Determining How an iPad-Centered Pedagogy Can Improve Language Teaching and Learning in 2023

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ABSTRACT

Educators and school administrators must understand the nuanced difference between the iPad as a tool to teach students and the iPad as a tool to help students think. Many teachers know that technology integration in the classroom constitutes a slew of difficulties, leading to technological avoidance (also known as technological anxiety), so integrating the iPad in classrooms can be met with some resistance. However, the benefits will likely surprise the educational community and outweigh the natural challenges. Having an open mind towards this ongoing learning process is imperative. One thing is infallible: understanding how to navigate the iPad's mobile OS (Operating System), or iPadOS (previously iOS), is just as important as developing a Depth of Knowledge when finding English language learning apps. Learning everything an app offers will determine the level of academic achievement, whether it is exponential or nominal.

Chapter I: Introduction

The nature of language and language learning has been the focal point of many discussions, theories, and approaches over the past century. The investigations and the information derived from language theorists' fieldwork were based on close and meticulous observation and studying human behavior. The nature of language and language learning is a highly complex process, but it is an empirical human trait. Recent studies have demonstrated that it can go much deeper than exterior observation with the help and integration of technology, known as Corpus Linguistics. The way educators teach and students learn will change considerably in the next few years because of the impact of technology (Ahmed & Nasser, 2015). The application of the iPad as a tool to think with has demonstrated that it is more than just a sophisticated piece of technology (Auquilla & Urgilès, 2017). The exponential growth of technology has enabled humanity to make a quantum leap in just one hundred years. Society is on the verge of creating and improving previous theories based on the brain's observation. The learning theories developed with today's advancements will be more meaningful and efficient than those produced in the past. Education still relies on the current learning theories from the proponents of the different fields.

From the beginning of human existence until now, technological advancements have made it possible to truly understand the profound and transcendent connection of the nature of language. Studies have shown that when students are exposed to a comprehensible and meaningful amount of input, even though it is not guaranteed, the acquisition could occur because teachers will be setting the parameters of facilitating learning (Concidine, 2015). There has to be a structured methodology in the content that educators impart; nevertheless, educators must also be sensible to students' needs and the multiple intelligences in their classroom, so this means that the application of technology must also have a guided purpose but must also be mastered (Gabarre et al., 2014). As indicated by standardized test results, a comprehensive brain-based teaching methodology that uses the iPad as a tool for students to think with has yielded unprecedented exponential results in many schools.

Problem Statement

The exponential growth of technology has made it impossible for educators to overlook its importance. Without education, professions would cease to exist (Coelho, 2021). Since jobs must keep up with the social and technological trends, educators must prepare students to master the use and application of technology in the professional scenario. The problem with this entire apparatus is that technology is fragmented into a myriad of platforms, which can confuse educators on the one hand; on the other, they may feel overwhelmed by the learning curves required to master one form of technology. Nevertheless, the advancement of technology has become so rapid that once a teacher masters a specific platform, they may have the rug pulled from under their feet because said technology can become obsolete, forcing the educator to another learning process. Coupled with all the administrative work that educators must do daily, adding the component of technological anxiety can become too much to handle (Ahmed & Nasser, 2015).

Additionally, students of the current generation (Gen Z, also called iGen or Net Generation) require new approaches, methodologies, and strategies to meet their needs (Raja & Nagasubramani, 2018), so many educators find themselves on a threshold or forked road; ideally, some find themselves at the forefront of education. Lack of professional development, effective and holistic evaluations, and continued support have exacerbated teacher turnover.

The profile of 21st-century educators is mercurial, even when technology is not added to the equation. Effective educators (Paladino, 2018) enter a retrospective exercise of evaluating their praxis to improve their reach and scope (Zajic & Maksimovic, 2020). To maximize their relevance and coverage, contemporary educators must find ways of efficiently integrating technology in their classrooms and approach such integration with an open mind. While it does constitute a learning curve, teaching with the iPad has many benefits, as this investigation will be able to highlight. Education and technology are intrinsically intertwined at this juncture, so educators must find innovative ways to deliver their classes to reach Gen Z and beyond (Fahrman et al., 2019).

Purpose

The purpose of writing this research paper stems from the need for an investigation that can highlight the true capabilities of iPad-centered instruction. Although many sources say that studies are scarce, limited, or lagging in results, iPad integration that comes from a place of total integration has transformed the teaching methodology of many educators worldwide (Apple Education, 2022). Change within an educator's pedagogy is taken seriously and will happen over time. This research aims to reassure educators of their decision to transform their approach and praxis concerning the iPad.

Research Questions

1. How does using and mastering the iPad for language teaching and learning help Apple Teachers improve general academic outcomes across multiple levels and class subjects?
2. How does Gen Z (also known as iGen or Net Generation) perceive effective technology implementation in the classroom?
3. How can educators avoid or overcome technological anxiety?

Research Objectives

1. To analyze digital evaluation models that include salient criteria that help educators sift through language learning apps.
2. To evaluate how students appraise the effective use of technology in the classroom.
3. To outline theories and recommendations that educators can revise and follow to avoid technological anxiety.

Justification

The importance of this investigation lies in its potential to aid other teachers in making the profound decision to help themselves and their students by integrating iPads into their methodology. Language instruction in all its forms and levels is a complex process, but with the assistance of the iPad, such complexity can become more malleable. It is also essential to validate teachers' fears, for they are not unfounded. This investigation will also attempt to suggest ways to avoid technological anxiety. Additionally, and not least importantly, at the core of it all, this investigation is necessary because it highlights the extraordinary attempts language educators make to transform language teaching to achieve acquisition. Language learning globalizes a student, and as society realizes that geographical constraints are becoming less of an isolative variable due to technology's ability to bridge such gaps, teachers must find effective ways of teaching this generation by integrating intuitive technology and mastering it. As indicated by the studies cited in this investigation, the iPad has been proven to ease this process.

The User Interface (UI) of Apple's ecosystem has been known to put ease-of-use at the forefront of its product advertisements, and this is directly translated to effective classroom implementation when done efficiently.

Theoretical Framework

Effective education reform is seen from multiple perspectives (Paladino, 2018). Nevertheless, being a veteran educator does not guarantee effective technology implementation within a teacher's pedagogy (Irvine, 2019). Contemporary education is intrinsically interwoven with technology (Raja & Nagasubramani, 2018), so educators must consider the profound changes required to engage Gen Z (also referred to as iGen or Net Generation) in ways that can bring relevance and rigor to their praxis (Selwyn, 2019). Many educators are taken aback by the fear and anxiety of using technology in their classrooms (Zajic & Maksimovic, 2020), but being at this juncture in 2023 means that educators are responsible for looking at technological implementation seriously from a more holistic approach (Sweet et al., 2019). Even if technological anxiety does not dissipate completely (Ahmed & Nasser, 2015), educators should maintain a positive outlook and realize that most issues can be overcome with practice (Lestari & Indrasari, 2019). The end product of an effective iPad-centered language teaching methodology will be students who feel confident in their learning process and develop academic independence (Alzaidiyeen, 2017).

