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AN AUGUSTINIAN PEDAGOGY APPROACH TO INTEGRATIVE STEM EDUCATION:
THE CANDLE LEARNING MODEL

DAVID JOSEPH RELSTAB

129 Pages

The author will attempt to construct a learning platform congruent to a STEM-based curriculum. However, before the learning system can be constructed, foundational concepts for how education is conducted within an institutional structure will be examined. The role of the teacher in conveying information to students for their formation as technically literate members of society and formed in the ability to carry out meaningful reflection and dialogue with others will be examined. The overall objective is to utilize the pedagogical style of Augustine of Hippo to guide the construction of a holistically integrative STEM curriculum. The student's lived experience instills values for lifelong learning, and critical thinking will be incorporated to tackle the challenges of the modern world. Relationships and the need for humility to be incorporated into STEM education for a productive learning environment to take shape will challenge the conventional compartmentalization of disciplines. Recognizing the interconnectedness of content within a real-world context is proposed to promote a greater intention of intellectual and human formation towards a culture that seeks to convey the importance of interiority and community with others in education.

KEYWORDS: Augustine, Curriculum, Holistic Education, Integrative Education, Pedagogy, STEM

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THE CANDLE LEARNING MODEL

DAVID JOSEPH RELSTAB

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE

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2023

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THE CANDLE LEARNING MODEL

DAVID JOSEPH RELSTAB

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CHAPTER I: INTRODUCTION

The art of educating and conveying information from the teacher to the student is a process that has been present in human history from the beginning of time (Ryoo & Winkelmann, 2021). Having a young person experience the world through the guidance of a parent to foster their infancy years then evolves into formal learning where students become enrolled in courses, programs, and later in college majors. In recent years, the introduction of STEM education has become a topic within learning institutions. Stressing a focus on the core topics of Science, Technology, Engineering, and Mathematics is the hallmark of STEM education to increase the technological literacy of students for their ability in the workplace (National Research Council, 2011a). Stressing the importance of learning that revolves around design projects and inquiry-based learning strives to teach the student explicit content and develop critical thinking and decision-making skills (Nadelson & Seifert, 2017). As a contribution to the educational community, this learning framework has challenged the conventional style of separated ‘silos’ of disciplines to show the interconnection and use for real-world application. Arranging the students within learning groups to solve an issue using various methods pushes learners to see how the different subjects taught in schools can be applied.

Exploring the significant facets of education to be expanded beyond the curriculum provided to students for their intellectual growth. A goal is to explore the place of teaching and learning to encapsulate a broader scope of how an educational experience is constructed within a more holistic understanding (Howell & Scales, 2017). This thesis will try to deconstruct various components that contribute to the education process proceeding from a foundational approach in research, striving towards a deeper reflection of the contributors to learning that involves examining several factors more deeply. Paying attention to the overall culture and thoughts were

given to the role of education within the school environment, the creation of learning material, and the sequencing of content as conveyed to the student learner. The function of the teacher within the classroom as they conduct the learning process can be viewed within the realm of the learning institution. As for the student, allowing there to be an openness to accept and view the world through a wider lens of application for not only their betterment but an increase of global awareness and the advancement of society. Joining together in authentic dialogue and relationship among student learners in order to journey together in the process of learning and respectful communication can be brought out by the topics expressed in this thesis.

Viewing education through the lens of the thoughts of Augustine of Hippo can provide the reader with ways to develop further and construe learning for the modern-day classroom. Shifting the culture of education that has developed around teaching separate subjects, distinctly taught outside of one another, is not thought to reflect the overall experience of human life (National Academies of Sciences et al., 2018). Allowing the educational environment to be formed in a way that stresses the theme of community and the fostering of life-long learning can then strive to meet the student's intellectual, social, and human developmental needs (Herschbach, 2011). Furthermore, striving to prepare teachers and educational leadership to be formed in a transformative style of education lends itself to a deeper involvement for the student learner and the other participants in the task of education. Therefore, it contributes to advancing the educational process to become a more thoughtful experience for its participants and thus become more competent members of society.

Allowing the inclusion and themes of STEM education to be incorporated into the discussion can further form learners to be technologically literate by being able to view the interconnections to the various content matters (Roehrig et al., 2021b). Including curriculum use

of STEM's focus on project and inquiry-based learning to guide instruction can then be expanded to include a wider berth of content knowledge (National Research Council, 2013b). Application of contents formed in a context that affords itself to view the place of learning to be transformative in intellectual and human pursuits can then be introduced out of STEM to more profound disciplines of inclusion. A thoughtful and integrative approach to curriculum construction can support student interaction methods. Moving past some of the challenges STEM has faced within institutional learning, such as the lack of shared understanding, can progress a mentality to wider adoption of STEM learning's ideals (Ernst et al., 2017).

Realities of the Current Status of Education

Including and expounding on the pedagogical style that infuses STEM to contribute to the value of teaching for the entire learning process can be heightened by including Augustinian educational thought. Realizing that curriculum is already set within schooling communities and the inundation of so many learning platforms and learning standards, this thesis will provide the reader with a guide that can be integrated into the current realm of education. Transforming the role of teaching and learning for it to become more interconnected and formative can then progress the field of education to become more adaptive to suit the needs of the modern-day learner. Educating should be a given aim, not to increase the student's intellectual abilities but to allow learning to be directed within a real-world context. Fostering students, therefore, to search out into the world and, through their interior being, grow into a love for learning and search for knowledge (McCloskey, 2014). This Theoretical extrapolation of concepts, therefore, is sought to provide a basis for further research and development. Taking on the perspectives of both STEM education and Augustinian Pedagogy's standpoints can contribute to crafting a

framework in how to lead and guide students and the profession of education towards a response to suit the needs of students in a more constructive manner.

