Imagine Learning acquired EarlyBird Education in 2024 for integration into the Imagine+ Assessment suite. EarlyBird, now Imagine+ EarlyBird Screener, is a critical component of Imagine Learning's assessment capabilities.

Imagine+ EarlyBird Screener Research Brief

Ensuring that we have a research-based, validated, and continuously improving product is core to our mission. This document provides the research backing pertinent to Imagine+ EarlyBird Screener, including citations and data in support of the following:

- The national reading crisis
- Negative outcomes for struggling readers
- Prevalence of dyslexia and importance of early intervention
- Explanation of effective universal screening
- Imagine+ EarlyBird Screener technical manual **https://imaginelearning.click/impa-technical-manual**
- Research of EarlyBird co-founders Nadine Gaab, PhD, Yaacov Petscher, PhD, and their colleagues, providing the scientific foundation for Imagine+ EarlyBird Screener

Research updated August 2023

There is a reading crisis in the United States.

The development of basic reading skills is one of the primary goals of elementary education, yet the majority of students are not reading proficiently, and this has not changed in thirty years.

- 67% of fourth graders are reading below the National Assessment of Educational Progress "Proficient" achievement level (NAEP, 2022)
- Among students from low socio-economic backgrounds, this number is as high as 80% (NAEP, 2022)
- There has been no significant change in average reading score for students since 1992 (NAEP, 2022)

Struggling readers are at high risk for negative outcomes in school and life.

Reading proficiency is a key predictor of a student's future educational and economic success. However, identification of and intervention for struggling readers often comes too late, resulting in negative academic, social-emotional, and societal impacts.

- For students with literacy challenges, self-perception of reading failure and negative responses from others leave them vulnerable to feelings of shame, failure, inadequacy, helplessness, depression, and loneliness (Valas, 1999)
- 70% of first graders reading at a below-average level will still be reading at a below-average level in eighth grade (Landerl & Wimmer, 2008)
- Children who do not read proficiently by the end of third grade are four times more likely to leave school without a diploma than proficient readers (Hernandez, 2011)
- Black and Hispanic children who are not reading proficiently in third grade are twice as likely as similar white children not to graduate from high school (Hernandez, 2011)
- Among children who face a double jeopardy — failure to read proficiently and being poor for at least one year — 26% fail to graduate, which is over six times the rate for all proficient readers (Hernandez, 2011)
- Children with learning disabilities are less likely to complete high school or pursue higher education and are at an increased risk of entering the juvenile justice system (e.g., Jimerson, Egeland, Sroufe, & Carlson, 2000)
- 85% of juvenile offenders have problems reading (The Literacy Project, n.d.)
- One in five adults in the United States possesses low literacy skills (PIAAC, 2012/2014)
- Forty-five million Americans are functionally illiterate and cannot read above a fifth-grade level (The Literacy Project, n.d.)
- People with at least 12 years of education lived a year and a half longer than those with less education (Harvard Medical School, 2008)
- The annual cost of low health literacy to the U.S. economy is between $106 billion and $238 billion, representing between 7 and 17% of all personal healthcare expenditures (Vernon et al., 2007)

Dyslexia is common — and the sooner intervention begins, the better.

Dyslexia is a common learning disability with neurobiological origin, affecting approximately 10–12% of children. Dyslexia diagnosis is based on repeated failure to learn to read and is therefore typically diagnosed in grades 3–6. However, with early identification and intervention, the vast majority of children can be taught to read.

- Up to 15–20% of the population may have symptoms of dyslexia, including slow or inaccurate reading, weak spelling, poor writing, or mixing up similar words (International Dyslexia Association, 2020)
- Dyslexia occurs in people of all backgrounds and intellect levels; people with dyslexia can have very high general cognitive abilities (International Dyslexia Association, 2020)
- "Dyslexia is a learning disorder that involves difficulty reading due to problems identifying speech sounds and learning how they relate to letters and words (decoding). One of several reading disabilities, dyslexia affects areas of the brain that process language. [...] Early assessment and intervention result in the best outcome." (Mayo Clinic, n.d.).
- Dyslexia is generally diagnosed after the most effective intervention time has passed, which experts term 'dyslexia paradox' (Ozernov-Palchik & Gaab, 2016)
- "Children with reading disabilities who get extra help in kindergarten or first grade often improve their reading skills enough to succeed in grade school and high school. Children who don't get help until later grades may have more difficulty learning the skills needed to read well. They're likely to lag behind academically and may never be able to catch up." (Mayo Clinic, n.d.)

