

Episode 34: I Never Metacognition I Didn't Like

Show Notes

As humans, we can think about our own thinking. This is referred to as metacognition, and can provide great insight into game playing and life in general.

Game References

Dominion, Dungeons and Dragons, League of Legends, Magic, poker, Rear Window

Research References

Kreutzer, M. A., Leonard, C., Flavell, J. H., & Hagen, J. W. (1975). An interview study of children's knowledge about memory. *Monographs of the society for research in child development*, 1-60.

Rodney & Quinns: 10 Years in Board Games | AwSHUX 2021

<https://www.youtube.com/watch?v=EehobiA6dQg>

The Secret Cabal of Gaming: #254: Final Girl And A Short Topic Extravaganza

<https://thesecretcabal.com/episodes/episode-254-final-girl>

Transcript

Hello! This is Episode 34 of the Cognitive Gamer podcast. I am your host, Dr. Stephen Blessing, professor of cognitive psychology at the University of Tampa. I use games to both explain and explore concepts in psychology. We are going to talk about all things meta this episode, such as metacognition, metamemory, and metagaming. Metacognition is our knowledge of our own cognition. That is, our knowledge, gained through experience, about how much stuff we can attend to, our ability to remember information, or what we think about our own ability to make decisions. A particular aspect of this is metamemory, our knowledge of our own memory. For example, we can probably all make a judgement about how good of a short-term memory we have. If I gave you a list of 10 grocery store items, do you think you can remember them all? How many do you think you can remember? What strategies might you use to maximize what you retain? That's all part of our metamemory. I've mentioned my love of trick-taking card games before. To be successful at such games, it helps if you can keep track of which cards have been played and which of your fellow players are out of certain suits. I'm not super great at that, so I don't try to remember all the cards, but just the trump cards and the high cards in the other suits. So, I'll adapt my play on the basis of my knowledge of my own memory. I also know that as I get back into a game my ability to remember more information about that game will increase. This type of knowledge is my metamemory.

In my list of metas, I also mentioned another one in there, metagaming, which I'll connect to metagaming later in the podcast. Metagaming comes into play during a few different instances, but again, it's all about knowledge of the gaming situation that's outside of the thing itself, perhaps a dungeons and dragons player having read the monster manual and knowing the stats on a monster the dungeon master just introduced. That's one example, but there are also others. So, I'm going meta today, and talking about all things meta, but not the parent company of Facebook. That's a different Meta.

As a listener to this podcast, you've already proven your interest in metacognition. Hopefully by listening, you have considered how your own cognitions come into focus when playing a game. I considered it a high compliment when one of the students who first took my Cognition of Game Playing class came up to me, about 3 years after the course, and told me that now when he plays a game, he thinks about what we discussed in class. When you consider your own memory or attention or ability to make decisions, that's metacognition, thinking about your own thinking. We can all make estimations about how many items we can keep in our working memory. I know that if my wife gives me a list of more than 3 or 4 items, I should start writing things down. Or, I know that I've played enough puzzle games at this point that I stand a pretty good chance of figuring out a new one, and I enjoy those that challenge me somewhat. That's metacognition. Other people can hold more items in memory, and others aren't so fond of puzzle games because they feel like they are not as good at them. That's their metamemory and metacognition.

How does this all develop though? That's one of the topics I find most interesting here, the development of our metacognition. Let's examine the development of our memory knowledge in particular, our metamemory. Mary Anne Kreuzer, Catherine Leonard, John Flavell and John Hagen did a fascinating study of children's understanding of their own memory. They interviewed 80 total children, 20 in each of kindergarten, first, third, and fifth grades. They asked them questions about memory and would give them scenarios and inquire about how memory is being used in each. For instance, in one scenario, a person had to remember a phone number, and the question asked if it would make a difference if the person dialed the phone immediately after hearing the number or if they had to take a drink of water between hearing the number and actually dialing the phone. The third and fifth graders were more likely than the kindergartners to indicate that getting a drink a water would impair the person's ability to remember the number. In a follow-up question, the kids were asked if they had to remember a phone number, how they would do it. There was a bit of a shift between ages from writing it down to stating they would use a rehearsal strategy. Across all the questions and the responses, one gets the sense that while even the kindergartners had some idea about how memory works and knew it wasn't perfect, that understanding grew and one sees much more sophisticated understanding across these age groups as you get older. The fifth grader's understanding of how memory works, in terms of how many items can be remembered, strategies to use to remember better, and even things like how easy or hard it is to relearn something is much better than with the younger children.

I'm assuming that most of you listeners are older than the typical fifth grader, so you all probably have a good understanding of how your memory works and its limits. But, there's still room for growth. As an anecdote, I was recently in Boston for a workshop. During the Uber ride from the airport to the hotel, I had an interesting conversation with my driver. He found out I was a cognitive psychologist that studied memory and problem solving, and started asking me questions. I told him about a couple of different mnemonic techniques, and he seemed to understand how they would be useful and said he might go back and re-read the last chapter of this book about business he was into to see if he could remember more of the information. This is the great thing about psychology. Because it's the science of studying human thought and behavior, once we figure out something about how memory works, we can use that knowledge to help us out.

