

# Waddling into Words: A Board Game for Language Disorders

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*What if therapy could feel more like play? For children with Developmental Language Disorder, acquiring language can be challenging – but a team of researchers and game developers in Malta has created a board game that makes the process fun, engaging, and effective.*

Seeing children grow up is magical. The way they absorb information – especially words they shouldn't, like a quick cuss that slips out – puts a sponge to shame. But while every child learns language at their own pace, there are, unfortunately, cases where children experience difficulties.

Neurodevelopmental conditions, such as ADHD, dyslexia, and autism, are well known; however, a growing number of children are being diagnosed with Developmental Language Disorder (DLD). In the UK, 7.5% of children are affected – the equivalent of roughly two children in every class of 30 pupils struggling to progress academically. At the time of writing, no data is available on the number of diagnosed cases in Malta.

'DLD is the white whale of speech and language therapy,' explains Speech and Language Pathologist (SLP) Donia Stellini. As a relatively unknown condition, DLD is difficult to diagnose. 'If, until age five, we see a child experiencing language difficulties, we try to identify the cause – this could be Autism Spectrum Disorder, for example. We carry this out alongside a multidisciplinary team, as speech and language therapists do not diagnose medical or neurodevelopmental

conditions,' says Stellini, 'If language difficulties persist beyond the age of five, and no neurodevelopmental or social causes are identified, then – if the clinical markers are present – we would consider a diagnosis of DLD.'

Treating DLD and other communication conditions is an SLP's bread and butter. While therapy sessions can help children, their impact needs to be reinforced through regular use – and what better way to reinforce learning than through play? Flying Squirrel Games and the University of Malta (UM) have collaborated to create *Olly's Adventures: The City of Two Languages*, a board game developed alongside SLP specialists to support children diagnosed with language difficulties.

## MEET THE TEAM

Flying Squirrel Games is a local video game studio that has developed titles such as the popular *Dirt Trackin'* and *Dirt Trackin' Sprint Cars*, both of which consistently rank in the Top 10 on the App Store and Play Store. In addition to mobile and VR games, the studio is no stranger to therapeutic games or games with a learning element (referred to as serious games), and has regularly collaborated with UM.



Character design of  
Olly the penguin  
Image courtesy of  
Anthony Demanuele

Anthony Demanuele, the studio head of Flying Squirrel Games, explains: 'Our collaboration with the University of Malta began in 2016 when we contributed to the development of *Olly Speaks* – an innovative toy that resulted from the SPEECHIE Project led by the Department of Industrial and Manufacturing Engineering (DIME). Our primary role was to develop digital games installed on *Olly Speaks*, working closely with experts in DLD and SLPs from the Department of Human Communication Sciences and Disorders. *Olly Speaks*, an interactive penguin toy with an embedded screen, allows children with DLD to play games. It even featured blinking eyes and a backpack that opens up. The first 3D-printed prototypes were tested locally and in Spain. Although it was well received, the endeavour proved too expensive to push to market.'