Effective education centered on technology must include an intuitive and capable device that can minimize instances of confusion, which can exacerbate technological anxiety and avoidance (Concidine, 2015). The iPad debuted in 2010 with the A4 single-core processor. It had a decent speed of 1GHz, which was slow for the computer form factor. However, since Apple controls its CPUs and operating systems, the company can optimize the software to maximize hardware utilization. Smaller semiconductors deliver improved performance and lower power usage. More transistors in a chip, a semiconductor element of an electronic device, means more processing power. More transistors can fit on a chip with a tiny form factor, improving performance (Apple A4 vs. Apple M1, n.d.).

Contrary to the 2010 A4, the 2021 M1 Apple processor has a total of 8 cores (4 high-performance cores of 3.2GHz, 4 high-efficiency cores of 2GHz); this means that the 2021 M1 processor is 20.8x faster than the 2010 A4 processor. The smaller the processors are, as measured in nanometers (nm), the faster they will be since bits of information have to travel a shorter distance from one transistor to another. The A4 had a 45nm architecture, meaning bits of information had to travel 45nm to deliver data. The M1 has a 5nm architecture, meaning data only has to travel 5nm to communicate from one transistor to another. The memory bandwidth (this is the maximum rate at which data can be read from or stored in memory measured in gigabytes per second) of the 2010 iPad was 3.2GB/s (gigabytes per second). The 2021 M1 iPad Pro has a memory bandwidth of 68.25GB/s (gigabytes per second) (Apple A4 vs. Apple M1, n.d.).

Delineating all of the current physical capabilities of the device serves the purpose of letting educators know that the iPad is a powerhouse. Teachers can do so much more than in 2010 when the iPad was released. Such a

powerful and intuitive device can remove or diminish distrust (technology anxiety) of the tablet due to instability or slow performance. Apple has created a Walled Garden, so it also controls the delivery and integrity of applications, device integration, and performance (Apple, 2023). When a teacher shifts their methodology to follow the MALL (Mobile Assisted Language Learning), as stated at the EUROCALL Conference in 2015, iPad-assisted learning can engage the students to such an extent that it can aid in developing autonomous language learning (Albadry, 2015). Engaging language learners with new iPad approaches can also cause a shift in their perceptions of language learning to a more positive mindset. Being able to reduce instances of technological anxiety can facilitate the learning process. A study published in the Malaysian Online Journal of Educational Technology showcased the opinions of 109 students at the receiving end of a teacher's methodology. 86.6% of the target population agreed or strongly agreed that the iPad helped them organize their work better. 88.8% agreed or strongly agreed that using the iPad gave them many benefits (Alzaidiyeen, 2017). The Open University's repository of research publications published an action research study that advances the understanding of how the iPad can improve foreign language instruction, particularly the teaching of speaking and writing in secondary education, and offers recommendations to educators on creating particular language assignments (Morgana, 2018).

Additionally, for the 2018-19 academic year, the Pennsylvania System of School Assessment (PSSA) from the Antonia Pantoja Charter School demonstrated unprecedented, standardized test results that further evidenced the positive aspects of an iPad-centered methodology. For the first time in the 10-year history of this school, in 2018, 0% of the 7th grade ELA class landed in the "Below Basic" metric, 50% landed in the "Proficient" metric, and 3% were in the "Advanced" metric. ("School Fast Facts - Antonia Pantoja Community CS - Future Ready PA Index," 2022).

One critical component remains: to enable all of these possibilities of academic achievement, the school administration must provide sufficient, adequate, and relevant professional development to teachers. Technology anxiety will seep in if constant training is not provided; ultimately, effective technology integration within the faculty's methodology will be flawed or non-existent (Lestari & Indrasari, 2019).

Definition of Terminologies

Generation Z was coined in 2006 by psychology professor Jean Twenge, and the terminology was later redefined in 2017 to include the modern conceptualization of iGen, which refers to the generation after millennials (Twenge & Campbell, 2017). According to the Pew Research Center, after surveying this terminology through Google Trends, they determined that, out of the multiple names given to this cohort, Generation Z was overwhelmingly the most popular (Dimock, 2018). Other suggested names for this generation include Net Gen, Neo-Digital Natives, iGeneration, Digital Natives, Homeland Generation, Pluralist Generation, Centennials, Post-Millennials, and Internet Generation. The term Internet Generation refers to the first generation born after the spread of the Internet. Technology anxiety (also known as Technophobia) is a concept that was first coined in 1960; however, given the global proliferation and exponential growth it has had in the last decades, Mark J. Brosnan was able to define it as "[...] having negative opinions or being anxious about information technology like personal computers;" this also means, as aptly quoted in his book, that "The same technology that simplifies life by providing more functions in each device also complicates life by making the device harder to learn, harder to use. This is the paradox of technology (Norman, 1990, p. 31)" (Brosnan, 2002).

Chapter II: Literature Review

Pedagogy at the Forefront of the Digital Age: What Does it Take to Teach Gen Z?

Education is more than a human right; it is an inextricable part of the human condition and the only reason civilizations have advanced. Current technological and social trends are staring at educators directly. The University of Hawai'i

wrote a report on what it was like to teach Gen Z, and in the first paragraph of that report, the institution stated that: "Generation Zers (Gen Zers) are not only different learners, but they also have different values and goals. Thus, traditional teaching methods may no longer be effective" (Sweet et al., 2019). In short, no matter the field, oral and written communication is the foundation of effective teaching. However, understanding that these language arts have undergone immense change due to technology integration becomes the catalyst that urges educators to confront these changes to prepare the next generation for society's labor force and inevitable advancement. In this regard, a study by the National Teaching & Learning Forum was able to indicate that:

> As you would expect with a generation named after a technological marvel, the iGens are very tech-oriented. Smartphones and computers are as normal as backpacks and campus Starbucks, since almost 90% of college students own both a smartphone and a computer. We'd even go so far as to say that every iGen's BFF is her/his smartphone, as this generation spends approximately half its waking hours with screen time (Hawkins, 2015).
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> "They do not like to learn in groups."
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> How should pedagogy address this technological obsession? Rosen (2011) warns about instructors' going overboard with tech: "The point is not to 'teach with technology' but to use technology to convey content more powerfully and efficiently." Philip and Garcia (2013) likewise admonish us: "Like the fancy devices that came before them, the smartphone as a quick fix to educational issues is not only a problematic understanding of this device but a dangerous one" (p. 301), emphasizing "What we find missing in discussions about technology in the classroom is the centrality of pedagogy" (p. 310). (Sweet et al., 2019)

> As other sources within this thesis will later imply, using technology for the sake of using it is also detrimental and defeats its purpose. This article helps this investigation by validating that educators must know how to navigate the systems they integrate into their classes to keep their lessons engaging and relevant. Educators now find themselves at a threshold that burns them out more than in previous decades. Although technological anxiety is not the sole cause of the current teacher turnover of this generation, it is a well-known contributor. Students (especially Gen Z) can tell when a teacher is walking in the dark as they use technology in their classrooms. In turn, this generates a sense of distrust from the student toward the teacher, which exacerbates most teachers' desire to avoid using technology in the classroom; this condition is aggravated when educators are not provided with the necessary training and continued support to troubleshoot arising problems throughout the academic year.