Purpose of the Composed Guide

Presenting a guide for inclusion in the current education process can provide the space for educational leadership and teachers alike as a foundation for fostering a more comprehensive learning environment. Acknowledging the entire human person in recognition of the tri-part being, of body, soul, and mind, according to Miller et al. (2019), lends to a deeper view of educating. Understanding that their intellectual personhood is only a portion of the more outstanding overall composition of the student should lead practitioners to strive to adjust the style of teaching and learning to be in greater congruence with each learner. This can then lead to advancements in institutional knowledge for not only more significant outcomes for the students but can also lead teachers to hone their professional skills. Recognizing the scope of what learning entails by referencing STEM and Augustinian pedagogy, then seeks the means to come to a more thoughtful and capable society. The benefits of this thesis then expand the role of learning to become more reflective and applicable for the various parties involved by allowing the thoughts provided to inspire further study and pedagogical development as its intended purpose.

Means of Research

Conducting the process to explore the fields of STEM, Integrative, Holistic, and Augustinian education facilitates the central area of research. Researching the intricacies offered by each particular framework in how they can contribute in creating a more effective tool for educators through the structuring of a learning system should provide a more in-depth learning environment for students. In coming to recognize the current climate of education and the call for

reform foundationally, this thesis seeks to expand the teacher's role to function in a more formative nature. Fostering student learners to develop as productive intellectual learners and, more innately, as participants in the communal search for knowledge presents a challenge to teachers and educational professionals (Barnard, 2007). Growing awareness to comprehend formal education in this connection style in taught disciplines and life is sought to lead to a more holistically formed student. Establishing a learning environment that corresponds with this intended aim then looks to enhance conversations and insights for achievement.

Limitations

Since any learning model only attempts to address a selection of the expansiveness of education, the points addressed in this thesis are intended to serve as a guide for exploration in further curriculum development. Nuances that are present within institutions of education and particular learning communities are unique to each other. They are to be handled in a way that suits the environment to the best means possible. The initial intention was to develop this guide to initiate a conversation to integrate STEM concepts along with striving towards a more community-based classroom setting. Curtailing and adjusting the mode in how this guide is carried out within particular instances is expected.

Reflection through Brookfield's Four Lenses

Given the theoretical nature of this work, the presented intentions and further extrapolation of concepts seek to be arranged within a methodological position of Brookfield (1995). Critical Reflection, when utilized in curricular development, aims to arrive at a more coherent and grounded understanding of the given task of teaching and learning. Brookfield's Four Lenses of Reflection provide a framework to ask questions, examine causation, and construct responses towards advancement and reformation (Brookfield, 1998.) Modifying

Brookfield's method of reflection to be framed within literature can lead to a more well-thoughtout presentation of practice for the classroom. This thoughtful composition is grounded in the thoughts of the various sources considered for their functionality to arrive at a greater overall expression of education.

Using Brookfield's ideals can challenge assumptions held by industry members and dislocate them for a productive view that can be explored and lived. This reviewing practice through the lenses provided within this methodology can make all more aware and willing to adjust appropriately towards the intended mission (Brookfield, 1998). Carefully reflecting on personal experience as the means to ask more critical questions contributes towards a more shared understanding of learning when expressed within an unbiased and open mind. Examining our own lives not only about how it may have felt but furthermore how it can lead and teach the individual and others is not to be disregarded. Viewing the education topic through the lens of the learners' point of view presents a realistic experience of how a learning experience has proceeded for their growth.

Expressed interest or boredom can be valuable tools to tailor adjustments for more significant student influence (Chin, 2006). The colleagues' experience ultimately serves as the critical mirror of reflecting the image of ourselves that can sometimes take us by surprise. This can change assumptions, carrying of power, and determined values to form a space of greater transparency and equality (Brookfield, 1995). Last, as Brookfield (1998) presents, is the inclusion of literature. Contributions to the broader knowledge community seek examples and thoughts supporting personal ideals to become expanded and more concretely composed. Allowing this process of critical reflection influences the method of extrapolation and further infusion of learning systems to be thoughtful toward the intended goal of this thesis.

Furthermore, grounding thoughts in various lenses can instill change and advancement into education.

Review Process

Diving into research utilizing the Brookfield method with the following questions, this study will attempt to shape and guide the literature review for its further culmination in the proposed learning guide.

- How does the publishing body contribute to the promulgation of learning to demonstrate creativity and influence in teaching and learning (Guzey et al., 2016)?
- Is the intended purpose of the literature in review striving to foster educational leadership and teaching to create a learning environment that reflects the material for the student's application?
- Can the source function to teach learning within the formal classroom and expand the focus towards a learning mentality for life (Walker, 1995)?
- Do the views provided by the published author seek to instill a focus on collaborative learning that incorporates local and global citizenship (Howell & Scales, 2017)?

Letting the intentionality of these questions serve as an overarching lens in the literature review can aim research toward the composition of a reflective guide for serving as a future tool in curriculum development and teaching expressions. Integrative concepts from various sources, reviewed through the lenses of Brookfield, will be gleaned for the guide.

Allowing for an expansive inclusion of sources sets the stage for specific and related themes to be exposed for their noted contribution and similarities. Exploring a variety of authors to be in consultation with one another affords the opportunity then to be able to view and arrive at a more in-depth understanding. Constructing a view that begins with basic foundational

content knowledge, core beliefs, and the idea of the overall mission to educate is elementary. As with any structure built within the physical world, a firm and sturdy foundation for forming thoughts is needed to comprehend further information (National Research Council, 2011a). It is essential to understand what is entailed within learning and the mission, and, more importantly, the purpose of the intended message (National Research Council, 2014a). Drawing upon various authors in identifying the necessary reforms requires an acceptance and productive application to teaching and learning. Reformation is not only the institutions established to function as the means to convey knowledge to students but even more so how education can reflect on the current culture is supported (Asunda, 2014).

Structuring the development of the presented content in a means that asks questions through various circles directs comprehension and reflection toward the education task. Drawing attention to the role of the teacher within the structure of institutional learning can be refocused to be in congruence with the proposed themes (Bybee, 2010). Forming the classroom environment to be directed by the teacher who does not dictate facts to the students, but incites learning to originate from the hearts of the students' interior desires, shifts the mode of education to become authentic and formative. Placing importance on the "love of learning" can be mirrored and grown by a learning environment that recognizes this style to foster student formation (Immerwahr, 2008). Reviewing the concepts provided by STEM education as a functional practice of content integration and learning through a project and inquiry-based learning can lead to a more in-depth learning environment.