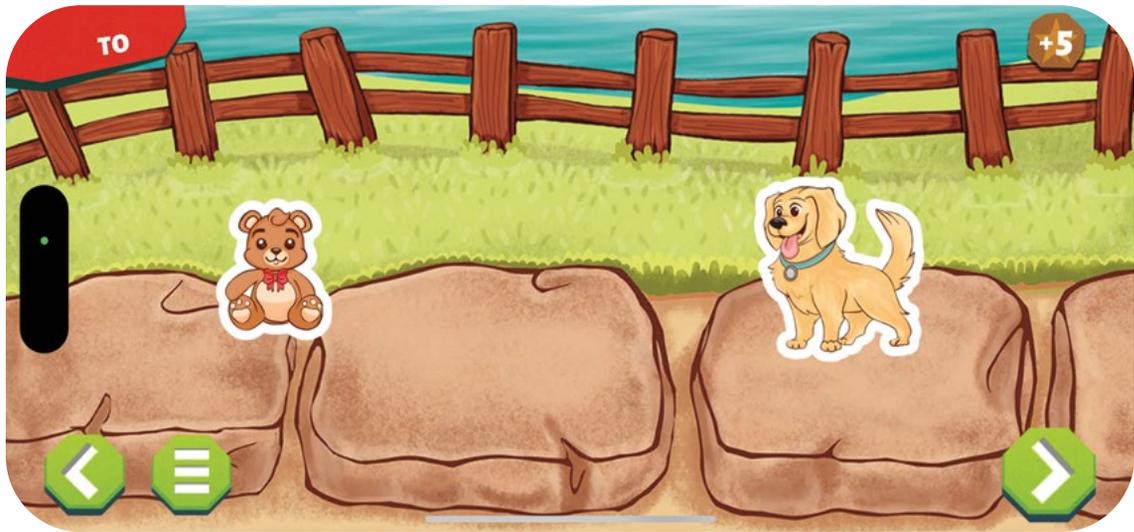
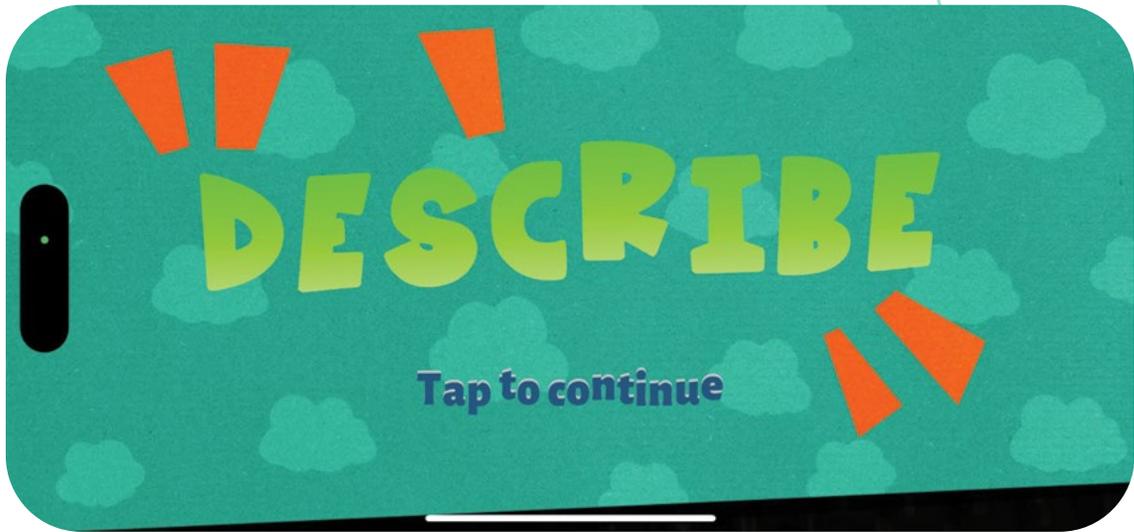
'The next step was *Olly's Adventures: The City of Two Languages*. We tried to keep the same benefits as the first Olly, but this time as a board game. We toyed with some exciting ideas, such as using electronic boards; however, the cost of the final product was always in the back of our minds,' says Demanuele. While serious games that help

language development exist, they are usually trivia-based. A serious board game with a companion app is virtually nonexistent, making *Olly's Adventures* one of a kind. The studio worked alongside Prof. Ing. Philip Farrugia and Dr Ing. Edward Abela from DIME, Prof. Daniela Gatt and Prof. Helen Grech, SLPs from UM's Department of Human Communication Disorders and Sciences, as well as Stellini, who at the time, was reading for her master's with the latter department.

## HOW DOES THIS GAME WORK?

Games need to be fun. The challenge for *Olly's Adventures: The City of Two Languages* is to be both educational and fun, even for players who do not have a language issue.

