Clarifying the Concept of Background Knowledge in Reading Comprehension

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Abstract

Use of the term Background knowledge, in conjunction with Reading Comprehension, has become convoluted and vague over the past several decades of research. Showing the abundance of uses of the term in multiple domains and disciplines has relegated it to being an automatic inclusion in key notes and conclusions of research on the topic of improving reading skills. This study aims to redefine Background Knowledge for clarity of thought in future investigations. Also, with data revealing national standard reading scores at an impasse for over forty years now, the redefined concept of Background Knowledge is offered as a starting point for use with new technologies that show great promise in the search for methods to improve reading for all students.

Keywords: Background Knowledge, Reading Comprehension, Immersive Technologies. Redundancy. Progressivism.

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Introduction to topic and research

Reading comprehension research over the past three decades, and probably since the founding of the present school system, has repeatedly pointed to the reader's lack of background knowledge as a main element of low comprehension and learning. Solutions offered for this lack of background knowledge point to the need for unified efforts from educators, researchers, and policy makers to design more efficient methods of teaching to enhance long-term improvements. While this response is obvious and will always be a sound reply to the existing problems, none offer any immediate solutions – and due to the overwhelming breadth of the topic, this too is understandable. Background knowledge, often referred to as *previous* or *prior* knowledge, is far more encompassing than simple academic facts needed to build knowledge upon. Background knowledge is culturally and environmentally based, to include social environment, physical environment, socio-economic level, and physical or mental abilities. Every student arrives at school with a different background knowledge, a different database from which to pull, and different abilities by which to do so. With the enormity of this in mind, the question must be posed, what is background knowledge and how can background knowledge be improved, increased, broadened, to improve reading comprehension, and in turn, general life comprehension. This question is posed for every age group.

Need and rationale for the research/project

Having established numerous times in research the need for improved and increased background knowledge, attempting to re-establish it is redundant. A brief review of the existing literature is all that is needed to confirm this finding. What remains is the need to clarify the

definition of background knowledge to re-establish a baseline understanding from which to build upon. Background knowledge, while normally thought of as such, is not having the knowledge of historical facts, or scientific data, to then more easily grasp a subject. Background knowledge is far more encompassing and involves the senses and biological memory processes. This, in itself, is a vast topic of great concern. In turn, after re-clarifying a general definition of Background knowledge, it is necessary to explore methods of improving and enhancing background knowledge with the intent of improving reading comprehension and increasing standard scores in reading for all age groups. With the advent of improved AI, improved technology, greater understanding of brain function and memory mechanics, advanced learning models, and alternative schools, the possibility of finding feasible solutions looms large.

Literature Review

The literature selected for this research topic was chosen to serve one of three purposes and has been categorized as such.

1. **To establish the concept of Background Knowledge** as a viable and generally accepted factor in determining a reader's level of reading comprehension.
2. **To examine existing methods of increasing or improving Background Knowledge** with the intent of improving reading comprehension.
3. **To determine if new methods of improving Background Knowledge are being developed** and suggest new courses of study.

To Establish the Concept of Background Knowledge

It almost goes without saying that if you have some background (previous, prior, existing) knowledge of a subject you should have a base comprehension of it and be able to increase your knowledge thereof. This goes for a prehistoric hunter-gatherer learning the finer points of taking down a bounding antelope as well as an advanced physics student learning the irrationality of a Higgs Boson particle. The topic does not matter, nor does ethnicity or socio-economic status. What matters is the process by which we acquire knowledge (data) and build upon it. We could also look at it like building a brick wall. You must have a foundation, a bottom layer upon which to build all subsequent layers. To carry on the metaphor – the weaker the foundation, the weaker the overall structure and the height the developing wall can reach. With this in mind, research (Bitterman et al, 2023) has established that Background Knowledge (foundation) is pertinent to reading comprehension. This is not to say that learning is strictly a linear process, but it does build upon itself.

The primary literature in this category is a sweeping quantitative study that establishes the prevalence of Background Knowledge as a topic of concern across multiple domains (Bittermann, A., McNamara, D., Simonsmeier, B., Schneider, M. 2023). The work is a "bibliometric analysis of 13,507 relevant studies published between 1980 and 2021". While it showed an abundance of instances of background knowledge in multiple areas of education, the study concluded "there remains a need for more integrative theories of when and how prior knowledge causally affects learning". This statement, like so many others weaved through the literature, is vague and wanting. For example, what exactly is meant by "causally affects learning". Also, from the same research it was determined that among all the studies reviewed, "not a single one investigated how experimentally induced changes in prior knowledge affected gains in knowledge from pretest to posttest".