Making room within the education conversation for the inclusion of Augustinian educational theory, which takes its influence from the ancient philosophies of Augustine of Hippo, demonstrates the timeless contribution it can make to the modern classroom. Stressing

the place of Interiority and Reflection towards a given discipline and, more profoundly, within the role and position of the teacher and student can aid in the intentionality and mission to educate the whole person (Kelley, 1999). Addressing the intentionality to shape learning by recognizing the tri-part composition of the human person, involving formal learning systems, and suits the need for greater human and societal flourishing (Miller et al., 2019).

Refocusing on how the technical components of STEM and philosophical aspects of Augustinian Pedagogy can be infused within one another towards a more holistic means to conduct education is sought to be presented. The formation of the student learner to become engaged and committed to the desire to explore and search for knowledge continually will call for a refocusing of institutional education. Shifting individual silos of disciplines to a style that is integrative and related towards a shared purpose and drive to foster intellectual and human development widens the scope of learning (Moore & Smith, 2014). Forming the learning community to embark on the journey of life through the classroom, which is congruent with the outside world of the learner, can lead toward more excellent preparation to face the needs of society (National Research Council, 2015). Grounding learning within the Augustinian core values of Truth, Unity, and Love can foster educational institutions to become places of authentic learning (Scianna, 2006). Utilizing critical reflection in research and constructing a mode of knowledge to address a wider berth of themes culminating in the proposed learning guide seeks to meet a wide range of needs to foster education towards a new expression.

CHAPTER II: LITERATURE REVIEW

Among the assorted topics in exploration for their more remarkable synthesis and formulation, the insights and views offered by those within the fields of STEM, Holistic Education, and Augustinian Pedagogy, although varied, supplied consistent themes. Examining these fields utilizing their intellectual contribution to the greater goal to be sought presents their needs and drive for their domains. They are calling to be congruent and even supportive in their greater focus. To provide the reader with an understanding upon which to be built, constructing a view that begins with the basics, foundational content knowledge, core beliefs, and the idea of the overall mission to educate was discovered.

Foundations

The necessity to adequately communicate the building blocks of any program or project, either within the creation of a product to be manufactured or a learning system for a school, requires congruence and buy-in from several realms that encircle education. This then calls forth one to pay attention to the foundational components of the learning framework. Establishing how the interested parties view the mission and purpose can lend itself to setting the preverbal stage for further development. Ryoo and Winkelmann (2021) recommend a ‘ground up’ philosophy for creating learning environments essential for productivity and longevity within institutions of education. Before there can be even the slightest development of curriculum or the training of teachers for the craft, forming the setting and culture to be one that views several authors note the intended purpose (Fuller, 2001; National Research Council, 2009; Roehrig et al., 2021a; Sanders, 2012; Stohlmann et al., 2012; Wang et al., 2011). Since there is a relatively high level of ambiguity that encircles the types of education presented, leading and creating a culture that can approach and accept the practical implementation and learning schemas can lead to a

common understanding by the institution (Sanders, 2012). Lessening the number of unknown categories by breaking down the components entailed and starting with basic notions to reconstruct the framework in the presence of a learning community. Supplying historical factors to the purpose and intention furthermore lends itself to showing the content and skills to be acquired by learners. This again calls for providing the appropriate training for teachers and educational institutions (Fuller, 2001).

It is then crucial to be foundational in crafting a school culture and learning environment for conducting a learning system and foundational in the presentation and sequencing of content. This then calls for teachers' training to have clear goals and expectations that focus on guiding students in critical thinking and metacognition to meet the demands of society (Roehrig et al., 2021a). Keeping a shared understanding of the learning model in tracking goals for students and teachers calls for this foundational outlook before classroom instruction can even commence (National Research Council, 2009). In addition, the National Research Council (2014a) points out that the mission and purpose of the intention for expression are critical for any traction to be made in this program.

Drawing from the philosophical concepts and views to be conducted by the contributing partners involved in education, how the curriculum and learning environment is driven to a theme of foundational comprehension and content presentation. The National Research Council (2014b) has been a great contributor to promoting this cause; from several resources composed in light of STEM education over the years, their focus on first addressing the critical aspects for learning to be productively crafted and executed by teachers. A clear understanding of what learning is to entail for the formation of students needs to be met with well-prepared teachers to take on the mission. Teachers require teacher preparation programs that convey the philosophy

of STEM learning to guide and adjust their pedagogical style from conventional to one more in line with modern themes (National Research Council, 2011a). Providing students with clear goals from the teacher is thought by the authors to prepare and foster a classroom built upon the spirit of the STEM model (National Research Council, 2011a).

Leading students to build upon previously learned knowledge to formulate and lead to student student-prevention is vital. Student-formed groups and projects promoting investigation and discovery within the various realms of education are challenging for many educational institutions (Stohlmann et al., 2012). The strength of producing a foundational outlook and viewpoint for learning style can then seek to mitigate the stress by comprehending a firm understanding. Spending time composing and reflecting on the overall purpose of education, the school's mission can bring a more concise and comprehended knowledge of what learning entails (National Research Council, 2010). Building the base in not only the viewpoint of the broader scope of education as a whole is to entail, but also the involvement of the teacher, their role, and the means in their learning and teaching to the students presents having a firm foundation established.