Early identification and intervention can measurably change outcomes for struggling readers.

Early literacy milestones can predict reading outcomes in children as young as four and identify which children will most likely develop reading problems, including dyslexia.

Early identification of literacy issues is vital to improving reading outcomes and preventing and ameliorating the socio-emotional problems that accompany reading failure.

- Research shows that more than 90% of children can be taught to read with early identification and intervention (Torgesen, 2000)
- Across six studies, after receiving intensive instruction, 56–92% of the at-risk beginning readers reached the range of average reading ability compared to a ~30% success rate with later intervention (Torgesen, 2000)

Universal screening for early literacy milestones and reading disabilities is critical to identifying children at risk for dyslexia and other reading challenges.

Researchers Nadine Gaab, PhD, and Yaacov Petscher, PhD, describe the who, where, when, and why of effective screening in **this International Dyslexia Association journal article**.

Imagine+ EarlyBird Screener helps educators identify children at risk for reading difficulties before they formally learn to read, which is when intervention is most effective.

Developed and scientifically validated at Boston Children's Hospital in partnership with the Florida Center for Reading Research, Imagine+ EarlyBird Screener integrates key literacy milestones — shown to be most predictive of later reading success — with powerful analytics to identify where children struggle with their learning pathway.

The cloud-based technology platform brings together all the relevant predictors of reading in one easy-to-administer assessment, providing educators with a proactive, preventative way to identify students at risk and support them, intervening earlier and more cost-effectively.

- Imagine+ EarlyBird Screener includes a comprehensive, game-based app appropriate for pre-readers, so children as young as four can play. Students can independently complete the tablet-based screening assessment in small groups with adult oversight, reducing the need for one-to-one administration.
- Using Imagine+ EarlyBird Screener's interactive dashboard, teachers can instantly view auto-scored results, saving valuable time. The easy-to-understand dashboard leads teachers to next steps and targeted, evidence-based resources to help get students on track.
- Resources for next steps begin with instruction in phonemic and phonological awareness, which has proven to yield substantial improvement in decoding skills (Wise, Ring, & Olson, 1999)
- Imagine+ EarlyBird Screener is based on the research of Dr. Nadine Gaab, Dr. Yaacov Petscher, and other leading literacy and brain scientists and has been scientifically validated in school settings across the United States. By focusing on early identification and intervention, Imagine+ EarlyBird Screener is helping educators take critical steps toward increasing the number of children who can succeed academically and do well in life.

Equitable and effective for English language learners

As an engaging game that does not require reading and reduces bias with auto-scoring, Imagine+ EarlyBird Screener is an effective tool for assessing early literacy markers of English learners.

A small study that used Imagine+ EarlyBird Screener and was published in a peer-reviewed journal by the Marianne Wolf lab at UCLA shows that English learners were not significantly more likely to be "flagged" for dyslexia risk than their English-proficient peers.

Imagine+ EarlyBird Screener is evidence-based, developed from extensive foundational research, and scientifically validated across years of nationwide studies.

The Imagine+ EarlyBird Screener Technical Manual provides information on the validation research and results.

Decades of research conducted by Dr. Nadine Gaab and Dr. Yaacov Petscher, as well as their colleagues - all leaders in their fields - were foundational to the creation of Imagine+ EarlyBird Screener. Pertinent works are provided below:

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Catts, H. W., & Petscher, Y. (2020, March 25). A Cumulative Risk and Protection Model of Dyslexia. **https://doi.org/10.35542/osf.io/g57ph**

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Catts, H. & Hogan, T., Dyslexia:An ounce of prevention is better than a pound of diagnosis and treatment. *PsyArXiv,* April, 2021. **https://psyarxiv.com/nvgje/**

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Raschle N, Borbás R, King C and Gaab N (2020) The Magical Art of Magnetic Resonance Imaging to Study the Reading Brain. Front. Young Minds. 8:72. doi: 10.3389/frym.2020.00072 **Link**

Sanfilippo, J., Ness, M., Petscher, Y., Rappaport, L., Zuckerman, B., & Gaab, N. (2020). Reintroducing Dyslexia: Early Identification and Implications for Pediatric Practice. *Pediatrics, 146*(1), e20193046. **PubMed** | **PDF**

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