STARDUST AND STATISTICS

Situated language and literacy in *Pokémon Go* guides

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Abstract

The ability to understand language-in-use is essential to language and literacy learning. This article focuses on players' acquisition of specialist language and Discourses (Gee, 2014) among players of the mobile augmented reality game Pokémon GO. Specifically, I explore player-written guides by self-identified researchers of the game. These researchers enact scientific Discourses to explain gameplay elements. Using parent interviews and excerpts from the player-written guides, I analyze these game guides' highly specialized and complex language as forms of situated language in-use. I conclude with a discussion of implications based on these findings for L1 in educational settings.

Keywords: literacies, videogames, Discourses, Pokémon GO, case study, specialist language

As youth use digital technologies and engage with the online spaces around their interests and hobbies, they participate in various intricate literacy practices. Whether it is through writing online (Black, 2008; Magnifico, 2012; Thorne & Black, 2007, Vazquez-Calvo et al., 2019), playing videogames (Gee, 2007; Gee & Hayes, 2010, Gilje & Silseth, 2019; Lasley, 2017), or a plethora of other digitally mediated practices (Ito et al., 2013, 2020), technologies play a crucial role in today's learning. Informal, technology-based learning outside of the classroom is ubiquitous and key to understanding how young people learn (Lemke et al., 2015; Sefton-Green, 2004). Numerous scholars have argued for the importance of exploring everyday, interest-driven learning in various informal contexts, including playing videogames and using the Internet (Ito et al., 2013, 2020; Jenkins et al., 2015).

Among the out-of-school activities that students engage with, videogames are a vital part of the lives of many young people and their families. In the United States, out of parents who play videogames, 74% report playing with a child at least once a week (Entertainment Software Association, 2021). Many scholars have looked to games and their potentials for teaching and learning, including for their ability to bring impassioned, networked learning to school (Dezuanni & O'Mara, 2017), their potential for teaching media literacy and critical thinking (Beavis, 2017), and their merits in school as an essential medium in their own right to teach students about through the play and making of games (Buckingham & Burn, 2007). In addition to the learning potentials embedded in games and their designs, numerous scholars have pointed to the meaning-making and learning potentials *around* games, be it in the context of a classroom or in self-organized online communities (Apperley & Beavis, 2011; Curwood et al., 2013; Gee & Gee, 2012; Gerber & Abrams, 2014; Steinkuehler, 2008). One game with an active online community is *Pokémon GO*, a popular augmented reality mobile game released in 2016.

Pokémon GO is a popular mobile augmented reality (AR) game based on the existing *Pokémon* franchise. Although the game was released in 2016, it remains popular as of this writing (Smith, 2020), with 2019 being its highest-grossing year. The game gained popularity at the beginning of the coronavirus pandemic, with the developer adapting the game to be playable at home (O'Connor, 2020). In *Pokémon GO,* players find and capture virtual creatures known as Pokémon. There are numerous in-game activities that players may participate in, including claiming territory for their team, collecting resources, and battling other players. Additionally, players may enable augmented reality, using their device's camera to superimpose Pokémon onto real-world environments.

Additionally, parents playing the game with their children is a common practice (Sobel et al., 2017), with parents even going so far as to look at guides and information online along with their children (Author, 2018). Here, I explore the learning and literacy practices of parents and children around player-written guides to the game. I present segments from these guides alongside data from interviews with parents who play with their children. Because some families already are engaged with these guides, which can involve navigating complex specialist terminology,

examining these existing literacy and L1 practices could illuminate potential directions for L1 in other contexts, such as schools.

1.   BACKGROUND

The academic potential of videogames examined by researchers spans from cognitive abilities to the development of social skills (Markey et al., 2020). Of particular importance here is scholarship on language acquisition and literacy practices of videogames, through playing them (Steinkuehler & Tsaasan, 2020) or participating in communities (Knight et al., 2020; Thorne et al., 2009). In what follows, I focus on how player-written guides to the game contain instances of academic language that parallel the language that children need to be successful in school.