Effective Teaching with the Use of iPad

Teaching effectiveness is not an isolated concept, for it brings a slew of variables that function as prerequisites for it to become a concrete and measurable reality. Researchers do not intend to ignore these variables, so they recognize them as possible limitations within their studies. For example, to maintain a sense of relevance (which can set the groundwork for teaching effectiveness), teachers must stay up-to-date on cultural shifts and student trends and, most importantly, be technologically savvy. Nevertheless, technological anxiety may threaten teaching effectiveness (Paladino, 2018). A study in Ontario, Canada, determined no direct correlation between an educator's years of experience and teaching effectiveness. Coincidently, one variable that can facilitate teaching effectiveness does not come from the educator's side but rather from the employer's, which is teacher training. Institutions must provide holistic teacher evaluations and relevant professional development opportunities to ensure that such training is applied in an educator's pedagogy (Irvine, 2019). In regard to this, a study from the University of Indonesia was able to state that:

> The integration of mobile technologies into the educational system goes beyond its sole availability (Ifenthaler and Schweinbenz, 2013). It is a far more complex process than just providing infrastructure (Greaves et al., 2012), or even equipping the teachers with relevant knowledge and skills (Koehler et al., 2014). As an attempt to explain variability in technology integration into teaching practices, two sets of barriers are often discussed (Hew and Brush, 2007). First-order barriers are about environmental readiness including infrastructure and internet access, whereas the second-order barriers are about intrinsic factors of the people like

efficacy, beliefs, and attitude about technology. These are the factors that can hinder technology adoption even when the first-order barriers are overcome (Ifenthaler and Schweinbenz, 2013; Kim et al., 2013).

Technology adoption is measured by the frequency of teachers' actual use of the iPad for teaching. Kim et al. (2013) argued that teachers' practices and students' learning would improve only when technology is used regularly in the classroom (Kim et al., 2013). (Lestari & Indrasari, 2019)

Integrating technology into the classroom is a better way to prepare students for the future's needs and has positively impacted the teaching and learning process. Successful technology integration in education requires understanding what factors contribute to it, and integrating technology is far more complex than providing infrastructure and teachers with the necessary skills. As optimistic as the implementation of the iPad may sound, all of the variables that play a role in effective teaching methods can often seem too cumbersome to overcome. Technological anxiety is too real for many teachers, especially for veteran educators. A paradigm shift must occur if teaching effectiveness with the iPad will occur. Within this shift, educators must know that it is okay for them not to know how things will go and that it is okay for them to learn along the way.

EFL Students Give Their Opinions on Language Learning with the iPad

Many educational contexts have determined that utilizing the iPad as a class extension can be more than that. The reality is that there is a consensus regarding the iPad's impact on the educational component. When utilized with a focus on relevance and rigor, viewed from the teaching perspective, it is proven that it can yield promising results for EFL students. App availability for language learning has grown exponentially, from 172,000 educational apps in 2015 to more than 500,000 in 2022 (Apple Inc., 2022). Now, more than having a language app is required for a language learner. As Corpus Linguistics indicates, taking linguistic statistics requires a human component, and using the iPad is more autonomous than it seems. Even though most students recognize how to use mobile devices, utilizing them in an academic scenario is most likely foreign to them. Regardless, the implementation of the iPad has been a game-changer in EFL studies, and the following source goes into detail by indicating that:

Using iPads in the classroom can increase motivation to learn. Many researchers have examined the role of iPads in language learning. For example, Kim, Rueckert, Kim, and Seo (2013) conducted a study on TESOL students' perception of using mobile phones for language learning and they found that TESOL students were willing to adopt mobile learning in their language learning process. Harmon (2012) conducted an empirical study to investigate the impact of using of iPad on reading and writing. The results were in favor of the experiment group who used iPad in different ways such as students accessed their materials via iBooks, wrote journals, completed formative assessments, and used educational apps to collaborate with each other. The findings also revealed that the experimental group scored better in their reading comprehension, and language use tests.

Likewise, Lys (2013) found the iPad very suitable to practice listening and speaking skills, and for enhancing learner interaction. The findings also showed a favorable attitude towards using iPad in their course. Dyer (2013) conducted a study to examine the impacts of iPads on college students in terms of their cognitive skills, motivation to learn, and organization. According to Dyer, the research participants reported various positive outcomes including: increased processing skills, improved memory of information, and faster information access. (Alzaidiyeen, 2017)

The importance of this source concerning this investigation is that it was conducted with a cross-sectional survey, alongside app statistics, to determine if iPad implementation is effectively aiding TESOL students to its projected expectation. The applied methodology and the learning difference between the groups that used the iPad versus those that were not using the iPad was irrefutable proof that the mobile device delivers a learning experience that increases academic performance in many areas. The study was emphatic in stating that the component of a structured methodology is necessary to meet or exceed the expected results; should this component be missing, a threat to the study's internal validity could have been created. Instead of exceeding expectations, quite the opposite would have

happened to the retrieved data. Students in this study expressed that their confidence level has increased because of the iPad's effective integration. When students feel confident in their skills, they can rely less on the teacher's input, increasing their independence.

More Than Saying "I Have an App for That!"