One of the earliest inferences of background knowledge as an element of reading comprehension: *The Psychology and Pedagogy of Reading*, by Edmund Huey (1908, as cited in Beers, 2023) summarizes that to analyze what we do when reading is to "describe very many of the most intricate workings of the human mind, as well as to unravel the tangled story of the most remarkable specific performance that civilization has learned in all of its history". Very little has changed to date since Huey made that statement.

To Examine Methods of Increasing or Improving Background Knowledge

Establishing the prevalence and importance of Background Knowledge to reading comprehension is pertinent to any further study – which should be looking into methods of improving Background Knowledge – daunting though it may be. In turn, many studies have sought just that. In the existing literature, a primary example of seeking to improve reading comprehension through the improvement of background knowledge is found in *Social Studies Instruction and Reading Comprehension: Evidence from the Early Childhood Longitudinal Study* (Tyner, A., Kabourek, S. 2020). This is a study from The Fordham Institute and serves as an example of many existing perspectives on reading comprehension and the various elements constituting its potential improvement. The study begins with the statement "We're going to tell you what America needs to do if it is serious about wanting kids to become better readers". Based on existing data like *Report on the Condition of Education 2023* (IES 2023) which shows no significant improvement in reading scores for the last 30 years, one would think the Fordham study was intended to be humorous.

A general summation of the results of existing research is that "Reading comprehension is complex and multifaceted, making it difficult to improve" (Elleman & Oslund, 2018).

Additionally, the need for a more focused early reading instruction intervention with all stakeholders is also almost universally called for.

To Determine if New Methods of Improving Background Knowledge are Being Developed

By *new methods* I am alluding to utilizing existing and emerging technologies with the intent of improving reading comprehension. To reach further into the future is pure conjecture. There is not much research to date on this matter. That which has been conducted is predominantly concerned with using technology to enhance learning abilities within the ESE community. Dealing with issues of learning disabilities or memory recall is a separate and more specialized endeavor. A good example of new methods of teaching/learning reading comprehension is found in *Generative AI and Teachers' Perspectives on Its Implementation in Education* (Kaplan-Rakowski, R.; Grotewold, K.; Hartwick; Papin, K. 2023) By utilizing Generative AI with Virtual Reality both students and teachers are experiencing positive results in attitude and learning. The potential of AI and the promise of 3D technology (VR) is a major direction of study and research in education and looms large over the possibility of improving background knowledge in the endeavor to improve reading comprehension.

Summary

The literature presented here offers a timeline of contemplation on the topic of background knowledge in the matter of reading comprehension. The definition of background knowledge is shown herein to be vague and used in different contexts. This calls for a clarification of the definition of background knowledge with the intent of strengthening the foundations for future research on the topic. This work will strive to accomplish this.

In much of the literature on this subject through the last several decades, the topic of background knowledge is added as an addendum to a list of suspected problems found in reading instruction today. Like a game of whack a mole, research has shifted its focus back and forth between vocabulary, phonics, background knowledge, instructional time, inadequate teacher training, etc. reiterating the same results. The advent of the digital age has done little more than replicate existing paper lessons into a digital format that allows a more quantitative look into the prevalent issues. Very little direct research has been, or is being, conducted on this topic and it may well be due to the existing definitions of the term. This creates preconceptions that may inadvertently carry over through generations of research and general thought.

Finally, based upon the redundancy of existing studies of improving background knowledge, the literature exacerbates the need for more advanced integrated studies. The use of technology in education has not delivered on its many promises but due to recent advances in AI and VR technology the issue is being re-addressed with growing vigor.

Methodology

A critical review of existing literature in any field is essential to maintaining a standard of language and practice used throughout the disciplines represented by that literature. In the context of modern education, it encompasses every pedagogical aspect of it. Within the critical review of this broad topic, the focus must be narrowed to ensure clarity of the topic selected for review. For this study, the primary topic of review is the concept of background knowledge in relation to reading comprehension. While essentially a qualitative analysis, quantitative data must be included to support definitions and research results. Either approach, alone, will not suffice. This might best be described as an Explanatory Sequential Mixed Methods Design

(Creswell & Creswell, 2018) based upon the author's description; "The overall intent of this design is to have the qualitative data help explain in more detail the initial quantitative results."

