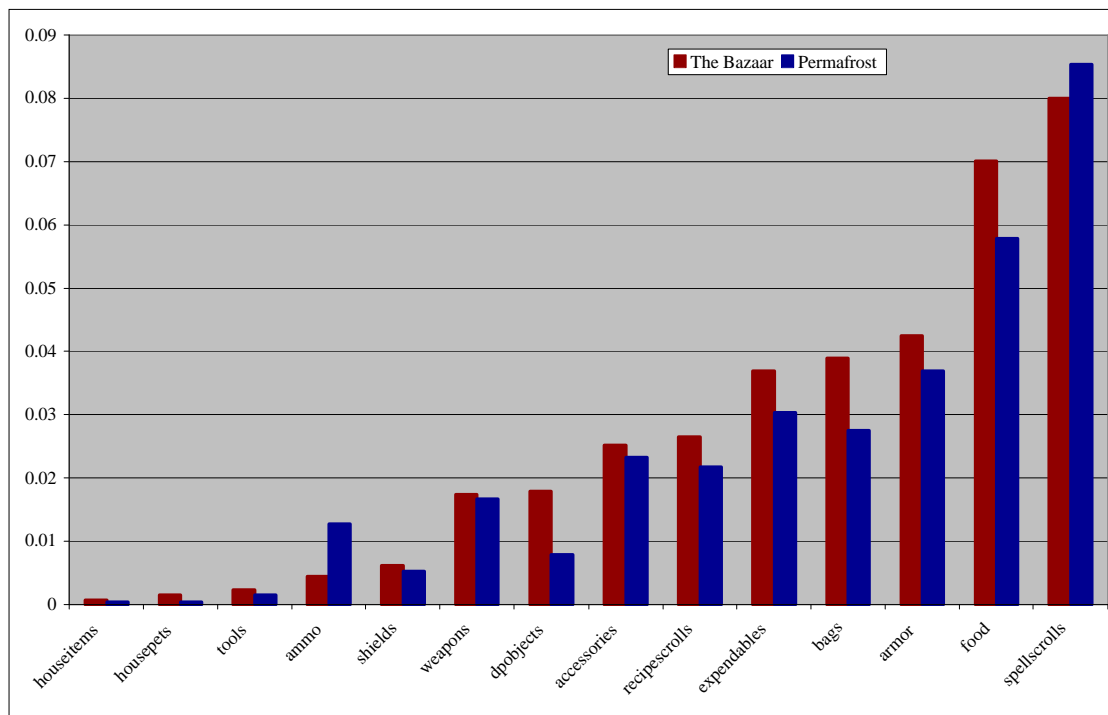


Figure 15: Number of items purchased per character, by type, on The Bazaar and Permafrost.

One result of the easy availability of money on The Bazaar is that players own more in general. The broker board on The Bazaar shows double the number of sales for house items and triple the number of sales for house pets. Perhaps players on The Bazaar have more cash, but nothing much to spend it on.

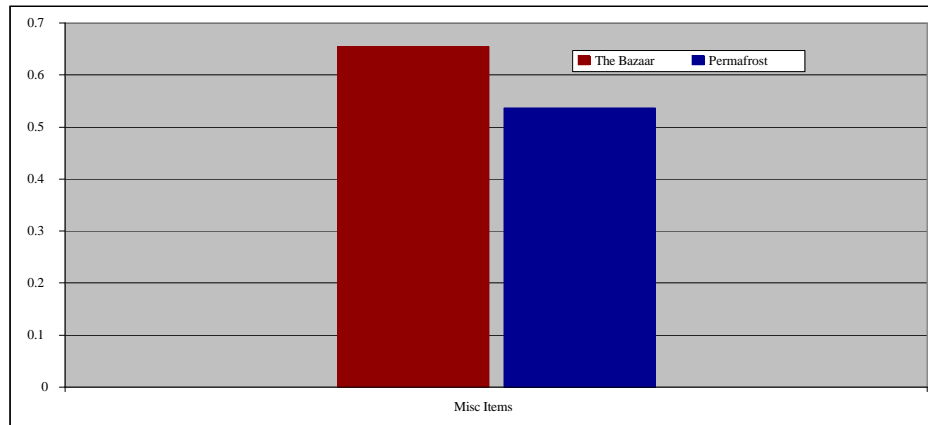


Figure 16: Number of miscellaneous items purchased per character.