Lack of Understanding/ Research

The struggle that has plagued educational programs, particularly STEM, is the need for more direction that further lends itself to confusion and the inability to conduct a productive and effective program. Ernst et al. (2017) contributes to the conversation of STEM education in that there needs to be a shared understanding of what is entailed, there are lesser shared understandings amongst various educational circles, but those are varied in the conception and integration of institutions. That lack of a universal outlook on the topics addressed in STEM education requires common comprehension. These challenges and constraints entangled with

STEM must be addressed and acknowledged for a productive and practical implementation for learning environments (Herschbach, 2011). A systemic means for conducting research and gathering data is then called for to lead toward more significant curricular development. Guzey et al. (2016) informs the reader to examine the core disciplines entailed through STEM by carrying out formatted research and program formation. Therefore, establishing a classroom with clear goals for STEM has not been done before, according to Kelley and Knowles (2016); it can then lessen the confusion and struggles that have plagued STEM's promulgation for the modern classroom.

Coming to seek and strive for an influential learning platform then requires not only a lessening of confusion through creating a mission and vision that is a part of STEM but also a shared culture and language for conversation to partake. Wang et al. (2011) highlights that there is little shared language about what integrative STEM education is supposed to entail, which creates inconsistencies for all the parties involved. The basis of not only having commonly held ideals of what is to be progressed through this learning process requires a shared consensus. Further, since no solid and universal understanding of STEM education exists, any more profound program development method is futile (Thibaut et al., 2018). These fundamental building blocks for productivity must be addressed. It becomes even more necessary for a learning system like STEM due to its principal core disciplines. Being that educational institutions more commonly track Mathematics and Science presents a greater struggle in how various subjects are to be examined with one another (National Research Council, 2009). Engineering and Technology then highlight a battle since there is an even lesser-known understanding of what it means within education. Technology's role in its place and comprehension presents even more confusion, as Herschbach (2011) noted, into what and how

technology is even to be understood and its place within STEM education as one of its cores. Noticing the differences and applications between traditional vocational and engineering technology is necessary for conversation, and shared reflection on the type of student needs to be addressed by the institution. Coming to the formulation of a shared understanding and focus of exploration to research and construct a productive learning system that addresses the modern needs of students calls for a more congruent collection and review of data and analysis.

As educational research is critical for composing and implementing programs, Sanders (2012) highlights little to no research studies written to understand the results of learning through the style. Therefore, creating a data collection system for schools is required for even the slightest development for a greater understanding of STEM learning. Those components to be highlighted are not just data from student performance but should also include teacher preparation and curriculum integration (Stohlmann et al., 2012). In the end, given the limited amount of data collected within the field of STEM education, rewarding educators and construing a measuring system for collection is vital (National Academies of Sciences et al., 2018).

Roehrig et al. (2021b) promote a clear and concise framework to explain a unified and detailed STEM education. He goes on to have concrete learning goals and strategies for implementing STEM for the learning atmosphere before anything else. Holding on to a foundational model into how and what STEM education should be thought of and conducted as becoming intertwined within gathered research and data to shape such a platform. Implementations from a concise understanding of this teaching style and learning will then lend themselves tremendous success in institutions of education. In the end, there is firm contention

for the productivity of this learning style. Still, there needs to be further motives and concrete student formation for it to be implemented practically (Mahmoudi et al., 2012).

This fault of not having a composed and definite concept of implementation for teaching within the style presented can show itself more concretely than in the lack of learning standards. The National Research Council (2010) proposes that since there is a need for learning standards and other vital components that go with a learning system of this nature, it comes with great difficulty for its successful implementation for schools and institutions of education. The fruits that can benefit from the standards' composition touch on the various aspects of the learning system in the examination. However, the ambiguity surrounding the topic creates a sense of dissension and confusion about oration as a tool for gaining knowledge (International Technology Education Association, 2007). Having STEM education placed into the hands of individual schools that need more understanding of how to incorporate and construct a STEM curriculum properly only exacerbates the issue of consistency across the field of education. Programs such as Next Generation Science Standards aim to promote the learning style afforded through the themes presented by NGSS for further advancement. Roehrig et al. (2021a) then seeks to develop a clear and comprehensible scope of what is needed with STEM learning foundationally and see the overall spectrum of what learning entails in all its facets.

Reform

Reformation of the current education climate for the institution and the overall conducting of learning is required. Approaching this task with the spirit to question and more intently strive to review and reflect on the structure of how education is conducted will contribute to creating changes for a better adaptation to modern society. Breaking down the current systems prevalent within many institutions of education affords learners and faculty the

space to retrospectively and wholistically approach the topic of education in forming graduates to be competent members of society (National Academies of Sciences et al., 2018). Furthermore, restructuring the means of how learning and teaching are conducted as a whole and how to approach the needs of students in the best application and utilization of crafted curriculum is told by Ernst et al. (2017). He continues to say that not only is a curriculum to be reformed but the training and culture of schools and teachers who carry out their roles are just as crucial for a productive shift. Policy reform and taking small steps for introducing lessons and programs to be field tested for their productivity demonstrate to educational leaders how lessons can then be retrofitted to suit the needs and abilities of student learners (Bybee, 2010).

Letting go of traditional teaching styles, learning, and teacher preparation is then needed for a change in the culture and tone of how education is conducted within institutions strived to place precedence on the students rather than ways that may be convenient for schools (Khan & Law, 2015). Several authors note a shift in the culture that can be present within some schools as the cornerstone to instill and create a more cohesive and accepting environment to suit the needs of the modern-day learner. Allowing for thoughtful experimentation and constructing an educational system that seeks to integrate content with its practical use in the world outside of the classroom will then require a greater demand for educational leadership to allow for such shifts (National Research Council, 2011a; Thibaut et al., 2018; & Walker, 1995). Stressing ingenuity and teaching in ways that involve student-based activity learning experiences than pure lecture and content regurgitation assessment is supported by the National Academies of Sciences et al. (2018). In addition, the conventional systematic approach of learning that sets students to work towards a goal or grade rather than their intellectual formation needs to be updated,

according to Miller et al. (2019). Therefore, the demand to construct and communally develop institutional guidelines in a learning program is essential (National Research Council, 2010).