1.1 Literacies

The notion of literacy learning that I adopt is social and situated (Gee, 2007; Kress, 2003; Lankshear & Knobel, 2003; New London Group, 1996), in which learning and literacy are not only cognitive processes, but also particular kinds of meaning making and practices tied to specific contexts (Street, 1995; Rowsell et al., 2013). Language learning is not about transmission, but, instead, it is a social practice that arises from language in use, situated within contexts (Vera & Simon, 1993). Literacies refer to forms of socially mediated practices, knowledge, and meaning making (Coiro, et al., 2008; Gee & Hayes, 2012; Lankshear & Knobel, 2003). Particularly in the context of digital media and the Internet, there exist "ecologies of literacy" that encompass many different media and social situations and contexts around these media (Tusting, 2017, p. 3). The New London Group (1996) called for research and practice that reflect the multiple and socially situated nature of literacy, particularly considering the knowledge-based, global 21st-century economy for which students need to be prepared. These literacies are often (but not always) tied to the digital media and technologies that students encounter every day. We must look at young learners' practices in authentic, everyday contexts that involve these technologies, including videogames.

Many young people engage in language and writing-related practices around games, whether it is through writing and sharing fanfiction (stories written by fans about an existing game, text, or other artifact) or discussing game strategies. Researchers have framed the fan spaces that exist around games as sites of meaningful learning and literacy practices, including research, writing, and collaboration (Black, 2008; Curwood et al., 2013; Gee & Hayes, 2010; Hayes & Duncan, 2012; Lammers, 2011; Magnifico et al., 2015; Martin & Steinkuehler, 2010). Research also suggests that games are potential sites of language acquisition (Knight et al., 2020; Thorne et al., 2009).

1.2 Guides and literacies

Player-created texts around digital games, known as paratexts (Consalvo, 2007), come in many forms. Game guides, also known as tutorials, walkthroughs, or FAQS, are one such form of paratext. Written game guides are a set of instructions for completing a game or for achieving a particular outcome, akin to technical guides written for the operation of a household device or software but written by fans of a game for other fans (Hughes, 2018). These texts are widespread and serve many purposes for players, be it teaching readers how to navigate a tricky part of a game or teaching them how to modify their games and perform technical tasks (Hayes & Lee, 2012). These guides typically are shared online, written by players to help other players with aspects of the game.

   In addition to these fan spaces, game guides also have been explored in the context of structured school assignments for literacy development (Apperley & Beavis, 2011; Wash & Beavis, 2012), including writing guides and journalistic pieces in the L1 classroom (Dezuanni & O'Mara, 2017; Hanghøj, 2017; Hanghøj et al., 2020; Strømman, 2021). Strømman (2021) in particular outlined the many promises of translating these fan practices into the classroom including students' engagement and the ability to position students as experts in a particular domain. These pactices are what Dezuanni & O'Mara (2017) call impassioned learning" (p.36), which looks more like students' everyday informal learning around fan cultures and digital media.However, there also are real challenges to implementing these activities in the classroom, including students' pre-existing (sometimes negative) attitudes toward videogames, expectations of genre, and translating professionalism and academic language standards into classroom assignments and writing (Hanghøj et al., 2020). Here, I will be focusing on implications for learning from these guides to *Pokémon GO* written by fans and shared online.

1.3 Discourses

When learning about *Pokémon GO,* a player may access guides distributed across various sites. As players write and use guides, they must understand and enact various Discourses (Gee, 1989) around the game. Gee made a distinction between "big D" and "little d" discourse (d/Discourse). A "big 'D' Discourse" as defined by Gee (1989, 2004, 2014) includes speech, as well as behavior and ways of acting and valuing that mark an individual as being part of a particular group. These "ways of being" (Gee, 2014, p. 184) shape the aforementioned ways of thinking, acting, and believing, in addition to written or spoken language.In schools, educators often ask students to position themselves as certain types of people who value written evidence, arguments, and particular forms of language and writing. Hence, for students to succeed in school, they must learn to act, value, and behave in specific ways (Gee, 2004).

A space such as a videogame fan community also models ways of being—ways of valuing, specialist language (Gee, 2004), and privileging certain types of information. Several scholars have examined the enactment of Discourses in games and the communities around games and their relationship to learning and literacy (Abrams & Lammers, 2017; Gee, 2014; Steinkuehler, 2006). Inhabiting a variety of Discourses might contribute to preparation for future learning in school, as it prepares students to learn and understand *specialist language* (Crowley & Jacobs, 2002; Hayes & Lee, 2012).

In *Situated Learning and Literacies,* Gee (2004) argued that the process of acquiring both spoken and written language hinges on the ability to understand specialist language. Everything from scholarly disciplines to schools to gaming communities share a language that is particular to that domain. For instance, the language used in an astronomy journal is quite different from that of an architecture magazine. Still, a learner would need to understand the specialist language of each to understand the respective texts. This disciplinary literacy is necessary to understand content in any given content area (Moje, 2007, 2015).