The use and integration of the iPad in a classroom requires a teacher who knows how to use the device. Many students know how to use technology for entertainment, but some get lost in translation for academic content creation. Because of this, students must be guided by a teacher who recognizes the importance of utilizing technology in their methodology; however, few technological devices will fit the agenda as comprehensively as the iPad. It does constitute a slight learning curve, which creates technological avoidance. The fact is that the positives in an ESL or EFL scenario tremendously outweigh the negatives. A study conducted by the University of Ecuador stated that:

> It is evident that the use of the Apple's iPad device and educational apps may have a crucial role in today's classroom instruction, because they both can greatly enrich the teaching-learning process of different content-area subjects and, especially, English language lessons. Therefore, we, as teachers, serving learners of the 21st century must be aware of the many benefits behind an effective use of the iPad device and apps over the course of our students' overall learning and language learning. As mentioned above, students' learning experiences as well as their motivation, engagement, and achievement may be enhanced by incorporating the device and the key educational apps (highlighted in this article) into the classroom. Therefore, it is our responsibility to keep updated with the best practices that include the latest technological advances, so that our classroom instruction can be more responsive to our 21st-century students' needs, likes, and interests that are commonly shaped these days by the growing scale of technology. By having students experience and become familiar with the latest technological advances for educational purposes, it is a critical way to enable them to better function in and contribute to the world awaiting for them beyond the classroom, as well as it is a great way to promote autonomous and lifelong learning. (Auquilla & Urgilès, 2017)

The information presented in this source validates that comprehensive iPad implementation has increased grade outcomes and student motivation. For this to become a reality, ESL and EFL teachers must understand that there is a need for content delivery through a 21st-century lens. Therein lies the issue: delivering content through technology implementation is not enough; the teacher must know how to impart the class content through the iPad, which can constitute a challenge in and of itself. Technological avoidance due to the fear of perceived insurmountable negative transfer of OS navigation is the Achilles heel of iPad implementation. The study found that this tends to be the reason why teachers avoid using iPads. If this hurdle is surpassed, as evidenced by the above results, the benefits will slingshot the class toward academic achievement and acquisition.

Methodology, Purpose, Relevance & Rigor

Over the past decades, technology integration has become more ubiquitous in education. Technology-centered classrooms demonstrate that academic outcomes have improved, but only when the teacher has an intricate methodology that juggles technology with the wide gamma of skills that come with it: a chimeric approach that will require a different set of skills to showcase students during lessons. Said skills are an inalienable component of technological integration within a classroom. A teacher's methodology in their approach to iPad-centered environments is where the success or failure of technology integration will lie. The purpose of using an iPad in an ESL or EFL classroom is not to say that there will be language applications that will deliver the class for the teacher. In understanding this, the concept of relevance comes in: language teachers should evaluate the relevancy of the available apps for education on the iPad (currently more than 500,000) and determine which, how, and when such apps will be used. Rigor is the final stage, and it only comes when the language teacher can shift from asking how to give their language class content

with an "x" or "y" app to asking how the students will be able to learn with said app(s). The following investigation indicated that:

> The iPad as a teaching and learning tool may seem intimidating for teachers. Mattos refers to technology anxiety, which is one of the obstacles to the effective use of technology. Mattos defines this as "the discomfort one experiences with technology to the point of avoidance" (p. 3). The first step that teachers should take in order to build a level of confidence and comfort with the iPad is to actually explore and experiment with the apps suggested in this article. If they still need to know more, a quick search on the Internet will produce more information about each app. By employing the information that they learn and putting it into practical use, teachers can move to the step of brainstorming ideas in which apps can be used in the ESL lesson in order to make the learning more effective and profound. After reaching a certain level of confidence in using technology in the classroom, they can start enjoying creating and delivering more engaging lessons and ultimately can teach students how to use these apps. (Ahmed & Nasser, 2015)

The usefulness of this source within this investigation delineates that, although technological avoidance and intimidation will most likely be a given, teachers should dive into the process with an open mind. Therein lies the study's defined limitations, known as technology anxiety. While the Operating System (iPadOS) is different, educators must understand that it should not indicate that they should avoid using the iPad. The articles concluded, "The first step that teachers should take in order to build a level of confidence and comfort with the iPad is to actually explore and experiment with the apps" (Ahmed & Nasser, 2015). The app ecosystem is second to none, and while it is true that there are apps for nearly every need in the educational scenario, mastering these apps is just as important as the knowledge needed to navigate through the system efficiently.

Are Some OS Limitations Actually Good for English Language Learners?

In the early days of the iPad, many considered it an oversized, over-glorified iPhone. The issue with this assessment is that such naysayers should have considered the screen real estate, which transformed the experience. Even though both the iPad and the iPhone used to run the same software (iOS), Apple has introduced more features that have helped the iPad take advantage of its size and capabilities in the past five years. iPadOS ushered in a slew of improvements and more multitasking features. Still, some argue that the system is too simplistic and too limited; those who argue will then set the case to indicate why computers are the best option. Multitasking, or juggling many windows, virtual desktops, and programs, is still done more efficiently through a traditional PC or laptop. Nevertheless, such limitations can be beneficial in the classroom, as they reduce the probability of distractions; since the students cannot juggle more than three windows on the iPad, it will help them minimize distractions. The following source explains this further by stating:

> Tablets, and especially iPads, do offer much in terms of potential benefits as a learning device. They have multitouch functionality (scrolling, pinch and zoom, etc.) (Mclester,2012; Murray & Olcese, 2011); various kinds of networking abilities, including bluetooth, wifi and (sometimes) 3G; they have a very long battery life and they also have multimedia capabilities, including a microphone and speaker (Murray & Olcese, 2011). One of the biggest assets, may be their inability to support multiple applications in the same screen, which helps students to stay focused on their work (Mclester, 2012). Demski (2011) pointed out an additional benefit of iPads is that they were easy to learn how to use.
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> One of the interesting ideas that experts thought would happen, when the iPad first came out, is that it would start to replace older, keyboard-based technology (Waters, 2010). However, several authors (Daccord, 2012; Mclester, 2012; Waters, 2010) have found that iPads have not replaced older keyboard-based technology, but that they have been used to complement it. (Sharp, 2017)

The focal point of this source concerning this investigation is that it mentions something that many would use to set the argument on the OS limitations of the iPad and attempt to make it seem like a constraint; however, it is the exact opposite in the teaching scenario. The OS focuses on center-staging apps in full-screen instead of opening

them as windows. This feature will help minimize distractions. Students could have many windows open (if a computer is used instead of an iPad), leading to more distractions and diminishing the language learning process. ELLs require more focus as they try to create the new neural pathways that acquiring a new language will entail, but distractions will slow down this process and its scope.

