

Episode 35: It's a bird, it's a...yeah, it is a plane! Oh, and also a Tower?

Show Notes

We are back with a cognalysis of two games, Sky Team, fresh off its Spiel des Jahres win, and also Wandering Towers.

Game References

Hanabi, Sky Team, That's Not a Hat, Wandering Towers

Research References

Baddeley, A. (1992). Working memory. *Science*, 255(5044), 556-559.

DeLoache, J. S., Cassidy, D. J., & Brown, A. L. (1985). Precursors of mnemonic strategies in very young children's memory. *Child Development*, 125-137.

Transcript

Hello! This is Episode 35 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. Let me first state that it's been way too long since the last episode. I apologize for the hiatus, it was much longer than intended. I've had some life issues that have been more pressing—nothing bad, and indeed mostly good. On a personal level, my son and daughter have transitioned from high school to college, so getting them settled has been a concern, but again, quite successful. And, on a professional point, I technically have a new job. I'm still at the University of Tampa, but I am now the Janet R. Matthews, PhD. Endowed Chair in Psychology. If you know academia, you know getting an endowed chair is a bit of a deal, so I've spent the last year making sure my own transition into this new role was successful, and it has been. This new position has allowed me to really concentrate on undergraduate research and mentorship, and I'm making the most of that opportunity. But, I now want to be a bit more active in my Cognitive Gamer persona! With Sky Team winning the Spiel des Jahres, I thought it might be a good time to do another cognalysis. After talking about Sky Team up front, I'll also discuss Wandering Towers, another fun game and one that I've used in my class in cognitive psychology. So, sit back and enjoy hearing some connections between these two games and cog psych.

My wife and I have played several games of Sky Team at this point. Soon after our first couple of plays, my wife was talking to my son about the game, and she paid the game a very high compliment, by saying, "It's actually fun!" For those who have listened to earlier podcasts, you know my wife does like to play games, and is usually quite willing to do so. But, this admission that Sky Team was actually fun struck me as pretty funny itself, and I've ribbed her about it.

Let's talk about why Sky Team is actually fun, and why we've really enjoyed playing it. For those who haven't played it yet, Sky Team is a two-player cooperative game where the objective is for the two players, the pilot and co-pilot, to land their plane successfully. It was designed by Luc Rémond, with art by Eric Hibbeler and Adrien Rives, and published by Scorpion Masqué. For each round of the game, the two players roll four dice, and then take turns assigning their dice to the various systems of the plane to accomplish certain things, like turning, setting the

flaps, readying brakes, and using fuel. By assigning the right values at the right time, you and your partner will be able to land the plane successfully. But, if you turn too much, miss clearing another plane in your path, or perhaps descend too quickly, you will crash! In addition to dealing with the randomness of the dice, the other big issue is that you and partner cannot talk to one another as you take turns assigning dice to the various systems! You have to rely on your teammate to do the right thing at the right time, based on the various cues you can indicate as you assign your own dice to the board.

There are three cognitive processes that I'd like to point out regarding Sky Team: theory of mind, attention, and problem solving.

First up, theory of mind, which we talked about in Episode 31. If you remember, theory of mind is the realization that what you know isn't necessarily known by everyone else. That is, your mind, with its thoughts and memories, are separate from everyone else's mind, with their own thoughts and memories. In Sky Team, this corresponds to just because you know you have rolled a 1, two 4's and a 6, your partner doesn't know that. And, as you are taking turns placing dice, just because you placed that 1 first, doesn't mean your partner now knows you are out of low numbers, and if one of the plane's system still requires the use of a low number, they are the ones that will have to place it. And, just like they don't know what you rolled, you also don't know what they've rolled.

This setup makes for some very interesting deductions as you try to work together to place all the dice successfully. You are allowed to talk to your partner at the beginning of the round, before you roll your dice. At this point, you can talk about the things you need to accomplish in this turn, like clearing off these planes, lowering the flaps, and keeping an eye on the fuel. Once the dice are rolled, though, no talking! At this point, you have what you agreed to initially as the plan, and then the order, placement, and magnitude of the dice as your partner takes their turn. I imagine partners can work out a system to provide even more information in this very limited communication channel, like I've heard people who play Hanabi a lot do, but some of that ends up breaking the spirit of the game, I feel. Being in tune with your partner as the dice get placed, being mindful of the order in which they place their dice (for instance, wondering why they did the flaps before clearing a plane, perhaps) sets up this nice dance you do as the round plays out. The silent cooperation that's necessary in order to land the plane makes for a very satisfying aspect to this cooperative game. Assuming of course, you don't crash the plane because your partner put too high of a number on their side of the axis or some other issue that you clearly signaled by how you placed your dice. A lot of this hinges on theory of mind.

A second aspect of cognition that comes into play is attention. There's a lot you need to be mindful of as you play! Other planes are in your flight path, your axis has to be just right, you need to work on the brakes if you the captain, the flaps if you're the co-pilot, and then you can add even more systems like fuel and interns. That's a lot to keep track of! And, as discussed way back in Episode 3, we humans have limited attention. We can't pay attention to everything coming into our senses. Some things are going to be missed. The first game of Sky Team you play can be kind of rough. But, you probably found that as you played more games, it got easier because you could attend to more things. Remember, that's automaticity kicking in. As we gain practice, it doesn't require as much attentional resources. Which is why you can start to add in

additional systems—you can handle the increase in detail because you now have leftover capacity with which to deal with it. I really like the progression system the designers put into the game as shown in the logbook. You master the basic game, and then you start adding in new components. It works out really well, due to how our attentional system works. After conquering some of the yellow landing scenarios, you could go back to the green ones and much more easily do them, assuming the dice are at all with you. I didn't do an analysis of this, but you have essentially several extra dice rolls on that first, basic scenario into the Montreal airport, so that you can make more coffee in order to set yourself up better for later rounds. But, as you get into the yellow, red, and black scenarios, you don't have many extra rolls, and so the communication between you and your partner and the placement of each die is very important, so that none are wasted.