As an essential step in students' literacy practices, students must learn academic language and Discourse—a set of practices related to school and scholarship that involve everything from specialist terminology and formatting reports to making arguments and presenting evidence. Without understanding and using such specialist language, students might struggle to learn in content areas (Hayes & Lee, 2012). This academic language, including its linguistic, cognitive, and sociocultural dimensions (Snow & Ucceli, 2009), is critical especially in content areas, such as science, which involve a large number of specialist terms (Snow, 2010).

1.4 Pokémon GO *guides*

Whereas some games provide an extensive tutorial section at the start of the game, *Pokémon GO* does not spend much time introducing the player to the game play. Although the developers have implemented more guidance than there was initially at the time of this writing, many aspects of the game, such as the probabilities for receiving rare items and where specific creatures appear in the world, remain elusive. Players, therefore, commonly refer to guides written by other players, and information on the game is distributed across different online and offline sites. Abrams and Lammers (2017) noted that proficiency at many videogames is dependent on specialist knowledge and related Discources; players must understand explicit and implicit rules and practices in order to both play games and interact with other fans. Here, I examine guides to look for instances of specialized language and evidence of Discourses related to building academic literacies.

In this case of *Pokémon GO*, guides to the game will include different kinds of specialist language. Here, my focus of analysis is a player-led "scientific" community for the game that performs research on game mechanics, (A Call for Researchers, 2021). The guides represent particular player Discourses through both the authors'

written words and the set of practices that the authors and readers engage in around them. The readers of these guides are often parents, who use them to both understand the game and as an oppurtunity to teach and learn with their children. My guiding research question is: How do parents and children engage with academic language and specialist language through player-created guides for Pokémon GO?

2. METHODS

To collect data, I first researched the broad player fan base around *Pokémon GO* for my doctoral dissertation (Author, 2018), which was completed at a university in the southwestern United States. This data collection took place from July, 2016, the time of the game's release, through October, 2016. I conducted a survey (*n* = 149) of players, some online and offline, soliciting involvement by posting in online communities on the sites Facebook and Reddit and approaching players who were gathered at local parks to play. From there, I identified three focal families to conduct interviews with, as family engagement with the game has been the topic of prior research (Sorel, 2017). They were local to the area selected based on their survey responses; each of the interviewed parents indicated that playing with their families was an essential part of their play experience.

These parent participants were players who were engaged with sites around the game, such as Reddit, and were well-versed in specialized language around their game, as evidenced by their use of such terms during interviews. I did not collect any demographic information about these participants other than the ages of their children and the number of people in their household.

The first interviewee was a mother who played with her 10-year-old and 2-year-old sons. Her husband was also an avid player, and the four of them played as a family. The second interviewee was a single mother who played with her 16-year-old daughter as an opportunity to bond with her. The pair also connected with extended family through the game. The third interviewee was a father who played with his daughters (aged 8 and 10), and he discussed in-depth game mechanics with them.

I became familiar with various play styles, what motivated players, and some of the players' common informational sites. Players referenced these sites in my survey, in offline discussions, and on online forums, and I went to these sites and observed them. From there, I selected sites and guides to analyze written with a particular target audience in mind. Here, I focus on guides that illustrate the practices of the self-described scientific players of the game, a "research group" that refers to their findings as "science," their members as "researchers," and their moderators as "scientists."

2.1 Analytic tools

To select and analyze guides, I visited sites suggested by participants in the survey portion of the study and read through popular news from various sources. One site,

The Silph Road, was one of the most frequently mentioned sites across both parent interviews and survey data. These guides are cases meant to illuminate specialized language instances around the game. I chose these guides as examples that had statistical analysis presented alongside description and discussion, with their structures drawing the form of scientific papers. The guides presented here are not representative of all guides; instead, they are cases meant to illuminate a particular style of engagement with the game. This style entails getting the best possible characters and items, similar to the playstyle that Paul (2011) outlined in his research on *World of Warcraft* players. Additionally, these examples are not intended to suggest a singular Discourse of videogame fans or even a singular Discourse of people who play *Pokémon GO.*

Inspired by Discourse Analysis, a research method for looking at Discourse within social contexts (Gee, 2014), I divided paragraphs into stanzas, which is how I present them here. Gee (2014) provided numerous tools for analyzing Discourse examples. Each of these tools is a "specific question to ask of data," (Gee, 2014, p. 2). For example, using the "situated meaning tool," a researcher will ask "what specific meanings… listeners attribute to words and phrases given the context" (Gee, 2014, p. 159). He presents these tools and tasks as possible options for analysis, where the most relevant tools for the present job should be usedI analyzed each of the guides according to these tools (2014). I applied the most relevant of these questions for the chosen guides and used open coding (Saldaña, 2016) to analyze the specialized language and practices evidenced in the guide.