Engagement and Motivation at the Center

English Language Learners require specialized attention in various forms of the language arts. However, when there is only one instructor within a traditional classroom scenario, there is only so much the teacher can do. Integration of the iPad helps teachers engage the students for extended periods while relaying instructions through applications as many times as needed, releasing the class from the teacher-centered praxis. This domino effect means that the students will then be able to become more independent learners as they focus on the projected content through the language app, for example. The teacher would be attentive and stand by to clarify any doubts regarding the lesson. However, students can simultaneously engage in various forms of language arts and multiple intelligences. Since the iPad has a multitouch screen, a kinesthetic component from Gardner's Multiple Intelligences Theory (MIT) can be added to class content delivered through a language app. Audiovisual queues can also add to MIT's musical and visual-spatial aspects. These components work in tandem and increase student motivation, independence, and engagement. The following source indicates that:

> [...] it is critical that school administrators supply the neces- sary resources for classroom teachers. Our study also shows the possibility of using a mobile device, the iPad, in vocabulary instruction. School administrators may consider supporting technology application in class- rooms by budgeting for funding, and providing appropriate teacher train- ing, so that more teachers will be able to integrate technology into their instruction for students, especially ELLs. Compared to other electronic devices, an iPad is considered relatively inexpensive. This device is portable and easy to carry with a touch screen feature that makes it an obtainable piece of assistive technology for ELLs in classroom participation.
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> One common characteristic of ELLs is poorly developed vocabulary skills that often impact their oral communication, reading fluency, and comprehension (Carlo et al., 2004; August et al., 2005). The Apple iPad in literacy instruction may provide an opportunity for these students to view visual images, practice correct pronunciations, and understand word meanings through visual presentations. Our study reports the positive effect of access to this handheld device on ELLs in learning vocabulary words. We believe that an iPad will be an emerging and promising technology for these students to learn English and will foster their self-confidence in communicating with peers and teachers, so that they are able to catch up with their English-speaking peers and be competent in learning the English language. (Xin & L, 2019)

> The presented information is paramount for advancing this investigation because it describes the flexibility of the iPad in terms of its ability to address multiple intelligences simultaneously with certain apps. Nevertheless, appropriately addressing multiple intelligences will require a comprehensive methodology. Corpus Linguistics indicates that English Language Learners require comprehensible input and class content to be dynamic and engaging. Using the iPad can facilitate this endeavor, but educators must understand that these benefits will only shine through if they know how to work the system for its worth.

Needed Comprehensible Input from Both Sides of the Aisle

Integrating the iPad into a language learning environment has also benefited students with Autism Spectrum Disorder (ASD). Nevertheless, hands-off policies tend to be detrimental, as students will have fewer opportunities to interact with the teachers. There is a fine line that SpEd educators walk due to the vast differences in conditions students may have, so the application of technology can go either toward the positive or the negative. Even though the iPad was used in the study published in the International Journal of Early Childhood Special Education, there were instances in

which the educators felt that their methodology needed more development or training to apply the device's usefulness better. The following excerpt will further discuss the issue teachers of ASD students were confronting in this process:

> Is iPad use with children with ASD a developmentally appropriate practice? Published research about iPad use for children with ASD has not addressed issues regarding developmental appropriateness. In the interviews with the teachers in our study, however, both teachers mentioned that the functional use of iPad seemed to be developmentally inappropriate for Kayla. Both teachers still tried to interact with Kayla regarding what was happening on the iPad screen. This type of interaction, based on the first author's observation, was more naturalistic and authentic than scripted and teachers' pursuing communication with Kayla. It is a fair statement that teachers have to provide developmentally appropriate educational experiences for all children (Campbell et al, 1998). When the preplanned scripted approach is not developmentally appropriate, teachers should still find developmentally appropriate ways to use iPads to support children's language development. Studies about naturalistic or hybrid strategies, which avoid scripted approaches, to enhance children's language productivity have been accumulated (Fey, Cleave, Long, & Hughes, 1993; Girolametto, Pearce, & Weitzman, 1996; Weismer & Robertson, 2006). While these strategies could be considered, the teachers were not aware that the naturalistic interaction that they attempted during Kayla's iPad use could be used for language development. (Meacham & Almalki, 2019)

The data extrapolated from this source shows the other side of the coin. The school administration that conducted this study indicated that the iPad was used for language development activities; however, required comprehensible input and training was not given to the teachers; the educators, in turn, expressed that they would not be able to provide the comprehensible input to their students, which require specialized attention, compared to non-ASD students. Additionally, this source showcases that applying technology for the mere sake of applying it will generate more issues than addressing them. Of course, the iPad can fit any class, and in this case, it was meant to support and advance language activities. However, if strategies and methodological approaches are not provided to the teachers, the device's goal and usage will be moot.

Apple Teacher Turns School Goal to Unprecedented Reality

The 7th grade English Language Arts class in the Antonia Pantoja Community Charter School (APCCS) in Philadelphia, PA, had an inconsistent upbringing in the English class subject due to teacher turnover. The constant change of teachers and exposure to different teaching styles in a single class subject reflected poor standardized test results in the Pennsylvania System of School Assessment (PSSA). Now, the school offers grades K5F, 1 through 8. Its population comprises 98.6% Hispanic, 0.1% White, 1.0% Black, and 0.3% of 2 or more races ("School Fast Facts - Antonia Pantoja Community CS - Future Ready PA Index," 2022). When the enrollment by student groups is broken down, it is evident that the community's needs are more apparent than the ethnic classifications. For example, 73.1% of the student population is economically disadvantaged, 11.9% are English Language Learners, 24.6% are in the Special Education Program, and 0.3% are homeless ("School Fast Facts - Antonia Pantoja Community CS - Future Ready PA Index," 2022).

In the academic year of 2018-19, the ELA class was delivered exclusively through the iPad, and even though the students did not have access to iPads themselves, setting the parameters for student achievement begins with the teacher. No other 7th-grade teacher delivered instruction through the iPad. Further on, there will be additional information on the standardized test results in this school.

To advance this discussion, a study conducted at the University of Western Ontario focused on observing ELA Grade 7 students who received iPad instruction, and it was able to state that:

> In terms of achievement in language and math, most of the analyses demonstrated statistically significant but small effects of iPad status on achievement. For language, one of the cohorts saw an increase in grades at the fourth time point but no other differences. Two of the cohorts saw an initial decrease in grades following the introduction of the iPads, followed by a later increase in grades to approximately what they had been before

the introduction of the iPads (see results for details). For mathematics, one of the cohorts saw an initial decrease in grades followed by a later increase in grades; one of the cohorts saw no significant differences; and one of the cohorts saw a decrease in grades after the introduction of the iPads that remained for two time points. In terms of learning skills, the introduction of the iPads did not affect the percentage of students who achieved not satisfactory, satisfactory, good, or excellent results in collaboration, independent work, initiative, organization, responsibility, or self-regulation in any of the three cohorts.

[...] small and somewhat mixed results in terms of the impact of the iPads on Grade 7 students' achievement in language, math, and learning skills. We believe the results from this study to be positive in that technology can provide many benefits to students, in terms of equity and inclusion (Kirkpatrick et al., 2017) and assessment (Searle et al., 2017, in press), without an apparent negative impact on achievement. It is hoped that this study provides useful information to both researchers and school board administrators, both of whom may be interested in the outcomes associated with increasingly common 1:1 initiatives. (Kirkpatrick et al., 2018)

This source's summarized information indicates clear benefits to specialized iPad instruction. Regarding the Antonia Pantoja Charter School, its tabulated results from the PSSA Future Ready PA Index demonstrate that, when comparing the test results from the 2017-18 academic year to the 2018-19 academic year, there was a 78% increase in performance, as students met the standards demonstrating growth. For the first time in the school's 10-year history, in 2018, 0% of the students were in the "Below Basic" metric, 50% were on the "Basic" grade-level metric, 47% were "Proficient," and 3% were "Advanced;" this means that, overall, 50% of the 7th-grade class was in the "Proficient and Advanced" metric. 7th grade ELA iPad instruction ceased after the 2018-19 academic year. After the pandemic, iPad instruction for 7th grade ceased. As measured by the 2020-21 academic year, only 28.7% of the students were in the "Proficient and Advanced" metric, which means that there was a 21.3% decrease in academic achievement ("School Fast Facts - Antonia Pantoja Community CS - Future Ready PA Index," 2022).