This study has three main elements – each necessary to establish the foundation of the argument presented. As such, each main element has a method of acquiring data which will be merged to establish tenets of the final summary.

First, to establish the need to re-examine the definition of background knowledge, a quantitative review of existing literature was conducted to determine the prevalence of usage of the term *background knowledge*. This comprised utilizing existing studies, predominantly quantitative studies showing the abundant and frequent use of the term, to establish the common use of the term. From there, examples in the selected literature of how the term background knowledge is used were gathered to determine differences in definition and context.

Next, to build upon the gathered quantitative data, an additional review of the selected literature was conducted to determine the various uses of the term *background knowledge* in research designed to increase background knowledge for improvement of reading comprehension. This is a very small slice of a big pie. Much of the research reviewed had both quantitative measures and results, and qualitative interpretations of tested instructional techniques. Further, the focus for this review was to determine the basic understanding of how background knowledge is defined, interpreted, tested, and analyzed. The various interpretations of the researched term, of any term in any research, implied or direct, will influence the nature of the lessons, tests, and assessments designed for the study. Inherent biases are present based upon the words used in defining a topic. Research chosen for review in this phase was all designed

with the intent to test methods of improving background knowledge for the improvement of reading comprehension.

Then, further review was conducted of research into new and implied methods of improving or enhancing background knowledge. This line of enquiry was predominantly focused on the combining of advanced existing technology with experimental methods of teaching and learning reading comprehension. This is a logical extension of the mode of thought in this study and presents additional methods of defining and improving background knowledge beyond the traditional methods presented in the selected literature that represent existing results of compiled standard testing. The difference here is found in the use of the term background knowledge within each study and the methods by which the improvement of background knowledge was sought.

In addition, to add to the assessment of this data and the conclusions reached, and to further narrow its focus, an anonymous questionnaire with select questions pertaining to the topic being re-defined was distributed among adult learners in a reading class. The results of the questionnaire are displayed in the discussion section of this work.

Finally, the conclusions reached in this study are expressed and future paths of research are suggested.

To review:

1. The initial quantitative aspect shows national reading scores based upon standardized testing as well as prevalence of use of the term Background Knowledge through a wide range of studies.

2. (Narrowing) Next, literature was examined for different, or vague, definitions of the term background knowledge. Further, specifically, variations in use of the term Background Knowledge in reference to Reading Comprehension was sought.
3. Review of emerging studies with advanced tech to determine reading comprehension. Specifically, studies utilizing VR.
4. An anonymous questionnaire was conducted to gather data to support an underlying idea driving this study.

Findings/Results

This study, and subsequent discussion, is based in large part upon several seemingly separate findings. The first is *The Condition of Education 2023* (NAEP 2023). While this study is expansive in its breakdown of national standard scores over multiple demographics, one chart in particular, Figure 1.1, was pertinent. This chart details the lack of significant improvement in national standardized reading tests for three age groups over a period of three decades – 1992 to 2022. This is important for our analysis and discussion in that improving reading scores is the underlying target for this research.

The second pertinent data set is from *The Landscape of Research on Prior Knowledge and Learning: a Bibliometric Analysis (McNamara, D., Simonsmeier, B., Schneider, M. 2023).* The chart for this data is Figure 1.2. The chart displays the increasing use of the term *prior knowledge* (this term is used interchangeably with the terms *previous knowledge* and/or *background knowledge*) in various publications and disciplines over a period of four decades. This is important to establish the prevalence of the term *background knowledge* being used as a