That's true in real life, and obviously then also true in gaming. You can probably think of instances, like the one I shared at the beginning of our discussion about me and trick taking games, of when you used knowledge of your own cognition to inform and maybe change your playstyle. That's what I would consider metagaming, but that term encompasses a lot of different behavior, so let's unpack it a little bit. I can see three or four different ways one could use the term metagaming. The one I mentioned at the beginning of the podcast, of a dungeons and dragons player using information that wouldn't be available to their character, is the least interesting for our purposes in this discussion of metacognition. When I was a pre-teen in the early 80's playing D&D, I didn't think too much about flipping through the monster manual to read up on the monsters, and our particular group didn't do a lot of role-playing per se, so a character with an 8 intelligence was probably just as likely as a character with 16 intelligence to solve a puzzle. These are clear examples of using knowledge outside of what is intended in the game to help within the game. Some people have very strong feelings about this which I can understand, but again from our perspective, I think these sorts of cases are less interesting, as I think there's usually a pretty obvious way in which the outside knowledge is being used, and often in a way that people find circumspect.

However, there is an aspect of this type of metagaming that may be more apropos to our discussion here, and one that I do find more interesting as a psychologist. This is figuring out people's tells in gaming, those quirks that people exhibit when playing. People talk a lot about tells in poker, to where that's arguably part of the game. But, it's not listed in the rules, and you are using knowledge outside of the game itself, technically, to play the game. There's a great opening scene in the Star Trek: The Next Generation episode Measure of a Man where the crew is playing poker, and it's Data's first time playing. Data is an android, and he has read all the rules of poker and thinks he knows how to play. But, in the first hand Commander Riker bluffs him. Data is surprised, because he had worked out the probability of who should have the better hand, and from all the up cards, Riker knows he would lose if Data didn't fold. But, Riker won with a losing hand because he bluffed. Figuring out people's tells and using that within the current game and also across games I think most people would agree is fine, if not encouraged, but it is using metacognition in terms of both using that information and also figuring out the tells in the first place. As an aside, as I was finishing up writing this episode, the guys on The Secret Cabal of Gaming podcast fielded a question at the end of a short topic extravaganza where they ended up talking up metagaming in this context. I'll link to that episode in the show notes and you can listen to their commentary on when this type of metagaming is cool and not cool.

The word metagaming is also used in cases where a player's knowledge, not just of the people you are playing with, but also in the systems of the game itself inform playing strategies. This use of metagaming is popular in games with tournament and team play. For example, in card games like *Might and Magic* or in computer games like *League of Legends*, as different cards and characters get released and as different strategies get tried, people who play that game, as a group, seem to cohere on agreed upon approaches. As time moves on, those approaches change as either new systems get introduced or ways to thwart an older playstyle get introduced. None of this knowledge is in the official rules, but as people observe each other and figure things out collectively, people's knowledge of how the game should be played changes. If you play the deck building game *Dominion*, you probably know about the Big Money strategy. That strategy

is effective against new players, but more advanced players can counter it. That's one example of this type of metagaming.

As another simple example, I recently got the new game Rear Window by Prospero Hall. In the game, one player, the director, is trying to get the other players, the watchers, to guess who lives in each of 4 apartments and what attribute each apartment dweller has. The director does this by playing two picture cards into the apartment's windows to give the watcher's clues. On our first play, my wife asked if the windows mean anything, like if the first window is for the person and the second window for the attribute. There's nothing about that in the rules, but that became our "meta" for the game. As another example, I've watched the first season of Players on Paramount Plus, which is about a fictional League of Legends eSports team. It's very good, by the way, and also touches on this notion of metagaming in terms of expectations of how that type of game should be played, particularly at the professional level.

This brings me to my last notion of metagaming, and one that I think most game players do to at least to some extent. Most of the time it's probably implicit, but perhaps sometimes explicitly, and this is the notion that's most similar to metacognition itself. I imagine most of you, as listeners to a podcast about the intersection between game playing and cognitive psychology have found yourself doing this explicitly, and that is to think about what you are playing and to consider the capabilities of your own cognitions as you are making your moves. That's obviously where metacognition meets metagaming most strongly, and one that I hope to foster more of through this podcast and in my class where I teach cognitive psychology by having the students play games.

While they were not talking specifically about either metagaming or metacognition, I listened to a podcast featuring both Quintin Smith of Shut Up and Sit Down and Rodney Smith of Watch It Played as they interviewed each other about being in the gaming industry for 10 years. It's a really cool listen, and I'll link to it in the show notes. It was part of that podcast that got me thinking about all things meta. Quintin asked Rodney how reading rule books so closely to prepare for his videos has changed the way he approaches the task. Rodney started out by saying, and I quote, "It has changed the wiring in my brain," which I'm sure is true both figuratively and literally. He goes on to describe the finding that as he is reading a rule book, he can tell if a rule is right or not. He reports there have been many instances where he has spotted errors in the printed rules, based on how he knows in general how games should work; I guess you would call this meta-rulebooking. Quins, for his part, then talks about meta-critiquing, where he can't help but to go into critiquing a game as he is playing it with friends. As we learn more about a thing, we can't help but to think about that thing.

That brings us to the close of this episode on all things meta. As you play your next game, have metacognitive thoughts! Consider how your memory, attention, problem solving, and decision making are all coming together in order for you to have this game-playing experience. Think about what you can do to minimize any issues you may have with your memory, or, think about how you can maximize any cognitive strengths you are blessed with! As always, I welcome any comments or questions you may have, so please email me, steve@cognitivegamer.com and also visit my website, cognitivegamer.com. Also, you can like me on Facebook, Cognitive Gamer, or follow me on Twitter, @cognitive_gamer. And, if you like the podcast, please give a rating in

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