Nominal Academic Achievement if Methodology Requires Structure

A paramount ideal that has to be emphasized continuously in this research is that technology usage and integration are not the end-all of teacher concerns. Additionally, the usage and integration of iPads for their sake can have negligible or adverse effects on academic achievement. Many factors must be considered, and teachers need just as much support, if not more, to deliver classes through the iPad. Contrary to the results mentioned earlier in the previous section, the following article stated that:

In addition, Wilson (2011) reported that mobile touch screen equipment, such as that available with iPods® , iPhones® , and iPads® , could be used to augment existing teaching tools and provide content related material in a convenient, engaging design. Draper-Rodríguez, Strnadová and Cumming (2014) noted that initial studies on the use of mobile technology showed benefits for improving skills and academic engagement of students with disabilities. Achmadi et al. (2012) concluded that an iPod ® as the platform used as a speech generating device (SGD) was one method to promote increased student independence.

[...] Their findings suggested iOS technologies were practical instructional tools for individuals with developmental disabilities. As a result of the findings from the 15 studies, along with several of those with whom she reviewed the noted studies, Kagohara continued to participate in research from 2010 to 2014, particularly in relation to teaching social/communication skills with the use of SGD and video modeling, for individuals with developmental delays, sometimes delivered via iOS devices, and reported largely positive results. For example, Kagohara participated in the Roche et al. (2014) study that concluded that "with systematic instruction, children with neurodevelopmental disorders and severe communication impairment can be taught to use tablet-based SGDs for functional communication purposes" (p. 11), and that this finding was consistent with the Kagohara et al. (2013) review of the literature regarding the use of iPods ® and iPads ® in teaching programs for individuals with developmental disabilities. (Concidine, 2015)

By the time this study was conducted, the iPad had only been on the market for five years, and its implementation in school was steady but nowhere near where it is in 2023; this means that there is a possibility that teachers were not receiving the necessary training to make the most out of iPad and iPod implementation. Language instruction through the iPad is a rich ecosystem that requires a depth of knowledge (DOK) to determine the complexity of the selected apps. When the DOK is nominal, there will be few academic advancements, and negative results will likely permeate.

Trifecta: Teaching Philosophy Meets Multiple Intelligences Meets the iPad

When English is being taught as a foreign language, it constitutes additional challenges. Such challenges can slow down the teaching process and even reduce the scope of a lesson. To preserve one of the goals of 21st Century education, which is to facilitate learning, teachers must have the disposition to build their teaching philosophy from the bank of theories that some are well aware of, for example, Multiple Intelligences, Zone of Proximal Development (ZPD), Language Acquisition Device (LAD), Information Processing Theory (IPT), Gradual Release of Responsibility (GRR), or the I + 1 by Stephen Krashen. The result is a chimera: borrowing from all, none solely reliant on one. When the language teacher profoundly understands this chimeric foundation, the integration of the iPad can find its exponential value. The versatility of iPad instruction can even facilitate group discussions in EFL classrooms. An investigation conducted in a Saudi university showcases the following:

> In addition, evidence from students' interviews provided additional insights into their experience and behaviour after the integration of the iPad device into the course. Indeed, a broadly positive picture emerged in which a remarkable shift from being passive learners to active learners has been shown. Many students emphasised that the iPad- assisted language learning course offered them something different from what they used to have before. For example, one student expressed her enthusiasm to attend the English class which reflects change in her motivation and behaviour after the course.
>
> [...] The preliminary results of the study suggest considerable potential for the iPad to facilitate students' collaboration as it enabled peer-to-peer interaction, and as a means to increase students' engagement and motivation to learn the target language. Further analysis of the data is expected to offer new insights into the how iPad technology or similar devices can be incorporated into a course, and to help educational institutions and EFL teachers how such devices can facilitate students' collaborative learning and motivation beyond the classroom. Overall, this study demonstrates the potential of mobile-devices in enriching the EFL experience through enabling opportunities that cannot be found in traditional classroom environments. (Albadry, 2015)

The significance of this source regarding this research is that it demonstrates how the iPad was used as a catalyst that unified various approaches to language teaching and language learning. Effective methodology and class activities enabled the integration of the iPad to improve student autonomy and outcomes.

Traditional classroom environments have run their course, and there has to be a paradigm shift for 21st-century learners. Computer-centered teaching is beneficial when done comprehensively, but its program ecosystem does not come close to the iPad's. ZPD instruction can be instrumental in EFL environments, and many apps can showcase the power of the iPad to enable students to collaborate and discuss class content.

Second-to-None App Availability

The Apple App Store was unveiled in 2007. Initially, third-party content creators were not allowed to develop apps for iOS. This initial decision was greatly opposed, leading Apple to reconsider its approach. In late 2008, the App Store was open for business. Over the years, the App Store (having a head start over the Android mobile OS) was able to cement its supremacy over all other competitors.

Additionally, Apple has guidelines that apps must strictly follow to preserve security, content presentation, and quality; many app developers see this as a gateway to receive remuneration for their product, so presentation is

critical. In the visual-spatial sense, an app with a web page or program counterpart in another ecosystem has a more difficult time presenting itself for consumption because developers must consider the platform they use, size, and tools provided to deliver said app or product. Obtaining students' attention and providing a "wow" factor can only come from app quality and comprehensive management. The following excerpt makes this distinction from the early days of the App Store, further demonstrating that the availability of educational apps and their quality makes all the difference:

> Emilie was satisfied with the App Store in terms of choice and number of applications, particularly as she became used to the search engine which enabled her to find full free versions of learning applications and dictionaries. She said that it was fast and convenient to download applications: "We can search by name and keywords and then straight away download...It's easy." She then showed the applications that she had downloaded to lean French. Evans (2008), Garner (2011), Godwin and Jones (2012) as well as Meurant (2010) described how numerous applications could be used to foster foreign language learning such as dictionaries, vocabulary building lessons and podcasts. She seemed to find whatever she needed or fancied for free which confirmed her statement that she would never pay for applications. Another positive financial aspect was that she could communicate for free over Wi-Fi using chat and voice-over applications. She enumerated Line, Vibers and Skype. She did not mention Messages and Face Time which came preloaded on her iPad. This could be explained by the fact that at the time of the research Messages and FaceTime exclusively connected iOS (Apple's mobile devices operating system) users over WIFI. Garner (2011) and Meurant (2010) underlined the usefulness of including theses communications tools for a dynamic pedagogy. (Gabarre et al., 2014)

> This source evidences the relevance of a robust app ecosystem to the device within the language learning environment. Granted, the number of available language teaching and learning apps has grown exponentially since 2014. From the educator's perspective, having two or three language learning apps is insufficient. In the same sense that an educator's teaching philosophy is a chimera, the iPad teaching methodology has to have several apps to facilitate and improve the language arts (listening, speaking, reading, writing). It may constitute a difficulty, it may prove to be challenging at first, results may vary, and success is not guaranteed, so downloading a slew of apps will also not be enough: constant monitoring and comprehensible input are essential if the integration of the iPad is to be met with any form of success.