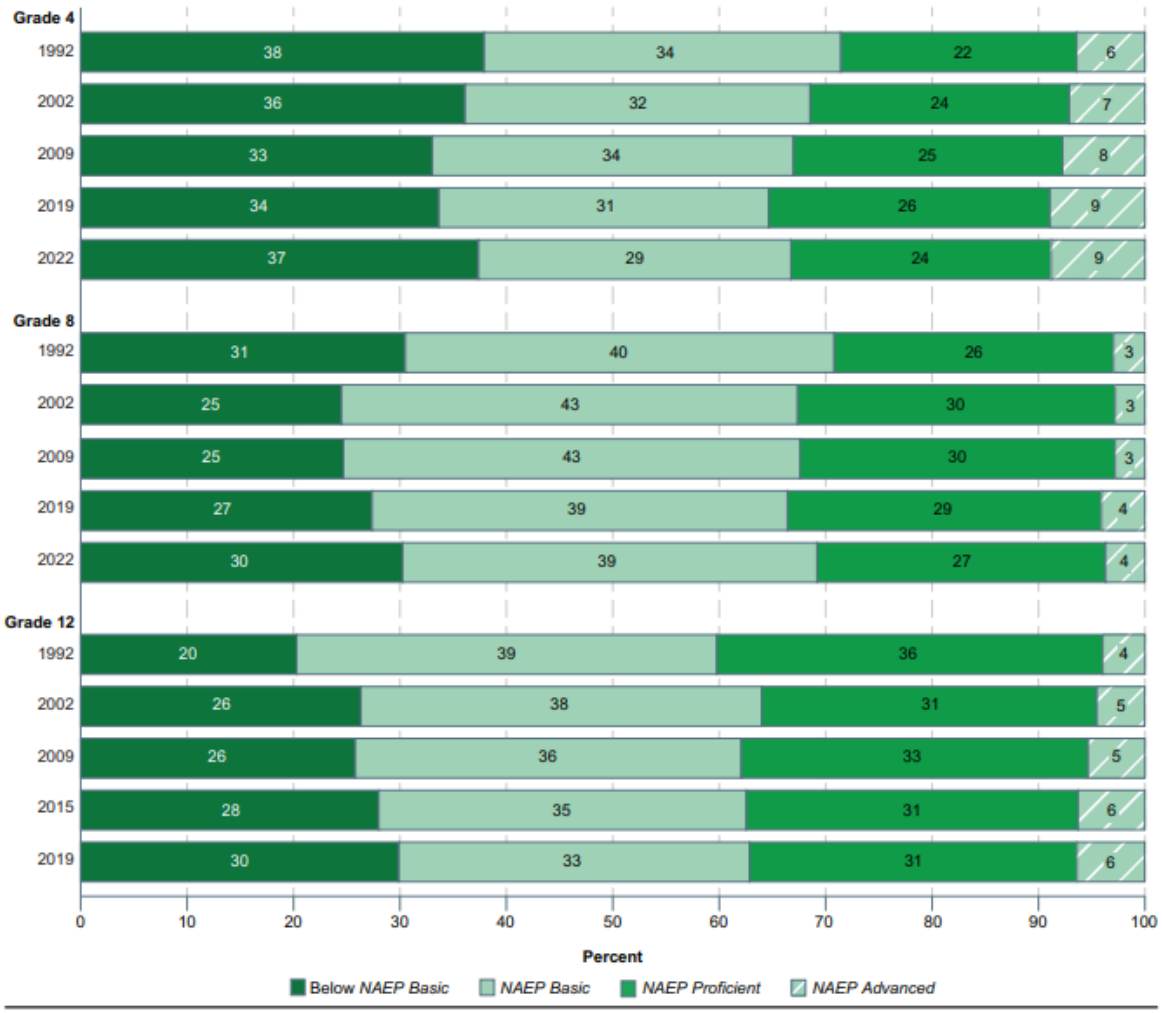
factor in determining potential causes of poor reading skills. This work also serves as a good foundational perspective of how often this term is used in research across multiple disciplines, but how little it is actually researched.

A third primary research, Figure 1.3, needed to support this study and build upon the initial analysis and subsequent argument is represented by the key points from *Reading Comprehension Research: Implications for Practice and Policy* (Ellerman, A., Oslund, E. 2018) These key points are representative of the conclusions of the majority of studies reviewed for this research.

Figure 1.1

Achievement Levels

Figure 1. Percentage distribution of 4th-, 8th-, and 12th-grade students, by National Assessment of Educational Progress (NAEP) reading achievement level: Selected years, 1992–2022



NOTE: Includes students in public, private, Bureau of Indian Education, and Department of Defense Education Activity schools. Achievement levels are performance standards that describe what students should know and be able to do: *NAEP Basic* indicates partial mastery of fundamental skills, *NAEP Proficient* indicates demonstrated competency over challenging subject matter, and *NAEP Advanced* indicates superior performance beyond *NAEP Proficient*. NAEP achievement levels are to be used on a trial basis and should be interpreted and used with caution. Testing accommodations (e.g., extended time, small-group testing) for children with disabilities and English learners were not permitted in 1992. Assessment was not conducted for grade 12 in 2022. Although rounded numbers are displayed, the figures are based on unrounded data. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1992–2022 Reading Assessments, NAEP Data Explorer. See *Digest of Education Statistics 2022*, table 221.12.