In this way, I looked at stanzas, and the interview data with parents, who all said that they used online information to inform playing the game with their children. I selected parts of the guides to present here based on which parts illustrated the most prominent underlying values and practices of players in this community. Following this is a discussion of the implications of this analysis for literacies and education. To support the analysis of these guides, I present data from parent interviews as well.

3.   ANALYSIS

The two guides in this study were written for players who seek to understand the game's inner workings. They were posted publicly on a site known as *The Silph Road,* which provides in-depth guides to different aspects of the game. One example is from an earlier stage of the game, and the second is more recent. Beyond the main site, the community exists on Reddit and Discord, where much discussion and research on the game occur.

The members of the site frame themselves as a "scientific" *Pokémon GO* community, intended for players interested in testing hypotheses about the game and its workings. This testing of hypotheses is part of a long tradition in game communities; Paul (2011) studied the similar practice of "Theorycrafting" in *World of Warcraft.* These types of guides are for players who wish to maximize their game play by

learning tricks and for people curious about the game's inner workings that would not be obvious to players on the surface. These guides result from the analysis of data contributed by participating members, who are referred to on the website and on affiliated social sites such as Reddit and Discord as "researchers." The people who analyze the data are self-identified "scientists." Their explicit, stated goal, listed on the site's page for recruiting new researchers, is to examine the game's "unexplained mechanics, rumors, and mysteries" (A Call for Researchers, 2021). As such, the guides' particular foci are aspects of the game that tend to have rumors and misinformation frequently shared about them on other sites in the game's fanbase. This community debunks these rumors by gathering datasets and analyzing them—a practice they frame as "research." To draw the connection between the practices of these players and the implications for learning and literacy related to the guides, I also present data from parent interviews to give context to how these guides might be used.

To analyze these guides and the values, practices, and beliefs that each of them represent, I present guides from *The Silph Road* and data from parent interviews as case studies (Stake, 1995; Yazan, 2015). As I detailed in the previous section, the case study analysis was inspired by Gee (2014), particularly his tools for analyzing data to investigate the Discourses made evident by speech, behavior, and ways of knowing and acting. I chose to take up these tools because specialist language is tied to particular domains, in this case, in the intersecting domains of research and *Pokémon GO* (Gee, 2004). These tools provide a framework for looking at language in context that align with my overall framing of language and literacies.

I constructed themes from the data while performing open coding (Saldaña, 2016) on both the parent interviews and the open-ended responses to my survey. This resulted in codes such as "patience," "theories," "screen time," and "bonding." I then organized these codes into into broader thematic categories, which included "safety," "benefits," and "social," and went through the data a second time with these themes in mind. I discuss these themes in relation to the guides I present in the Findings section.

4.   FINDINGS

4.1 Parent interviews

In my parent interviews, a common theme was the discussion of "theories" around the game, in which parents would encourage children to form hypotheses or guess what would happen. One mother, who used Silph Road and Reddit for information, said that "we have the most fun talking about theories and testing them out." All three of the parents interviewed also referenced conversations in which they discussed specialist terms with their children and discussed how they could use this knowledge to attain goals. The same mother referenced previously that when her son collected resources that could power up his Pokémon, she talked him through

how to use them best. She told me that "you can evolve or power them [Pokémon] up right away, but it might not be the best choice if its IVs are low. I've told my son a few times it might be better to be patient and wait for a strongest Pokémon." IVs here refers to hidden attributes that Pokémon have, which determine how powerful they can become. At the time of this interview, the only way to view these numbers directly was to use a fan-made online calculator tool created through player research and statistical analysis.

The father I interviewed also talked about this specialist language specifically with his children, saying, "we do discuss IVs…they [children] are getting better at waiting for better Pokémon to evolve." Finally, the mother who played with her teenage daughter talked about best practices for powering Pokémon up, with her daughter asking questions, such as "This one I caught was 570 [Combat Power]…. Do you still have the page that shows the grid on it? Should I evolve it now or should I try and make it stronger before I evolve it?" She also stated that her daughter and she would text each other with *Pokémon GO* news and information throughout the day and share this information with extended family in a group text message. In these practices, parents enacted a particular Discourse of parenting (e.g. privileging text, using evidence to build arguments) that is scientifically informed and academically oriented.

