

GAMES FOR BEGINNERS

STEPHEN WADE, RESEARCH AND DEVELOPMENT MANAGER, WASHINGTON'S LOTTERY AND PRINCIPAL, LOTTERY MANAGEMENT CONSULTING, LLC



M., my economist friend who is also a lottery enthusiast, can seem more than a little presumptuous at times. I have learned not to take offence at this. Rather, I have realized that M. not only spends a fair amount of time in his own head, he sometimes goes on long voyages there. Rarely, on one of these trips, he will dash off a workbook with many tabs and send it to me. To him it is just a postcard. He does not expect a considered reply. He may even forget he sent it. Like a postcard, it may be banal, or it may laconically mark some important turning point.

So, when he sent me a workbook titled “Games for Beginners”, I tabbed through it to see what he was getting at, and resolved to ask him about it next time we met. That occasion was not long in coming. This particular postcard was significant, and he called up to talk about it.

“Do you remember that “Likely Cost of Play” metric I sent you?”

I did indeed remember how M. had demonstrated that while playing \$1,000 worth of Mega Millions was likely to cost the player over \$900, playing \$1,000 worth of a ten-dollar Scratch game was likely to cost no more than \$370.

“And you remember that among the Scratch games, it’s a lot less expensive to play \$1,000 worth of your ten-dollar games than \$1,000 worth of your one-dollar games.”

I confirmed that this is why we agreed that our one-dollar games were “the expensive tickets.”

“Now, when we are talking about people who are new to playing Scratch tickets, how much do you think they are going to spend before they have a feeling whether this is something they want to keep doing?”

“A lot less than \$1,000, I would think,” I replied. “More like \$100, probably less.”

“Good. I was hoping you would say that. If it’s \$100, I’m sure there’s a way to make this work. If it’s \$20, I don’t know.”

“What are we making work?”

“Building a game to recruit beginning players. Assuming that you want to do that. Assuming that you are willing to price it for penetration, let them have some fun, and hope they find a use for it.”

This recalled an earlier conversation, where M. had been truly surprised to learn that we apparently had no barriers of a policy nature to doing this. For him, “pricing for penetration” meant making the prize pool in the beginner-grade games just as rich as we could

bear- pretty much what we were already doing with the high-end Scratch tickets.

I had not heard anyone inside the Lottery advocate doing this. However, the idea seemed reasonable to me. Why should we expect people to learn to like our worst product, and then move on to our best? Wouldn't they more likely learn to loathe our worst, and never try the others?

"OK. I'm with you now. A game to recruit beginning players - how do we make that work?"

"First of all, I realized that the likely cost of playing \$1000 just isn't relevant to the issue of recruitment. What matters is the experience of playing that trial amount, whatever it is. We have to design for making that as good an experience as we can."

"Wouldn't the likely cost of playing \$100 be a tenth of the likely cost of playing \$1,000?" I asked.

them are very chunky: you don't get the full flavor, for much less than \$1,000."

This sudden jump from non-linearity to "flavor" and "chunkiness" sort of worked but I couldn't help calling him on it. "I'm afraid your mixture of food metaphors has left me behind."

"Your premium games – the tens and twenties- are rich and chunky. The play experience is to win money almost one time out of three, but this experience comes only in chunks of a serious size. For instance, if you're playing \$20 games, you may be more likely than not to win something on three tickets, but you're already in for \$60. And it's most likely a \$20 prize that you win. There are \$100 prizes to be won, and if you play enough you will see them, but by the time that is more likely than not you'll be into the game more than \$500. That's chunky."

Although we were talking on the phone, his emphasis on "more likely than not" conjured an image of the pe-

"PLAYING A LOT PAYS BETTER THAN PLAYING A LITTLE, UP TO A POINT."

There was a pause. My question must have made M. realize that I was not quite with him.

"Well, no. It turns out that the likely cost of play is very non-linear. Playing a lot pays better than playing a little, up to a point. That's what I realized when I compared calculations for the same game, at different levels of spending. By the time you've spent \$1,000, you pretty much get the flavor of each of the games. But some of

cular rocking hand gesture that M. used when invoking a precise mathematical expression of this notion of likelihood.

"Your one-dollar games, on the other hand, are smooth. Even though only one in four or five might be a winner, by the time you have spent \$5 you are more likely than not to have won something - but not much. There are prizes of \$5 and \$10 to be won. You are more likely than

“SO, YOU THINK BEGINNING PLAYERS WILL WANT TO PLAY FOR \$20 PRIZES?”

not to see them by the time you are \$200 into the game. They are a little smoother, but thinner.”

All this was sounding unappetizingly like peanut butter to me, but I went with the metaphor far enough to ask, “And you are proposing what?”

“Rich and smooth.”

I cannot completely account for why this phrase appealed so much to me. I think I must have been sold other things under this tag line - beverages, perhaps, or lotions. I was genuinely intrigued.

“How would you build that?”

“Prize expense as high as you can bear; show you every prize it’s got for \$100.”

I was familiar enough with the idea of next-to-unbearable prize expense. “What do you mean by show you every prize it’s got?”

“I mean that in a game for beginners, if the aim is to bring them in with a trial of no more than \$100, it’s pointless to have prizes that are unlikely to be won at that level of play. I just would not build them into the game. Use the money you save to fund prizes that are likely to be won by someone playing no more than \$100.”

“Is that very different from what we do now?”

“I think it is different. Tell you what: I’ll send you a file; you can tell me what you think.”

And so when I saw the e-mail come in, I knew to

expect an attachment that would take some time to appreciate.

Some of it looked familiar. The typical instant prize structures were there, with the value of the prize and the probability of winning it. There was a tab marked “minimum probability criterion” that defined the “show everything you’ve got for \$100” part. Basically, that tab answered the question: “what is the probability of the rarest event that a player would be more likely than not to see in \$100 of play?” For \$1 games, that probability turned out to be about $p = 0.007$. For \$2 games, it was about $p = 0.014$.

The implications of this showed up in the prize structures. There was no prize defined in either the \$1 game or the \$2 game that was more than \$20. This seemed to me to be a non-starter. I had just seen results from qualitative research with scratch players that said “scratch players like big top prizes”. Every study we have ever done has said that. I did not reply right away, but waited until I saw M. again. That happened during the intermission at one of those arts-center performances where people stand around in the lobby.

“So, you think beginning players will want to play for \$20 prizes?”

“Oh, I wouldn’t count on that. This is all about what they’re likely to win while trying for the top prize, whatever that is. It’s about where the money has to be in order for them to see it coming back before they quit.”

“So with the prize expense already about as high as we can bear, where do we get a top prize?”