The miscellaneous items category reveals a bit more about how Station Exchange might effect play strategy on The Bazaar. Miscellaneous items represent the biggest sellers on both broker boards because they include quest items, which can be turned into experience points and lead to level-ups. If a player has the ability to buy quest items, then he can essentially buy his way from one level to the next. A greater number of miscellaneous items are brokered through The Bazaar, which also explains why players on that server level up slightly faster than their counterparts on Permafrost.

Why They Trade

One way to understand why players buy virtual goods can be learned from examining the popularity of settlement types. There are two types: instant purchase, in which a buyer ends the auction early by agreeing to pay a set price determined by the seller, or normal auction, which is when the buyer places the highest bid in competition with others until the close of bidding.

The vast majority of Station Exchange auctions are settled through instant purchases. At the end of the first year, the number of instant purchases was more than double that of normal auctions (22,025 and 9,421 respectively).

This shows that players are choosing to purchase at auction in order to fulfill an immediate desire. A player realizes, for example, that he needs a particular type of armor in order to defeat an enemy in a quest. He also knows that a crafter inside the game can make the armor for 10 platinum. The player then visits the Station Exchange, instantly purchases the platinum he needs to buy the armor inside the game and continues on his quest.

Movie concessions offer a useful metaphor here. A patron pays for tickets, and rushes to buy popcorn and a soda before the feature. The moviegoer knows that the price of these snacks is far more than their actual value – sometimes as much as the tickets. But that doesn't stop him from buying the popcorn, or filling up on snacks beforehand.

The purchase of high-end armor and weaponry can also increase a player's status in the game. A recent study of the social dynamics in the Massively Multiplayer Online Game World of Warcraft found that wearing powerful items is essential to the construction of a player's identity. "It broadcasts the player's status to others and rewards him or her with a sense of achievement," noted the authors². What's more, players enjoy strutting around and showing off their wares in front of a live audience. Further proof of this comes from Phil, the armor crafter. The most popular pieces of armor across all tiers of the game are for the chest, leg and shoulder, he says. "Why? Because those are the most visible pieces in the game."

The sellers who supply the armor and weaponry feel they are providing a service to players. And they too become elite members of the community – strutting their skills from the other side of the bartering table.

Interviews and anecdotal evidence bring another theory to the fore: Players are making purchases to stay aligned with friends who are spending more time playing the game. It is well known that one of the primary attractions to MMO play is the ability to interact socially with other players. Player A logs on and meets his pal Player B, for instance. Player B has just leveled up and is about to go on a quest. Player A would like to join the quest, but has not been playing as much lately and has not leveled up at the same pace. The result is that he is not powerful enough to join his friend on the quest. To remedy the imbalance, Player A goes to Station Exchange, instantly purchases

²Nicolas Ducheneaut, Nicholas Yee, Eric Nickell, Robert J. Moore: "Alone Together?" Exploring the Social Dynamics of Massively Multiplayer Online Games; Conference on Human Factors in Computing Systems; 2006

the goods necessary to level up his character, and then joins his pal on the quest.

Experienced EverQuest II players may also be using Station Exchange as a way to re-experience the game. A player who has completed a series of quests as an elf will decide to go through the game again as a barbarian. But rather than repeating the mundane tasks that all starting characters must complete in order to advance, the experienced player pays for a shortcut to the more exciting material. He is, in essence, getting on-demand access to the best battles and quests in the game.

The evidence gathered from the first year of Station Exchange also tells us some very basic facts about real money trade.

- The majority of people paying real money for virtual items are not part of a criminal underground that is preying on the player base at large. They are not "farmers" looking to make a quick buck.
- Station Exchange traders are not radically different from the rest of the EverQuest II player base.
- Station Exchange is not an extension of game play. It is a utility. It offers a fundamentally different approach to play: a means of skipping the boring parts.

As SOE continues to develop new and innovative massively multiplayer online gaming experiences, the lessons learned from Station Exchange will be applied. Since the income generated from auctions is predictable, and can be controlled, it may offer new ways to monetize game play. It is already clear that the possibility exists of creating an MMO in which the virtual economy is a core component. This would not work for all game types. But in the cases where it does work, would provide a powerful way to keep subscribers glued to the game.

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