All three of the parents interviewed here also expressed that playing the game could be beneficial, mentioning exercise and family bonding. The mother of two sons expressed pleasure in "getting out of the house and seeing places we wouldn't otherwise know about," and noting that it "really gets the entire family involved." The other mother mentioned that "you can't really sit on the couch and play," and when her daughter plays, she has social "interaction with me or her friends or with other family members." The father of two daughters told me that "we have seen some neat places that we would have likely not gone to if we were not playing" and added that it was some "really neat family time." Another theme in parent interviews was that parents and children could learn new things generally through playing the game. One parent emphasized that an educational value of the game for both children and adults was that reading information about it encouraged continued learning and literacy practices, preventing "atrophy of the brain" and saying that "Kids, if they're like looking into certain information, that's just gonna be a benefit for them later on on how to research school papers or for jobs." She also expressed that for adults, "just reading different things, maybe you'll pick up some… words you don't know."

4.2 Guide 1: Movesets and probabilities

Like much of The Silph Road, the first guide is situated within a scientific Discourse, drawing on the specific disciplinary language necessary to understand technical subjects (Giroux & Moje, 2017). It concerns an aspect of the game known as Pokémon movesets. Movesets are the actions that Pokémon can perform while in battle. Some of these actions are considered more desirable (stronger, more effective) than

others, and, as such, many players want to know how their Pokémon can acquire these optimal movesets. The guide is structured like a research paper, explaining how the study was conducted, findings, and then a more extensive methodology section throughout 1555 words. A shorter version was also posted on the group's subreddit.

Here, I present the excerpts from the data as stanzas, as suggested by Gee (2014), to facilitate analysis. I will refer to the data by line number in the stanzas. In the beginning, the premise of the guide is introduced as such:

> Stanza 6 (Research Guide)
>
> (1) When a Pokémon evolves,
>
> (2) its quick and charge move are re-rolled according to unknown odds.
>
> (3) Silph researchers began recording various attributes of their Pokémon before evolution,
>
> (4) including their moves, appraisals, STARDUST, and their evolved movesets.
>
> (5) Over 10,000 evolutions were captured over the course of the study.

Immediately, the author employs several specialist language terms. The discussion of "quick and charge moves" in line two calls on the specialist language not just of *Pokémon GO* players, but of players familiar with the mechanics of battle. Indeed, there is no introduction to any of the game concepts mentioned here or definitions of the situated meanings of the terms used, suggesting that it is likely that the assumed reader is familiar with the game.

Besides the terms from the game, another specialist language is used here— the language of research. This study is described as such in line five. In lines three and four, the author enacts this scientific Discourse to introduce the research ("recording, captured, course of the study"). Methods are discussed in line three, and the amount of data collected in line five ("over 10,000 evolutions were captured"). There are, therefore, two specialist languages being used here: that of *Pokémon GO* players and that of researchers. This specialist language continues throughout:

> Stanza 7 (Research Guide)
>
> (5) The data suggests that,
>
> (6) of the effects we looked at,
>
> (7) none caused a significant deviation from random uniform selection.

The author's assertion is based on the "data" (line 5. In lines 5 and 6, through word choices, the author draws a connection between the practice discussed here (gathering data on Pokémon) and the practices of the scientific community more generally. The conclusion, in line 7, is also delivered using a specialist language ("deviation," "random uniform selection") that likely would make sense to a reader familiar with the specialist language of science.