Forming teachers and developing teaching preparation programs suited to train educators in response to these shifts relies on the institutions the teacher serves and higher education programs. Changing the role of the University professor to one that is evaluated more on their ability to teach and form those within their schedule rather than publishing research for the University is a foundational step in crafting a new culture in education (National Academies of Sciences, Engineering, and Medicine, 2018). Stressing the need and role of the teacher to serve as a mentor to guide is more congruent with the learning platform in this modern era. Additionally, instilling the value of the teacher as a co-learner with their students and the collective whole of the education field furthermore sets to be a more sensitive and accepting tenor in this new conception of learning (Klein, 2005). This comes, however, with the internal and individual effort to unequivocally ‘buy into’ the shift and proposed direction to take education. Young (2014) calls for a ‘change of heart’ for any ceded development to become noticed.

Being that knowledge accessibility is more significant than it has ever been in earlier generations, coming to understand and accommodate appropriately for learning will be needed for advancement in learning systems. Recognizing this shift in student behavior in gaining access to and applying information then calls for a deeper retooling of how to approach students (Klein, 2005). Expressing the interdependence and connectedness to present and guide teaching and learning calls for a more profound reflection for all parties involved (Miller et al., 2019). Drawing attention to the current adaptation for content materials engaged in STEM learning and the more critical means to examine student achievement are proposed to be essential by the

National Research Council (2013b). They go on to present indicators of judging learning program success in their implementation, which contributes to curtailing stagnation and instilling continual improvement to best suit the needs of students for their success post-graduation. Examining Science and Mathematics curriculums to be more inclusive of Technology and Engineering can lead learning to new heights and foster more significant application (Herschbach, 2011). The NGSS is one example that challenges traditional science learning standards to prepare students and teachers further to be flexible in content delivery and learning experiences. Still, it seeks to prepare the parties involved to be critical thinkers and be properly disposed to tackle various problems they may encounter during their lives (National Research Council, 2013b). Moore and Smith (2014) sets to present a series of critical themes for examination for a greater welcoming to reformation focusing on a Curriculum that integrates the STEM disciplines, Proper Professional teacher development, School structural changes to accompany this learning platform, and Policymakers to support and encourage this learning system to flourish.

The role and support of educational leadership to foster the integration of addressing the proposed themes to promote the needed shifts in the culture and methods of learning call for institutional reform. Kelley (1999) points out the dangers and traps involved within institutions, especially education, to be cognizant of, with which such power and influence can hamper development. Having an administration that views its role as supportive and not self-seeking will take significant time and energy for internal reform to blossom (National Research Council, 2011a, 2015). They remind us that promoting learning goals that seek integration among disciplines will also call for contributions from policymakers to be changed. A productive carrying out of the intended purpose of a STEM-based education not only requires an adjustment

in the means and sense of how education is conducted but will furthermore strive to understand the needs of students to be competent in the future. Taking notice of the accessibility to information, the students' access and use of technology calls into view the place and need of teachers to appropriately make these social shifts for a culture that is collectively committed and willing to adapt (Moore & Smith, 2014). Rethinking and coming to view teaching and learning as a whole requires a creative and thoughtful disposition for a well-conceived approach to the role and place of education.

Role of the Teacher

The Teacher then can be viewed as the person serving as the liaison between the academic institution and the students. Their role in presenting knowledge and content to be absorbed by the student learner is ever-changing. Their professional training as educators and how they see their position within the learning process must be considered. However, how they look to convey information to their students is proposed by several authors to influence and encourage learning by not merely dictating facts. Guiding and fostering an environment congruent to the promotion of teaching and learning can therefore be reimagined in style supported by STEM education experts and those skilled in Augustinian Pedagogy. In the most fundamental sense, the teacher can be seen through the eyes of Augustine to be performing a service to cultivate students to love 'the art of learning.' Appropriately using love as the primacy for any environment will later be discussed. However, this affects the overall educational setting, and therefore, teachers and administrators should make a more committed effort to promote such practices (Immerwahr, 2008). The teacher who comes to recognize that duty within education further sets the tone for progress within the classroom.

Comprehending education as not only intellectual growth but also as lending itself to forming the pupils to be adequately prepared members of society. Miller et al. (2019) sees the teacher's role as creating a space for the learner to explore and foster the wholeness of their personhood. Doing so in a way that considers the teacher a guide and person who facilitates that process of student discovery is influenced by the author's tone. Letting the students approach the solution to a problem or concept where the teacher encourages and supports their search can further help critical thinking skills (National Research Council, 2014a). Encouraging teachers to promote introspection and problem-solving as their primary tools in teaching is additionally noted by the International Technology Education Association (2007). Demonstrating to students the overarching task of learning for all brings the teacher into the sphere as a co-learner along with their students. Walker (1995) presents the theme as the teacher co-learner to place the teacher with the students to search and ask questions to create a learning environment that eliminates unnecessary differentiation among parties. This also demonstrates the internal desire and motivation to learn authentically to the student and teacher.

Personal reflection, highlighted in the following section, is just as critical to the teacher as it is for the student—spending time thoughtfully reflecting and comprehending their task as educators can afford to be a more functional conveyor of knowledge. Constant reflection and review of teaching styles and practices can therefore seek to produce better-honed learning units for students (Guzey et al., 2016). Being a practitioner of personal reflection concerning their teaching ability in how they impact students presents humility as an essential concept. When engaging in reflection and personal seeking, safeguarding oneself against the sin of pride can inflate one's ego. Limiting their impact and productivity within the craft of educating, humility, therefore, must never be forgotten (Howell & Scales, 2017). Howell and Scales continue this

thoughtfulness as it transcends itself to a teacher's ability to teach and ensure their students make learning their lifelong vocation. This way of living in the pursuit of knowledge requires teachers to know their students' motivations and challenges and loves to guide learning. Augustine reminds us that to be a productive teacher initially relies on teacher motivation and pleasure, and then curriculum building follows suit (Labinski, 2017). Knowing how to exercise the intellectual muscles of the students following their place in life is required to cultivate this love of learning and personal growth.