Figure 1.2

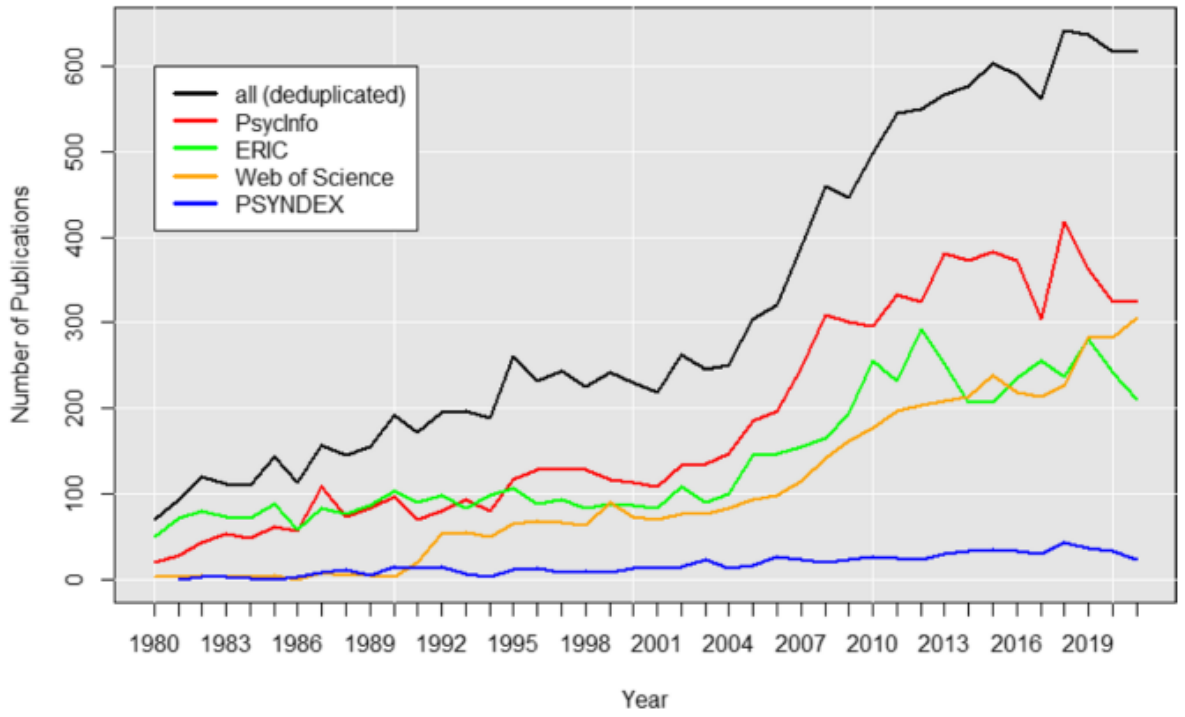


Figure 1 Number of publications on prior knowledge by year and database

Figure 1.3

Key Points

- Improving adolescent reading comprehension will require a concerted effort from researchers, educators, and policy makers to forgo short-term gains on measures that tap low-level comprehension for long-term solutions that take years to develop.
- An early and sustained focus on developing background knowledge, vocabulary, inference, and comprehension monitoring skills is necessary to improve reading comprehension across grade levels.
- Despite decades of reading comprehension research, a limited amount of time is spent using evidence-based methods in classrooms.
- Education leaders will need to strengthen teacher preparation programs and professional development to ensure teachers are prepared to use evidence-based practices to meet the literacy needs of their students.