Figure 1. Cumulative probability chart
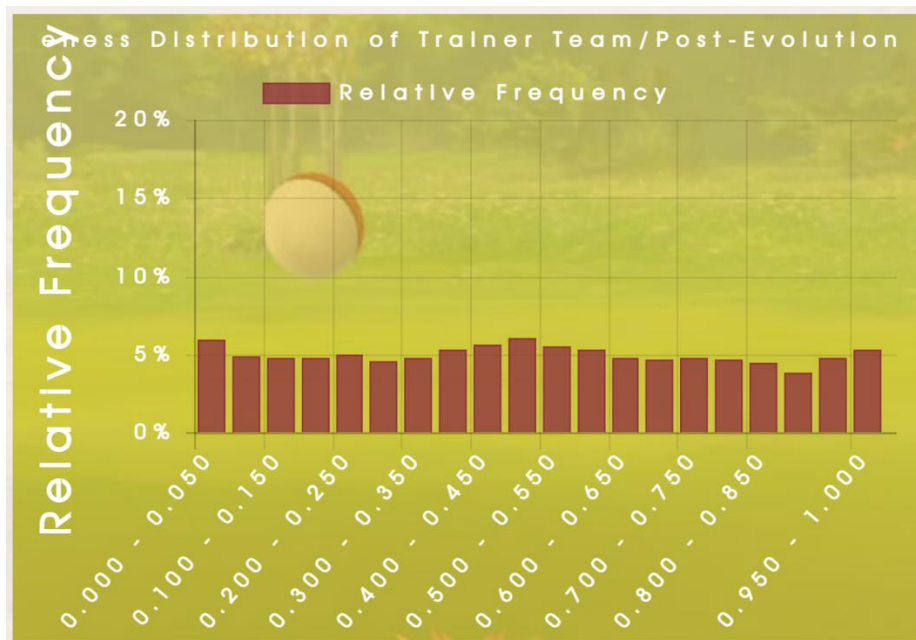
One perceived benefit that parents cited of the game was that it enabled them to teach their children skills like patience, strategy, and long-term thinking. Children often wanted to have powerful Pokémon, but attaining these requires players to understand the underlying rules of the game. Players must understand specialist language and terms, including "Stardust," "appraisals," and "movesets" (line 3 three), as referenced by parents in the interviews referenced previously. .

At the end of the guide, the author summarizes the results:

Stanza 8 (Research Guide)

(8) So, travelers, if you see any evolution moveset myths floating around,

(9) share the knowledge:

(10) it's truly random, and in general has an equal chance every time.

(11) And that's no longer just a hunch!

The author uses "everyday" Discourse, or language that is not situated in a particular specialized domain (Gee, 2014), to describe the findings in the last paragraph, summarizing the findings for a general, non-scientific audience before the extensive methodology section. The text is accompanied by charts and graphs, such as the probability chart in Figure 1.

The author is not just encouraging readers to share this knowledge; instead, he or she is privileging a type of expertise (data-based) over the "myths" referred to in line one that players commonly share. In lines two and three, the author asks readers to participate in a specific practice, that is, the practice of sharing the findings from this guide with a broader audience. Finally, the author contrasts these findings further with unfounded rumors about the subject, referred to in line four as "just a hunch."

In this way, the author participates in what Gee (2014) calls a Conversation, or existing broader social debate (p. 189). There is a tendency for false information to spread; numerous sites exist around the game, offering rumors and other unconfirmed data (Ohleiser, 2016). In providing scientific data, *The Silph Road* community and the creators of these guides challenge this practice of spreading misinformation, which is especially prevalent on social media sites. Ito et al. (2020) noted that combating misinformation and understanding credibility in online spaces are some of the biggest challenges to develop over the last decade. These are vital considerations for understanding learning and literacy in online spaces.

4.3 Guide 2: Item distributions

The following guide, also posted on *The Silph Road*, concerns an aspect of the game known as buddies. A player may designate a particular Pokémon as a "buddy," or a Pokémon that can follow the player around the map. This creature is granted special status as players may play with this Pokémon, give it treats, and receive unique gifts (in-game items) from their buddy. This guide, entitled "Unwrapping the Mechanics of Buddy Present Contents," contains charts of probabilities (Figure 2) interspersed throughout the text. The guide explains in the first paragraph how the researchers acquired the data.

> Stanza 1 (Research Guide 2)
>
> (1) Diligent researchers have recorded
>
> (2) the contents of over 2,500 Presents
>
> (3) since the feature's release,
>
> (4) creating a one-of-a-kind dataset
>
> (5) to put Present contents under the microscope.

In the first line of the stanza, the author refers to researchers as "diligent," indicating what kinds of people might engage in the practice of science. The term "recorded" is a technical term that one might use in a research or scientific context. The second line describes numbers in concrete terms—"over 2500 presents"—thereby describing the dataset mentioned in line 4 and demonstrating how, in this research, the number of presents opened bears an impact on the strength of the evidence. The guide uses the game's specialized language, in which "present" refers to a particular in-game feature that allows one player to gift a random (and often desirable) item

to another player, rather than an everyday use of the word that denotes a gift. The author uses a specialist term from game and software development in line three, referring to the "feature's release." The type of person reading this guide will need to understand that this refers to an update to the game's software and that these updates may change fundamental aspects of the gameplay.