The teacher's enthusiasm and motivation to work within a servant leadership model towards their students have the teacher seeking the interests of their students so that curriculum can then be focused and modeled to meet their particular needs (McCloskey, 2014). Facilitating learning to captivate their motivations and desire to learn is suited to a classroom led by an instructor who is dedicated to the service of their students' formation (Franchi, 2011; Herschbach, 2011). Immerwahr (2008) reminds the reader that the enthusiasm of the teacher or its lack can quickly be translated to the students, even before the material is presented. Presenting material meaningfully and not winning their esteem through entertainment further requires the teacher's interior disposition to be focused (Jacobs, 2000; Stimming, 1999).

The words the teacher uses in their leading of the classroom material and their speaking to students is another area to be aware of when conducting the task of teaching. Simply dictating facts to the students for memorization without context is seen as a fault for fruitful education by Fernandes et al. (2017). Speaking the truth and reasoning of what a lesson can provide to the learner better conveys its importance and purpose to the student and the teacher supplying the class. Suppose the teacher is speaking dully or in a tone that is losing the classroom's attention. In that case, the students can quickly disengage and seek intellectual stimulation in other avenues

(Chin, 2006). Designing learning activities focused on problem-solving and inquiry-based learning calls attention to a shift in the operation of the learning environment (Asunda, 2014). Letting the student explore and carry out their education can be a struggle for those who want to control the setting, but it is shown by Stohlmann et al. (2012) to promote trust when carried out in STEM focused curriculum.

A person entrusted to such a crucial aspect of forming minds is continually searching and learning the craft. Humbly partaking in conversation with both the self and others in noticing their flaws and areas of improvement to be constructive and not ignored (Barnard, 2007). Teaching to rid the curriculum silos for a more comprehensive and fluid exposition of content for learning is the goal (Bybee, 2010). It is critical to a classroom environment that strives for student discovery of the truth from a teacher to empower their heart and minds for such exploration (McCloskey, 2014). Letting the students make choices and be culpable for their learning will take time to foster. Communicating their thoughts and needs to the teacher, who then can thoughtfully incorporate such needs into lessons and projects for a more open learning environment, is presented by Iwuanyanwu (2020). Therefore, the teacher is fundamentally there to promote a learning system, advancing from pure knowledge-based learning to one that leads students to explore the questions and becomes searchers and lovers of knowledge themselves. Therefore, how they construct their classroom dynamics and learning models depends on adequate training and development (Wang et al., 2011).

Teacher Preparation Programs

It then comes in part that if there is to be a new way to view the role and mission of the teacher, how they are trained professionally is to be given consideration. Eckman et al. (2016) reminds us of this reality. Teaching teachers to understand the groundwork of STEM seeks

integrated and adequately prepared teachers within such a framework. Teacher preparation programs that set a clear standard of what is needed from them as instructors and curriculum is primary. If not done by setting the mode of operation, any subsequent efforts will be made at a detriment or loss of effort (National Research Council, 2011b). Refocusing the format for professional educator training and continuing professional development will call for the overall field to rid itself of older traditional means to ones more relevant in responding to the content and student. The National Research Council (2013b, 2015) continues to present that equipping teachers with the means and resources to teach connection in areas within a connected fashion further promulgates the intention of this shift in education.

Approaching this subtopic can be progressed from a school administration that nurtures the intended outlook. Adequate preparations are to be conducted on a school or field-wide focus, then instill the themes to be undertaken by individual teachers for use in their respective classrooms (National Research Council, 2009). This culture of how education is viewed can then be sorted into content-specific realms that focus on a single topic and place their concentration in a relationship with several other contents. Multidisciplinary teachers trained to demonstrate the interconnectedness of all subjects and integrate their contribution to the world is the tone set by Guzey et al. (2016). He later goes on to disseminate the need to prepare for extended creativity in their pedagogical style and thoughtfulness to curriculum planning and presentations. Having such primary and continual development programs in place for educators is a challenge that Stohlmann et al. (2012) addresses. Since no such training exists, this exacerbates STEM education's difficulty within institutional education. Such meetings keep teachers in a state of ongoing improvement and constant adjustments to how best to suit the needs of students for their success (National Academies of Sciences et al., 2018).

Institutions then must acknowledge the need to form teachers and guidance for those currently engaged in the field. Having time set aside with the devotion to sort out content development to ensure administrators recognize sincere student engagement (Stohlmann et al., 2012). Refraining from rushing or simply checking off boxes for teacher preparation can provide educators with confidence and comfort, paying attention to their needs for authentic learning to be undertaken in curriculum writing for consistency and awareness by teachers to be impactful for their students (Ryoo & Winkelmann, 2021). Understanding the content knowledge of a discipline and forming them to recognize the immense connections surrounding them can be first in such preparation programs (Eckman et al., 2016; Stohlmann et al., 2012).

Additionally, touching on the internal disposition of the teacher for how they seek to be influential and supportive calls to mind the need for personal reflection to be inspired (Kanu, 2020). Being aware of vanity that can perpetrate into the teacher should be controlled in their foundational training (Stimming, 1999).

Starting with the intention for teacher formation to be in line with similar themes found in the basis of the educational framework can seek to promote and encourage the shifts presented elsewhere for education to be more in the tone of guidance and student integration and discovery rather than fact retention. Support from administrations and institutions of education for both students and teachers is to equivalently 'buy-in' if there is to be any considerable reform (Nadelson & Seifert, 2017; National Research Council, 2010). All rely on the nation to influence integration through training and the comfort of professional educators to ensure content is delivered appropriately. This approach and focus on teacher formation all relate to overall adaptation for the next generation (Han et al., 2021).

Student within Learning

Students, therefore, are the crux of any learning environment; if they were not present, then there would be no need for an educational institution. Awareness and responsibility for the objects conveyed to the student learners further solidify teaching and learning approaches. Viewing education as the formation of students to be competent in investigating topics and solving problems analytically and thoughtfully should be the cornerstone of serving the learner (Ernst et al., 2017). Conducting student-integrated learning to foster an internal disposition to continuous lifelong learning can be planted within the formal classroom for its fruit to blossom throughout the rest of their lives.