Discussion

The results of *Report on the Condition of Education 2023 (IES 2023)* are disconcerting to us as educators, parents, and as a nation. They essentially paint reading as a skill that has plateaued and shows only secluded and specialized advancements over the last four decades. As the study states, there has been no significant improvement of reading scores in the last forty years. During this same time, many studies have been conducted to find the magic bullet for our standard reading scores dilemma. These studies (Liswaniso, 2023; Tyner and Kabourek, 2020, et al) tended to focus on one of several elements generally blamed for poor student reading; vocabulary, phonics, comprehension, inadequate teachers, inadequate materials, etc. Each of these many elements has been addressed separately in research and attempted to be incorporated into classroom instruction. There is, however, a research to practice gap that is also well-documented (Beahm & Cook, 2021). As a teacher, I am constantly experiencing the latest best practice ideas to improve learning, and struggling with the slow transition of research into the work place. States are now promoting *The Science of Reading* as the next great solution (Parsons & Erickson, 2024) though it has been around for fifty years. The question implied here is at what point do we acknowledge the redundancy of these revolving solutions to fixing our problem. Or when is our gaze so focused we lose sight of what we are looking for. One study, *Word and World Reading Evaluation Report and Executive Summary July 2015*, (See et al, 2015) put teachers' lack of background knowledge as the major deterrent to success of their proposed reading program. One of the teachers "caused some confusion when he told children that two pictures on the screen both showed sand dunes, when it was clear that one of them was a rocky coastline". This is just silly. This is not a lack of background knowledge, but an error, and opportunity to generate a learning encounter and open discussion.

These various elements of potential fault are generally grouped together in key points and summaries of studies. The key points in figure 1.3 are representative of the majority of studies as to how to improve reading. These key points, these realizations and suggested solutions, are broad in scope and offer no specific cure for the malady. For example, Ellerman & Oslund (2019) simply restate what we have known for a very long time, “Improving adolescent reading comprehension will require a concerted effort from researchers, educators, and policy makers...” We can only milk so much out of the same repetitive research.

To narrow this scope, and perhaps generate some hope, the remainder of this discussion is narrowed and focused upon one aspect - the idea of background knowledge as a necessary element of improving reading comprehension. Reading comprehension, as the selected literature shows, is a major factor of poor reading skills. This is to say that a lack of background (previous, prior) knowledge is a major contributor to poor reading comprehension. This is well-documented. However, and this is the main point here, the baseline definition of background knowledge is vague and needs to be reestablished and clarified for future use. For the purpose of this study, the definition of background knowledge is:

A primary interaction with reality that generates an emotional response.

This is different than academic knowledge of a topic acquired through schooling that would provide a foundation for further knowledge of that topic. For example, knowledge of multiplication is necessary to understand exponents. Academic knowledge would best be defined by using the term previous knowledge or prior knowledge. Background Knowledge (capital letters intended to denote a specific type of background knowledge), in contrast, is the foundation upon which all other knowledge is built. Differentiation is necessary for clarity of

thought. The problem with Background Knowledge in reading comprehension is not with a lack of academic knowledge. That aspect of reading comprehension is generally remedied with improved teaching methods and materials. The problem being addressed here is a lack of a fundamental experience that promotes an intrinsic understanding of an experience. For example, academically, one can spend days in a classroom studying the physics of balance. They can then take a test on the information studied and be graded by their ability of recall and presumed comprehension. But until they go out and walk across a beam, if they have never done this before, their comprehension of balance, their background knowledge, will be limited. If the experience is walking a log that is crossing a deep creek the experience is enhanced with the odd inability to maintain balance and the fear of falling. In addition, the fear of something being in the water, as well as the embarrassment of falling, or not being able to swim, compounds the experience and adds to constructing the experience which will be background knowledge and upon which deeper comprehension of correlated words, mental images, and concepts will be built. (Beers et al, 2023) “Meaning is situational, and the more experiences we have with varied situations, the easier it is to predict what will happen next in any given text.”

To put this in context, if the student has never had the experience of being on a boat, never felt the constant challenge to balance against the rocking waves, the fear of falling, the fear of the water depth and possible creatures and dangers below, the sense of inadequacy, then comprehending being stuck in a rowboat is limited – even with imagination. In turn, for any lesson for this student that involves being on a boat, complicated by student language issues, full comprehension of the lesson will be stunted. This is happening in every classroom, everywhere. Students can all score 100 on a test but each have a different level of comprehension of the topic.