The final line mentions putting contents "under the microscope." This line breaks away from scientific Discourse, referring to a microscope not as a scientific instrument but instead using a colloquial phrase that refers to looking at something more closely. Here, a reader must understand that switching between scientific, specialized, and more common vernacular language, including the use of metaphor, is possible. A student might need to do this in writing, such as presenting scientific facts in a paper then explaining these facts in an argument or an expository essay.

The author then gives context to the table of probabilities in the article (Figure 2). The table provides an overview of the probabilities of receiving a particular item from a present.

Figure 2: Probabilities of item types

ITEM	PROPORTION (N=2,552)	RELATIVE WEIGHT
Razz Berries	32.1%	2
Nanab Berries	17.9%	1
Pinap Berries	16.1%	1
Revives	16.9%	1
Hyper Potions	17.0%	1

In the guide, this explanation follows the table:

(6) These data give strong support

(7) for a simple model

(8) that assigns a ratio of 2:1:1:1:1

(9) for each item type's probability

(10) (Chi-squared p-value = 0.35).

In line 6, "data" and "strong support" are both specialist terms, demonstrating what *kind of* evidence is needed to assert authority on the guide's topic. Lines 7-9consist almost entirely of highly specialist language. The discussion of ratio and probability overlaps with that of science and mathematics. The terms in line 10 likely would be opaque to those not versed in this statistical terminology. This specialist language will only make sense to a particular kind of reader. However, even if the reader does not understand the specific terms being used, they will see that there is some kind of data or evidence valued in this instance.

Additionally, readers must consider the text, chart, images, and game itself to make sense of the guide. As is generally the case online, many guides to the game contain images and text, and while these guides do not contain any video or audio content, these are not uncommon practices. The use of diagrams and illustrations position these guides as multimodal texts and understanding such texts both in and out of school contexts is a necessary 21st-century literacy practice (Kress, 2003; Serafini, 2017).

5.   DISCUSSION

I have analyzed two guides on the game *Pokémon GO,* looking for examples of situated and specialist language. In reading these guides, players learn how to play the game, are also socialized into Discourses and related specialist language. I have found here that players reading the guides encounter specialist language around various domains, including science, mathematics, and the game itself. Players encounter general academic language, or the kinds of language used by students and teachers which can be highly specialized (Snow, 2010). Despite not being formal research papers, the authors of these guides use sophisticated specialized language to convey information. The guides discussed here are one example of specialized language around the game, but many others exist. For instance, some guides explicitly discuss how to play the game with children, relying on the specialized language of parenting, and guides to fitness and the game introduce concepts of safety and best practices while walking long distances to play (Author, 2018). Although these other guides to the game use different language than the research-influenced language here, they all involve authors who use specialist terms from various domains to describe other game play elements.

I also have analyzed and presented data from three parent interviews I conducted with focal families. Here, I found that these parents sought information about the game online and used the specialized language of the game in discussions with their children as they played together. This analysis has several broader implications for literacy and learning.

5.1 Specialized language use

Participation in informal spaces around games often requires the use of specialist language. Hayes and Lee (2012) explored the acquisition of specialist technical language in a community for *The Sims.* They called for further research and consideration of the specialist language around digital technology, such as games and game modification (modding). The authors asserted that these languages can be as complex as the specialist languages in school. Practicing specialized language in this context potentially could contribute to learners' success in the classroom, including an understanding of genre and the ability to pick up other specialist languages in the future (Hayes & Lee, 2012) and the development of practices, such as evidence-based argumentation and authorial voice (Abrams & Lammers, 2017).

L1 educators might use game guides as ways to bring domain-specific specialized learning into the classroom, giving context to academic language and giving students opportunities to practice understanding situated meanings (Gee, 2008). This ability to understand language across domains is an essential practice as students move "across everyday and content-area discourse and learning communities" (Moje, 2015, p. 271), which may include academic language and day-to-day, informal language practices out-of-school. Strømman (2021) found that assigning students to create multimodal texts around *Pokémon GO* connected the in-class writing task with students' lifeworlds. As such, another approach might be structured writing assignments around the game, as writing about a favorite subject can serve as a powerful motivation for writing in informal spaces (Curwood et al., 2013). Students could practice writing using specialized language in L1 courses to benefit from interest-based learning engagement, although this must be implemented carefully and balanced with the risk of disrupting students' existing interest in media. According to Alvermann & Heron (2001), students might not be inclined to take something from their personal lives and experience and directly use it in the classroom, and doing so may be counterproductive. Alvermann and Heron (2001) also note that it is the ways of meaning-making that students prefer that should be implemented, not necessarily the texts themselves. As such, educators might use game-informed activities rather than in-school game time. In the case of game guides, for instance, the ways of meaning making—through play, through the creation of multimodal artifacts, and through interaction with peers and family members around a game—can serve as jumping-off points for practices to inspire L1 educators.