Change Within a State-of-Mind

Integrating the iPad into education will bring about a paradigm shift and transform the 21st-century classroom. There is no question, as previously stated, that technology is an integral part of our lives, and its use in educational settings can provide new and exciting opportunities for teaching and learning. However, there needs to be more concrete research on how to use it effectively in classrooms and other educational activities. The question is how to support a one-to-one iPad approach to maximize its potential. Following action research principles, a study from the University of Piraeus explored how students, teachers, and parents perceive her one-on-one approach to iPads in the classroom. To do this, researchers combined quantitative and qualitative data to conduct studies on mixing methods. For this study, researchers used a series of questionnaires, interviews, and best-practice lesson plans to conduct descriptive and inferential statistical analyses. As a result, students were more optimistic about the iPad as a great tool to help them organize and understand their courses. In this regard, the investigators were able to state the following:

> Research indicates that student engagement is correlated to increased learn- ing (Carini, Kuh, & Klein, 2006). Specifically, it is shown that the use of mobile technology develops a positive climate and motivates students to engage in learning activities (Lu, Lu, Yu, & Yao, 2014). This means that the iPad can be used as an effective tool in primary education in order to facilitate the learning process (Churchill & Wang, 2014). It is argued that students are positive to utilize iPads in the classroom, but there is a need for investigating their perceptions and beliefs about the reasons that direct their actions (Harper & Milman, 2016).

In this research, we attempted to measure students' perceptions on the extent of the iPad usefulness in the learning process and the level of engagement. We therefore investigated the extent to which the iPad engaged students in various ways during class. In terms of the way the "1:1 iPad" approach was integrated in the learning process, the iPad has helped students in many activities (F4.1: Organizing the course, F4.2: Problem solving, F4.3: Collaboration, F4.4: Developing interest) that were explored by means of the students' responses to the relevant questionnaires. (Retalis et al., 2018)

Students were more optimistic about the iPad as a great tool to help them organize and understand their learning. In addition, data analysis shows a certain level of convergence of results with other international surveys. The research highlights the importance of redesigning educational models and incorporating technological solutions to support learning.

There is a high possibility that even students who have used iPads for many years will be able to master them, indicating the need for continuity across grades. During implementation, stakeholders should participate in workshops to share their experiences and learn how to make the most of them. Participants must also embrace the new digital culture and recognize the need to strengthen critical skills such as flexibility, digital citizenship, willingness to change, and digital identity. This study proposes the iPad as a simple tool for learners to build confidence, prepare for challenges, and increase self-efficacy.

Does the Flexibility of the iPad Have a Limit?

A study in Saudi Arabia aimed to demonstrate the effectiveness of using innovative technology to develop cognitive skills, specifically the use of iPads in teaching English as a Foreign Language (EFL). New technological approaches are constantly being implemented in educational institutions, but analysis of the effectiveness of these approaches needs to catch up. In the context under consideration, the integration of the iPad represents a significant shift from paper and pen to handheld touchpads and digital pens. The goal was to explore links between EFL's educational approach, Bloom's revised taxonomy of thinking skills, and iPad use. The efficacy of the iPad is irrefutable, and in this regard, the article can state that:

The results indicate a tendency towards lower order thinking levels skills in all seven language skills. There were flexible and different ways of using iPads that represent all levels, although some absence of iPad roles at higher-order thinking levels. Three roles of teacher and student in driving lessons activities varied in using tablet devices. When students drive the lesson and take more control, they are more likely to move to HOT levels. This requires the teacher to let go of the control of the lesson, to move from the role of sage on the stage at all times in the classroom and allow the students to engage with the iPads in more student driven activities. Our study can help policymakers and English language teachers to take advantage of how iPads are used in higher-order thinking, and how to better integrate iPads in class and deal with the disadvantages of frequent usage of iPads in lower-order thinking. Based on our findings, further studies may consider investigating teaching objectives and exam questions set in teaching and learning practices by iPads to discover to what extent they cover cognitive thinking skills. (Alshammari et al., 2021)

While technology integration is essential (if not critical) in today's educational scenario, it could have a limit. The iPad's scope, reach, and use is astounding, but if mastery of the device is kept at the surface level, the user will find its limits. Currently, there are more than half a million iPad-only applications for educational purposes. This Saudi Arabia study concluded that the iPad could only reach lower-order thinking skills when seen from a limiting lens while being compared to Bloom's Taxonomy. Nevertheless, multiple sources within this investigation indicate otherwise. To unlock higher-order thinking skills, educators must adopt an iPad-centered methodology and garner a comprehensive understanding of many apps to help students learn at every level of Bloom's Taxonomy.

CALL Gives Way to MALL: The Future is Mobile

Computer Assisted Language Learning (CALL) was considered the cutting-edge component of the educational frontier in the early 2000s. As time would have it, technology fed on itself, and in just a few years, a significant shift in processing power has occurred nearly overnight. With the proliferation of more powerful laptops, cellphones, and tablets, education is now looking towards Mobile Assisted Language Learning (MALL) to engage students in ways that were impossible just a decade ago. CALL classes were tethered to a computer-centered methodology, meaning students were also tethered to their computers. Now that mobile devices are more powerful and optimized for intuitive use, MALL has released teachers and students from being static in one place. Regarding the importance of how this can take place, the following article from the Open University indicates that:

> In sum, the results show that through observation of the tool mediation following SCT principles, it is possible to gain insights into learners' developing writing and speaking abilities and use them further to help learners and teachers adopt them in the future. It also indicates that the process of integration of mobile devices into the language learning secondary classroom takes a long time and requires motivation and strong methodology from teachers and engagement from learners in order to take advantage of this kind of mediation accessible through mobile devices.