A typical game lasts around 30 to 40 minutes and involves 2 to 4 players: a moderator (such as a parent or therapist) and 2 to 3 players. You will have a deck of cards, a board, and a companion app for your phone. It is important to note that this is not a mobile game; the app is there to facilitate gameplay. The game is turn-based, and the goal is to get your own brightly coloured penguin to the finish line first. ➔



**Left: A selection of screenshots showing the minigames within the companion app for the boardgame.**

*Images courtesy of Anthony Demanuele*

There are eight types of cards, each with its own QR code. Each card correlates to a different minigame. Winning these minigames earns players points, which are used to race their penguins across the board. These minigames are inspired by activities that children engage in during therapy sessions. For example, one minigame called *Describe* shows the player a picture through the app, and players must describe what they see. Another minigame, called *Odd One Out*, requires players to choose the odd word out from a selection displayed on the companion app.

The game is designed to allow players with varying language abilities to play together. So you might have a five-year-old with language difficulties playing with their older sister, with each minigame adjusted to suit the individual player's level, keeping the overall experience fun and challenging. 'On the companion app, each player has a specific profile set according to their level,' explains Demanuele. 'So, the questions in each minigame are tailored to the individual player.'

While each minigame awards players a fixed number of points, bonus points can be granted at the moderators' discretion. For example, in *Odd One Out*, players may earn extra points if they can explain their reasoning. 'The moderator plays a critical role; losing is a natural part of any game, but in ours, positive reinforcement is crucial, as we are trying to encourage language development,' emphasises Demanuele.

Another family-friendly feature of the app allows the game to be paused (for example, at dinner time) and resumed later. Each player can also choose whether they want to play in English or Maltese.

## HOW CAN A GAME HELP?

Games are incredibly effective at keeping children engaged – as any parent who has tried to drag their child away from a PlayStation will know. Play is also an effective pedagogical tool. 'It is the language of children – they learn about the world through play,' says Stellini. 'My role was to create the minigames used in *Olly's Adventures*. I brought in therapeutic insights about what might work with children, as these games are inspired by activities used in therapy sessions.'

'When you put people in a game environment rather than a clinic, the differences are astounding,' says Anthony. 'The

challenge was making these games work in a board game format. In the clinic, they use a variety of games; for *Olly's Adventures*, we were trying to bring all the games together in one box,' he explains. 'We brought the therapeutic process into the game. It supplements a therapy session, with the moderator acting as a mini-therapist,' adds Stellini.

## FUTURE PLANS

There are around 50 public speech clinics in Malta, as well as SLPs in all public schools, each supporting numerous children with varying language difficulties. A board game like this not only helps undiagnosed children but also those simply trying to learn the language.

'There are a lot of benefits to having something like this. We want to see the game in every speech clinic. While *Olly's Adventures* is specifically tailored to Malta, in the future, we want to try and address STEM as well – creating a game to teach Science or Mathematics in a more engaging way,' explains Demanuele.

The goal along the way has been to make *Olly's Adventures* affordable. The game itself, along with lifetime access to the companion app, is priced like any typical board game – at €40. *Olly's Adventures: The City of Two Languages* can be used to supplement speech therapy sessions, help those trying to learn Maltese, or be a fun addition to family game night! The game is currently in its final stages of development and will be available in stores later this year. 

*Olly's Adventures: The City of Two Languages stems from the SALTT-CITY project, a collaboration between various researchers at UM and Flying Squirrel Games. Initially funded through Xjenza Malta (Project Reference no. SCP-2022-007).*

## Further Reading

Norbury, C. F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G., & Pickles, A. (2016). The impact of nonverbal ability on prevalence and clinical presentation of language disorder: Evidence from a population study. *Journal of Child Psychology and Psychiatry*, 57(11), 1247–1257. <https://doi.org/10.1111/jcpp.12573>