This emphasis on game-informed, rather than game-based, activities in the classroom is also an important consideration given that not all educators or students are

likely to be familiar with specific games or game language. It is essential to be mindful of the limitations of using videogames and videogame-related activities in school, as there are sociocultural factors that might make this approach less useful for certain students, including gender and previous experience with and access to games (Abrams & Lammers, 2017; Hanghøj et al., 2020). As such, another important consideration is how using game guides could facilitate at-home literacy development outside of these classroom applications, as well as the potential limitations of this approach due to the accessibility of specialist language and knowledge.

5.2 Home and school

The comments from parents highlight the ways that parents and mentors are essential for learning. Siyahhan and Gee (2018) outlined the myriad ways that interacting around games can enhance children's literacy practices by discussing the game and modeling behaviors such as reading, asking questions, and connecting games to real-world situations and experiences. They suggest that when looking at home literacies, Steinkuehler's (2007) notion of a "constellation of literacy practices" around games is a framework that can encompass the many shapes literacy and L1 learning that take in the home.

Bulfin and Koutsogiannis (2012) proposed that the dichotomy between home and school literacies is false. The authors note that "out-of-school practices are largely seen as creative, innovative and non-traditional, unable to be captured and appropriated by schools and teachers who are always one step behind. In-school practices are dreary, dusty, traditional school activity which ignore the pervasiveness and informal educational potential of children's everyday digital literacies" (p. 343). They suggested that rather than situating these as an either/or, good/bad binary, it would be more productive to think about these practices as multiply situated, stretched across these domains. This would require further exploration home and everyday literacy practices and their relationship to school.

Finally, while many parents express concern over the amount of "screen time" that their children spend on mobile applications (Siyahhan & Gee, 2018, p. 8), all the parents interviewed here reported that that this game was different. They noted that the game gave their children exercise as well as time to bond with family members. At the same time, they also noted that the game held the promise of educational experiences, giving parents valuable time to teach their children. All three of the parents I interviewed used the specialist language of the game with their children, teaching them about what these terms meant in the context of the game and discussing how this language could be used to achieve goals.

5.3 Limitations

There are several limitations to this study. These guides discussed here are a small sample of the many guides available and represent only some players' practices.

Additionally, fan practices and information sharing occur not just in written guides but over social media, on YouTube and Twitch, on Discord, and face-to-face. These guides do not capture the myriad practices of players who share information in these forms. Many players who enjoy the game more casually might seek information but do not necessarily want to know the in-depth details about the game's mechanics. Additionally, the parents I interviewed here were from a sample accessing sites like Reddit and Facebook to learn more about how to play, rather than relying on word-of-mouth from other players or simply playing the game without participating in any of these sites. Although it was beyond the scope of this dissertation work, interviewing a broader group of parents, including those from different geographic areas and those that are using different social media platforms, might illuminate practices that differ from the ones outlined here.

One of the most important considerations when discussing out-of-school learning is the differential access children have at home to technology and opportunities. Not all families will have the technology, time, and resources to play the game and participate in player communities. As such, only some families will experience the potential benefits of engaging with these practices. Researchers and practitioners must take care to find ways to encourage equity rather than further deepen the divide between children with less access to digital technologies at home (Freedman et al., 2016).

Finally, the findings presented here are based on interviews with three parents, and as such, further research on more families is needed. Additionally, while capturing the children's perspective in the study was beyond the scope of this dissertation research, including them in the interviews or conducting separate interviews with them could provide rich data and further insights into their literacy practices around game guides.

6. CONCLUSION

This study points to a number of implications for L1 learning. It suggests the presence of highly specialized language in both games and in the player-written paratexts around games. It demonstrates that this specialist gaming language might overlap with other kinds of specialist language, including that of the classroom as well as the language of research. Finally, it points to children and their parents engaging with specialist and academic language through their shared experience of the game and their discussions of game mechanics and game play theories based on player-written guides and other paratexts.

In future research, more explicit capturing of specialist language around games in families could prove a fruitful direction for understanding these practices in the home. In the classroom, student-authored paratexts such as guides could be explicitly studied for instances of specialist language use, and its relationship to academic language more broadly could be illuminated further.

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