In a reading class of adult learners, most of whom read at a 6th grade or lower level, I conducted an anonymous survey. A handout with 40 yes/no questions was distributed. The questions were as follows:

1. Have you ever been sailing? ____
2. Have you ever been on a boat? -----
3. Have you ever been in an airplane? ____
4. Have you ever traveled on a train? ____
5. Have you ever walked the beach at night? ____
6. Have you ever been in a hurricane? _____
7. Have you used a telescope? ____
8. Have you ever used a microscope? _____
9. Have you ever played baseball? _____
10. Have you ever planted a garden? _____
11. Have you ever eaten a fresh pomegranate? ____
12. Have you ever flown a kite? ____
13. Have you ever been hit by a snowball? ____
14. Have you ever walked in deep snow? _____
15. Have you ever played in a pile of leaves? _____
16. Have you ever been knocked over by a wave? ____
17. Have you ever walked a trail through the woods? ____
18. Have you ever held a snake? ____
19. Have you ever played tennis? ____
20. Have you ever played golf? ____

21. Have you ever slaughtered a chicken? ____

22. Have you ever been hunting? ____

23. Have you ever been to New York City? ____

24. Have you ever been to the desert? ____

25. Have you ever baked a cake? ____

26. Have you ever seen a waterfall? ____

27. Have you ever used a bow and arrow? ____

28. Have you ever seen a shooting star? ____

29. Have you ever been to an art museum? ____

30. Have you ever played soccer? ____

31. Have you ever fallen down the stairs? ____

32. Have you ever burned your hand on a fire? ____

33. Have you ever climbed a steep hill? ____

34. Have you ever cut a board with a saw? ____

35. Have you ever ridden on a motorcycle? ____

36. Have you ever caught a fish? ____

37. Have you ever skipped a stone across a pond? ____

38. Have you ever painted a picture? ____

39. Have you ever inhaled water and choked? ____

40. Have you ever fell and scraped your knee or elbow? _____

Only 2 of the questions had a unanimous yes or no answer.

- 24. Have you ever been to the desert? All answered no.
- 40. Have you ever fell and scraped your knee or elbow? All answered yes.

A few questions had a gap greater than 10.

- 21. Have you ever slaughtered a chicken? 5 yes 25 no
- 25. Have you ever baked a cake? 26 yes 4 no

Only one question was evenly divided.

- 9. Have you ever played baseball? 15 yes 15 no

60% of the answers were evenly mixed.

The students participating were between the ages of 17 and 24. They were all from the same region of Florida. All were from low SES. All were poor readers. The purpose of the class was to improve reading skills for TABE testing. Only the most generic of lessons could pertain to all the students. And as the lessons increase in complexity, because of the broad range of Background Knowledge gaps, the reading scores level off.

To provide all these actual experiences to all the students in class would take a great deal of time and effort and money. A better course would be to take the experiences shared by most, as revealed by the questions, and build generic lessons around that. In that context, most of the students should have a similar understanding of the topic matter and better comprehension of further concepts introduced. To actually enhance/improve Background Knowledge, would be to increase interactions and experiences with reality to build a fundamental comprehension of fundamental existential concepts. To think that all students entering a classroom have the same background knowledge and can all be tested equally is a grave mistake. As educators, we know the harsh limitations of textbook lessons, time, language, culture, materials, ideologies, accommodations, and more.

To fill in Background Knowledge gaps in a class of culturally different students is extremely difficult. However, reaching a common ground, an area of shared similar understanding may be attainable with use of available technologies. The technologies referred to here are AI and VR.

For the definition of VR I have chosen, “Computer-generated 360° virtual space that can be perceived as being spatially realistic, due to the high immersion afforded by a head-mounted device” (Kaplan-Rakowski & Gruber, 2019, p. 552).

For the definition of AI I have chosen, “Artificial intelligence, or AI, is technology that enables computers and machines to simulate human intelligence and problem-solving capabilities.” (IBM 2024).

Both AI and VR, individually and combined, are considered immersive technologies (an umbrella term that encompasses a range of digital experiences that users can interact with in a way that feels like they’re physically present in a digitally created environment). As the authors state, “Immersive technologies have come to the rescue because they can be highly engaging, immersive, and motivational (Kaplan-Rakowski & Meseberg, 2019). An example of such technology is high-immersion VR. To experience VR, users need to wear a VR headset that serves as a viewing and interactional tool. Thanks to headtracking technology, users can experience 360° scenarios and feel that they are ‘there’, that is, in the middle of the scenario. Such a state is often referred to as the sense of presence (Slater, 2018) or immersion.”

This sense of presence or immersion is the major difference between standard computers with standard input/output devices and immersive technology. To best explain and avoid a complex discussion of integrating learning theories with technology, the following scenarios are presented.