Regarding technical education, the National Research Council (2011a, 2014a) supplies various proofs to be acknowledged in serving the student. Not only are their formation as ongoing learners fundamental to the concepts of STEM education, but it further empowers them to contribute to the pursuits of society is high for consideration. Moreover, engaging the learner in a diverse, dynamic, and challenging learning environment can incite their interest in influencing curriculum development, according to Khan and Law (2015).

The curriculum should then be arranged in such a fashion that captivates the students' minds. This, then, can seek to expand their intellectual abilities and growth of knowledge and lead them to see within themselves a deeper meaning of truth and life (Canning, 2004). Furthermore, striving to have them recognize and acknowledge the interconnections of a discipline's content and themselves are sought to lead toward a more wholistically formed individual (Mahmoudi et al., 2012).

Additionally, Mahmoudi presents this view of the student to the creation of a society striving together for wholeness. Allowing Augustinian thought to respond to the lens to view the

student learner can support this agenda. Forming students to be lovers of truth through the curriculum can suit their physical, social, and intellectual status in life for advancement and growth (Barnard, 2007).

Addressing the needs of all learners and striving to teach them fulfillment and gratification to be future citizens who are both intro- and retrospective can be seen as the overarching mode of reflection on the student learner (Mahmoudi et al., 2012). Teaching for the student needs necessities not only for the institution to be aware of but developing the means of how to approach them best. Having an open mind and integrative pedagogy with constructed learning models are more appropriate to the needs of the learner within the modern era for their technical literacy (Khan & Law, 2015). Listening to the student and the greater society can then serve as the catalyst to create such learning structures. The Next Generation Science Standards is an example the National Research Council (2013a) provided to suit this demand. Tailoring courses and curriculum as a response will be addressed in subsequent sections. However, creating structures within the learning environment that guide and curtail learning to be student-centered emphasizes their ambitions and challenges for growth (National Academies of Sciences et al., 2018). Having the student explore open-ended questions with non-pre-determined answers can promulgate pushing their intellectual purists and coming to notice their interior response (Bybee, 2010).

Making sure STEM based curriculum functions as the road map that is then charted out in uniquely suited means can encourage more significant learning. Coming into a learning program that intends to respond to the students can lead them to become more adept with STEM's core disciplines (Crippen et al., 2015). Looking past the traditional 3Rs of education, in how materials are presented to students, to be more integrative and connected amongst one

another can seek to show the students a fuller potential to live as a learner and in the wholeness of their being (Miller et al., 2019). Forming them in this means demonstrates the needed flexibility for life outside of the classroom in how they engage and respond to the challenges that life will present in their future (Nadelson & Seifert, 2017). This teaching and learning modality, including STEM themes, serves the student and not the institution for convenience. Their organic and thoughtful formation can be shown following this style (Ryoo & Winkelmann, 2021).

Leading students to grow in their command and drive for investigation, to ask questions to problems, seek out solutions, and build models by using previously learned skills in congruence with updated content is fundamental for the student approach by Kelley and Knowles (2016). Joining fellow learners together in community with one another in their collective growth and individually for their contribution to the betterment of society stems from an understanding of the student learner as provided. Learning a ‘wholeheartedness for learning’ which transcends desire and search for the unknown is a higher realm in which to interpret the student’s role. However, this may not initially present as something that can show throughout a learning program (McCloskey, 2005). This requires a great deal of bravery and trust for it to function, and the classroom can afford to be made the perfect space for this work. Managing how the student is thought of within the institution of education is an ongoing task, as responding to particular needs and interacting with content for their overall growth (Moore & Smith, 2014). Striving for their full potential and inclusion in active participation is rooted in how they are first treated within the learning institution. Developing a curriculum to suit these needs is a part of the overall teaching and learning process. The school only interacts personally with the student for a fraction of their life. Reflecting on their environments and interactions with others, in particular,

their home life, can demonstrate the need for greater involvement of family to promote interest in learning for intellectual and life formation.

Learning through the Family

To comprehend the universality of the student and the learning process, recognition of the family, which fosters the student's overall growth, is an area to examine. Since a traditional student only spends a fraction of the day with a teacher, a functional family environment and involvement from the parents can lend themselves to striving towards a more conducive learning culture. Even from the basis of time, the formation of young people has been relied upon to be conducted within the home to nurture and teach them the process of life (Franchi, 2011). Their importance within our modern day is just as influential for promoting education. Starting with the parents or guardians who typically interact most with the student from birth is a foundational concept presented by Morahan (2006). Engaging the student within a learning-focused family life works to demonstrate that learning is not only done in a formal classroom setting but exposes them to integrative experiences outside of the conventional learning institution. This then seeks to further explain the theme alongside their parental influences to see an appreciation for lifelong learning examples for life (Reinking et al., 2017).

The National Research Council (2014b) saw family-involved learning experiences as positive in nurturing STEM literacy. Having out-of-classroom educational interactions influenced student learning while in the company of their family to engage deeper in STEM-related topics and critical thinking abilities (National Research Council, 2014b). The beauty of promoting the family to serve in a foundational role is paramount because the themes expressed among family members translate well to that of the school institution. Just as the nuclear family has its ups and downs as they journey through life together, the same feeling can be established

for the community formed in the classroom. Morahan (2006) presents and supports this view concerning an educational climate set through the lens of Augustinian thought. The emotional, physical, and mental traveling through the learning process allows the learning community to support and care for one another as they search for Truth.

Family involvement and a culture that seeks to function within this same tenor can transcend individual classrooms to build a family-like atmosphere for the entire institution of students, staff, and faculty. Sharing the common purpose to strive for the betterment of one another is the cornerstone of family life, and this engagement can be brought to produce a positive experience for all (Reinking et al., 2017). The author furthermore sees the demonstration provided by those older than the learner as a means of instilling the importance of learning by building relationships and dialogue among parties. Devotion towards a shared concern brought up through a communal learning environment seeks to create a sphere dedicated to intellectual and human development (National Research Council, 2011a). For this to be plausible, however, the National Research Council (2011b) recommends that professional educators receive adequate and appropriate training. STEM learning can then be conveyed and carried out to a more significant deal of effectiveness when incorporating a more extensive involvement of parties related to the students. Reflecting on a student's home life is thought to promote more internal supremacy toward learning for life (Yogis, 2008). Integrating this foundational concept towards a family atmosphere of education connects not just the students' motives closer together but provides a more shared concern for all.