> The findings presented here cannot be generalised due to the particular context where it was implemented (semi-private Italian secondary EFL classroom) and the specific mobile device used (iPad). However, it reveals several possible implications for EFL teachers, policy makers, and researchers in the field that would like to integrate mobile devices into the secondary language classroom. (Morgana, 2018)

> Whether educators are willing to advance alongside it or not, progress will occur. Learning could always occur, regardless of the technological proficiency of the teacher. Still, results can be profound and astounding when a teacher's ability is up-to-date and up-to-par with the speed of progress and innovation. ("School Fast Facts - Antonia Pantoja Community CS - Future Ready PA Index," 2022). The iPad was released in 2010. By the time of the elaboration of this investigation (2023), 13 years had passed, and even though tablet computers have been around since early 2000, it was not until the iPad's release that the world started to perceive tablets as intuitive, approachable, and functional devices. Every year, Apple releases new features for the Operating System (iPadOS), which will constitute a slight learning curve for its users every year. Nevertheless, this is commonplace in the Apple ecosystem, so people have learned to embrace the yearly changes instead of resisting them. In essence, changes will always be given when integrating the iPad into the classroom, so resisting these changes defeats the purpose of practical MALL lessons.

Chapter III: Methods

A qualitative design was the most logical way of constructing this investigation; more specifically, a documentary analysis design and a descriptive analysis methodology proved to help outline and synthesize the utilized sources. César A. Bernal stated that, in order to determine relationships, differences, stages, positions, or the present state of knowledge regarding the subject under study, documentarians examine written information on a finished topic. When it comes to documentary research, it "depends mainly on the information obtained or consulted in documents, understanding any material that can be used as a source of reference, without altering its nature or meaning, which provides information or testimony to reality or an event" (Bernal, 2006).

According to César A. Bernal, precise processes must be taken when conducting a documentary analysis. The population being studied must first be identified by the investigator. The following step is for researchers to create and validate the instruments used for data collection, after which investigators must use those instruments and gather the data. As the inquiry draws close, researchers must create a formal theoretical research framework to process the data gathered. The investigators will next analyze and discuss the results of the information gathered. Researchers must then write their recommendations and conclusions (Bernal, 2006).

Roberto Hernández stated that qualitative investigations are based more on logic and inductive process, requiring the researcher to explore, describe, and generate a theoretical perspective (Hernández et al., 2016); this means

that a qualitative investigation eases the transition from the particular to the general. Understanding the broader implications of the iPad integration meant that a general question guided the investigation—however, more questions needed to be generated to address other variables that arose as the investigation continued.

Additionally, Roberto Hernández indicated that qualitative investigations allow questions to be generated before, during, and after the documentary analysis (Hernández et al., 2016). Because of this, two more questions were generated as the Literature Review was written. Due to the proposed ideas in this investigation, the emerging grounded theory approach is also part of the design. The emerging grounded theory design allows the descriptive analysis to propose a paradigm shift in the educational scenario. This research had to reach a consensus concerning the research question, which is why the emerging grounded theory design is the most adequate. The Universidad Ana G. Méndez's virtual library contained most sources; others were found on Google Scholar. In order to preserve the reliability of the investigation, several peer-reviewed articles were utilized, and comprehensive descriptions were written to provide a foundation for the emerging theory.

Chapter IV: Results

Various categories were created to generate the platform of the emerging theory and answer the research question. One category was "iPad integration in classrooms." The source that Ahmed, K. & Nasser, O. published in 2015 evidenced what was required to integrate the iPad within a language classroom effectively. Within this investigation, the researchers delineated some teachers' struggles when a new piece of technology needed to be integrated and function as its center. As struggles become more intrusive to the teaching methodology, training, workshops, and assistance are imperative for the program's continuance. Another category was "iPad and Special Education." Concidine, V. in 2014 published this source, and it indicated that language courses can benefit when iPads are incorporated into the curriculum and can also increase student independence.

During the early stages of the investigation, the main question was:

1. How does using and mastering the iPad for language teaching and learning help Apple Teachers improve general academic outcomes across multiple levels and class subjects?"
   o The "Apple Teacher Turns School Goal to Unprecedented Reality" section directly provided the necessary data to answer that question. Seeing what was achieved in a single year of effective iPad implementation in an ELA classroom was astounding. Students surpassed all expectations, but most importantly, they proved they had more potential than they once thought. Previous standardized test scores demoralized most 7th-grade student population for the 2018-19 academic year. After the Pennsylvania Department of Education provided the results, many students were in disbelief but elated. After so long, the students could grasp critical language skills provided by a comprehensive iPad-centered methodology.

As more evidence was gathered, one more question was generated to define further the variables of this investigation (teacher profile, student profile, and technology profile):

2. "How does Gen Z (also known as iGen or Net Generation) perceive effective technology implementation in the classroom?"
   o The section labeled "Pedagogy at the Forefront of the Digital Age: What Does it Take to Teach Gen Z?" delineates how the newer generation of students requires educators to have a certain level of mastery when using technology within their classrooms because this generation already has a proclivity towards technology. The reason is that when educators get lost in translation as they attempt to integrate technology into their methodology, it generates a sense of distrust from the students, as they will perceive that lack of technological mastery does not equate to educator competency.

Such a situation led to the final question:

3. "How can educators avoid or overcome technological anxiety?"

o The "Effective Teaching with the Use of iPad" section provided a simple yet effective answer on how educators can avoid technology anxiety: using the iPad frequently. The only way to master the device is to explore everything it offers. The process will most likely not be without its complications or hurdles, but educators must approach such difficulties with an open mind.

Chapter V: Limitations, Recommendations, Discussion & Conclusion

Some limitations may be addressed through continued research. It is recommended that future investigators and educators find up-to-date information from more recent sources and expose themselves to the benefits of using the iPad. Data analytics indicate that the exponential growth of app availability will further enhance the iPad's capabilities and relevance in English language courses, whether teaching English Language Arts, English as a Second Language, or English as a Foreign Language, so future investigations must include these metrics.

Technology is widely perceived as helpful in the educational scenario and a required component for 21st-century career readiness. Whether its results are exponential or nominal, integrating technology in English classrooms is necessary. In order to achieve the former, a comprehensive Depth of Knowledge on Operating System (OS) navigation and app functionality is imperative. This investigation provided evidence on three critical areas of the teaching spectrum: from the teachers and students, OS and app DOK, and exponential or nominal achievements as evidenced by schools.

Integrating technology presents a slew of challenges: that is a given. Nevertheless, the benefits will strongly outweigh said challenges or constraints. Additionally, it is essential to note that having extraordinary results does not require students to have an iPad. The major takeaway of this research is to indicate that it all starts with the teacher. Teachers should approach the integration of the iPad with an open mind because it changes the way teachers teach and the way students learn; this requires a process of trial and error. However, once a methodology is in place, educators will set the parameters for language students to obtain the most out of their education, even though success is not guaranteed.

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