Scenario 1: A classroom of adult learners of various cultural backgrounds. All students read below normal standard values. Each student is issued a VR headset and a designated area to stand/sit/move in. The AI begins a series of questions about each student. The questions are designed to determine the students cultural/environmental origin, the home language, as well as any second language. Also, general yes/no questions about experiences encountered in their life. As questions are answered the scenes portrayed in the 3D environment are changed to accommodate the customs and history of the student. This establishes an environment within the VR the student is familiar with and comfortable in.

The lesson being taught is then accommodated by the AI to fit the environment and language of each individual student. One student may be a small village in Mexico, another an urban ghetto, another an upper middle-class white neighborhood. The environment is secondary to the lesson. For example, with a reading lesson, a lesson on inferences, or metaphors, can easily be adapted to any environment. The need for all to know the same words and definitions is secondary. Each student can get an excellent grade within their own individualized lesson. Also, because the environment is 3D, the student can interact with objects within the lesson. For example, a student can touch (virtually) a bucket and have the name displayed and voiced in both English and their home language.

To take this to the next level:

Scenario 2: A classroom of adult learners of various cultural backgrounds. All students read below normal standard values. The lesson for the day is about improving Background Knowledge. Specifically, being on a sailboat. All students are experiencing the same visuals. The scene begins standing on the deck of a sailboat pulling out of a marina. You have 360-degree

visuals. You can touch objects and get information on them – the boom, a cleat, the mast, the sail, the rudder. As the boat goes further out the wind picks up, the sails fill, the waves pound. You see/feel the boat rocking, perceive the water's depth and strength. In the distance are images of lessons to come. Perhaps you are on the Nile River. In the distance are pyramids which are planned for next week's lessons. The possibilities here are endless. The journey lasts as long as necessary. Afterwards a vocabulary list can be distributed. The journey can be repeated after studying the vocabulary to reinforce comprehension.

To give another perspective of the above experiences, let's bring Piaget and his concept of schemas into the discussion. Schema are clusters of related knowledge. For example, we all have Dog Schemas, but they differ based upon our acquired and accumulated knowledge of dogs, which in turn limits our ability to correlate it to other topics. In *Learning and Cognition: the Design of the Mind*, Michael Martinez (2019) explains schemas in teaching; "Teaching can be described as arranging the experiences of learners so that schema change occurs…toward knowledge structures that are more complete, accurate, and open." He then asks, "Can we understand understanding in terms of schema change? Why not? Understanding is the kind of rich, developed knowledge and capability that conforms to well-developed schemas". David Perkins (1992) adds, "we can become so familiar with a body of knowledge that we can feel at home in it. Just as we come to know our way around our own neighborhoods, so we can know knowledge as familiar territory." This understanding, this knowledge, is the result of shaping learner's schemas, sequentially, from sound Background Knowledge to elaborate academic knowledge. Topics presented in lessons must be based upon adequate background knowledge in

order to enhance the schema and build toward better comprehension. This can be done in every home, in any neighborhood, at any age, in any language.

Closing Thoughts

John Dewey spearheaded an educational reform called Progressivism. The core concept of which was to have studied topics to be based on each student's strengths, weaknesses, and interests. Dewey claimed the most authentic learning came from the child's instincts to construct their own learnings and pursue their own projects (Hirsch, 2020). Now, Hirsch goes on to say Progressivism and child-centered education has been instrumental in our failing reading scores. He also claims "Nature – the child's nature – knows best. But common sense says: grown-ups know best". I must disagree. In many ways, what I am implying with this study is the need to bring student individuality, call it Progressivism, to fruition. Most students, most people, in society today are already in a world of their own making. Unless something has gone viral very few students in the same class will be listening to the same music or watching the same video. Instead of backpedaling, we can embrace the technology that is already deeply embedded in our student's everyday life. To watch a class of students is to watch a group of people predominantly stuck in input mode. They are glued to their screens just taking in an endless stream of data. To ask them to stop and read is like asking them to hook up the horse and buggy and take it up on the highway. Reading, as we know it, is to slow down and begin the task of passing our eyes left to right, left to right, top to bottom, that is the archaic skill of reading. It is not our reading comprehension that has plateaued but the actual physical act of reading. We are still doing the same thing with reading that we did hundreds of years ago. I believe we have been waiting for

the skill of reading to be revamped, reinvented, and retaught. Our eyes, our brains, are capable of so much more.

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