The last point I'll mention here about Sky Team that makes me really appreciate it is the puzzle aspect to it. Like many games, it's essentially a puzzle that you have to solve. How do you optimize your die placements so that you successfully land the plane? But, you have to coordinate solving this puzzle with your partner, which ups the challenge and, for me at least, adds to the fun, because that information you obviously don't know. If you and your partner didn't have the limited communication channel, then the game would be obviously much easier to win, but much less fun. But, the hidden information you need to work with as you solve your half of the puzzle makes solving the puzzle that much more satisfying.

Of course, in addition to these cognitive principles, Sky Team also has great theming as well as simple but attractive art and graphic design. All of this combines to make Sky Team “actually fun,” as my wife put it, and well deserving of its Spiel des Jahres win.

I'd like to make this cognalysis episode a two-fer, and also talk about Wandering Towers, designed by Michael Kiesling, Wolfgang Kramer, with art by Michael Menzel, and published by Capstone Games. In this game, players are trying to move their wizards to a particular tower on the circular game board. Complicating matters, all the towers can move! And, towers can cover up some of your wizards as they move around the board. You need to keep track of them! Also, towers can stack, so if your wizard is covered up, you also have to keep track of what level they are on.

Obviously this is a game that stresses memory. Depending on player count, you may have up to 5 wizards you need to keep track of on the board, any or all of which could be covered up at any one time. This is a good family game, with relatively simple rules and a cute theme with large, tactile components as you move the towers around and stack them. This game was a natural one to add in to my class Cognition of Game Playing. The students liked it, and it's a great example of working memory being used in a game as wizards get covered up.

I'll be honest, I have at best an average memory. I study memory, I know a lot of mnemonic techniques, but at the end of the day, I often do not use them. When I play this game, then, I just go with the flow and hope I don't struggle too badly. But, I do think about this classic study done by Judy DeLoache, Deborah Cassidy, and Ann Brown. These were developmental psychologists examining how children form strategies and techniques to remember items. In the study, the experimenter would hide a stuffed animal while the child, around 2 years of age, was watching.

After a short time period after seeing where the toy was hidden, the child was told to go find it. In my mind, this is very similar to your wizard being hidden by a tower while playing the game, and then in a later turn needing to uncover it. The question that these researchers were most interested in was what strategies the children used in order to remember where the toy was hidden. They observed a number of behaviors that children used, such as verbalizing its location (that is, just talking about it—this one was used by far the most). Children also looked at where it was, pointed to its hiding spot, and they also peeked and hovered over the toy. I imagine that list isn't too different from the strategies players use as they play Wandering Towers. They will talk about their hidden wizard, they'll look at the location where it's at, and probably point and hover their hand over it as they get ready to play their next card and hopefully free their wizard. The psychologists talked about children using these strategies as they gain more sophisticated ones in order to remember, but in at least some instances, such as playing Wandering Towers, these basic strategies are still good ones in order to get you through the game.

As an aside, one of those researchers, Judy DeLoache also did some interesting work looking at how children learned to use representations like maps and scale models to represent the world. Let's put a pin in that topic and come back to it in a later episode, as that would be a fascinating consider how we learn to play games that use maps and other representations of the world. But for now, let's close out our discussion of memory.

In episode 11, I provided an overview of memory, and discussed working memory. This is the memory used to keep track of your wizards as they are hidden for a few turns. Working memory is what you're consciously aware of, and it's preciously small. That's why we have trouble remembering information as it comes flooding in. There's another game I've recently become aware of that really taxes working memory, the simple but fun game That's Not a Hat, designed by Kasper Lapp and published by Ravensburger. In this game, players move around cards with simple line drawings, trying to remember what card you currently have along with what card the other players have. There's only ever one more card than players in the game, so with 4 players, that's only 5 cards to keep track of. Sounds like it should be straightforward, but it isn't! With the cards constantly being moved it's challenging for us players with average memories.

I should devote a whole episode to Baddeley's theory of working memory. To reiterate the idea, though, the basic theory is that memory has three parts: the central executive that runs the show, and two helper systems, the phonological loop for verbal information and the visuospatial sketchpad for more visual information. This dichotomy between verbal and visual information is something that gets repeated across memory systems. If you can engage both modalities to help you remember, you tend to be better off. That's probably why That's Not a Hat is hard, because many people probably just engage the verbal system as the cards get pushed around on the table face down. For Wandering Towers, given the very physical nature of the game, with the wizard meeples and the towers that can stack and hide them, people are probably using their visual spatial sketchpad to keep track of where their hidden meeples are. Going back to the DeLoache, Cassidy and Brown study, the fact that the kids would talk about where the toy was, is a way to engage both the verbal and the visual in a way to keep track of where it was until they could go get it.

I hoped you enjoyed my cognalyses of these two games. My wife and I are really enjoying Sky Team (it is, after all, actually a fun game) and Wandering Towers is one of my daughter's favorites at this point (which is something, because she's not much of a gamer). I hope you enjoy landing planes and moving your wizards! 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 X, @cognitive_gamer. And, if you like the podcast, please give a rating in whatever service you use to play podcasts. Just like most dice rolls, higher is better! This will make it easier for other people to discover the podcast. Until next time, remember to think about what you play, and have fun doing it.