Community Support, Educating for the Common Good

As the Family unit supplied a nurturing environment for the student to feel encouraged to learn and explore, reaching out into the broader community of the institutional school presents

itself to further progress learning as a pooled investment. Fostering students to have the ability to listen, care, and learn from one another in coming together with the purpose of knowledge exploration is a point that McCloskey (2014) presents within his work. Sharing life, like a family, is not just bound to a corporate concern. Still, one that is seriously invested in the betterment of fellow members rather than an individual student's earned grade. Coming together as teachers and students within an environment that focuses on the 'big ideas' of life to be explored in relation to one another can attempt to present various points of view for greater awareness of the world (Klein, 2005). Young (2014) additionally contributes to the importance of collaborative learning for articulating varied expressions and demonstrates the complexities of the human person individually and collectively as they seek knowledge in life. Shedding light on and utilizing the students as the books from which all learn has its ties back to Augustine's communal search for life and truth. In the most basic sense, a concern for the common good of the whole can be established and recognized.

Reflecting and learning in a communal aspect to seek not mere benefit of the individual but what can best be influential for the collective through formal education that can cement these notions together to provide a deeper understanding of what learning entails. Education for the common whole for intellectual advancements and healthcare has been shown to increase Brazil's overall health of its citizens (Fernandes et al., 2017). Shifting the general culture of being a citizen of a local community, country, and world seeks to open educational leadership's eyes to provide a more diverse and equitable education. Relating the importance of the collective whole as supplied by the groundwork of Augustine for the communal search for the good of all can then be translated to the formation of Augustinian Pedagogy (Young, 2014). Expanding the community of learning to not just the educational institutions but the broader scope of whom

these students will take one day service calls for the contribution of outside support and experience in preparing students best to be productive citizens and employees for industry.

Involving community members, professionals from various fields, and family input has been noted by Han et al. (2021) to lend itself to allowing learning to become more comprehensive and thoughtfully guided. This is something that the National Research Council (2011b, 2013b, 2014b) sees as essential, in several of their studies, they mentioned the involvement of stakeholders in support of learning. Investments and support from educational institutions, policymakers, and outside industrial organizations can create a community that places students' needs at the forefront (National Research Council, 2011a). Building these partnerships to establish a dialogue of constant reflection and adjustment to mirror the ever-changing environment is another critical reason to include outside views (National Research Council, 2014a). Having conversations and continual support for guidance and funding is a focal point that can be sought when the education conversation is widened (Herschbach, 2011). Using STEM-related disciplines to promote and foster this approach to expanding the seats at the proverbial table of educational formation can gain tremendous traction for advancing new innovative curricula.

Providing students with a learning system that engages them with contacts already in a particular field can heighten the quality of instruction offered to students for their ongoing success, authentically crafting curriculum and learning materials to engage students' interest and involvement to support their learning potential (Han et al., 2021). The challenge is then presented for progressing within formal education by having a sound and commonly shared understanding by the parties involved on how this type of learning is to commence (Sanders, 2012). Definitions, learning standards, outcome goals, and data collection frameworks are

additionally presented by Sanders (2012) to show their plausibility. Equipping the students with the skills required by industry to suit their needs best requires establishing this community dimension. Comments from stakeholders and the coherence of educational leadership support their commitment to these ideals of what life offers, which are well suited for the next generation (National Research Council, 2010).

Leading students to hold knowledge of STEM-related topics through a shared dialogue of leaders within industry and educational institutions can facilitate a better STEM education program (National Research Council, 2013b). Forming them to be open and caring for one another in the local classroom and expanding to acknowledge their global citizenship to be innovative and thoughtful in their choices and actions stems from the place and importance placed on the role of the community by its expression. Joining together in communion to search for the truth of the world and beyond is challenged by a society that has become ever-individualistic and drives us to reorder how one fundamentally establishes communication pathways. While in communion with others, it is also imperative to recognize the brokenness we all possess and to not shy away from it as bad but to embrace and allow it to grow within us into greater self-knowledge (McCloskey, 2020). Expressing our mistakes and faults within a responsive space led to a more integrative learning environment.

Learning from Mistakes

Failure is commonly a thing students and teachers want to avoid. This is combined with a negative connotation and is seen as a detriment to the learning process. However, that is the opposite, as proposed by authors in research. Both contributors to STEM education and Augustinian Pedagogy understand this innate fact of life to be very formative to the learning process. Allowing failure to happen while conducting learning through project-based learning

and innovative learning experiences is fundamental to teaching the students how to accept and then use that moment for their overall growth (Fuller, 2001). Engaging with reflection tools to develop a deeper understanding of why a fault may have occurred while carrying out a problem or project as an individual or group lends itself to forming the learner to be more aware of themselves. McCloskey (2022) writes extensively on acknowledging our flaws and brokenness as a pathway to deeper, more profound growth that can radiate outwards toward the wider community. Accepting our incompleteness in this life, McCloskey (2005) can be a liberating moment to free the learner from the ever-present tension to perform outside of their authentic self.

The teacher then is also someone that can benefit from this recognition as well. Evaluating their teaching style in how they were or were not able to reach their students on a particular subject can help them advance their teaching abilities. Supplying opportunities for teachers to offer and accept feedback from their students and preparing the teacher to receive and learn from negative criticism is vital to human formation (Fuller, 2001). Letting the teacher's faults be shown to the students appropriately can also break down the barrier between the student and teacher for a more communal atmosphere in the classroom. When examining STEM education models, Guzey et al. (2016) writes that learning from failure is critical to having them grow as engineers and competent adults in society. Letting the student and teacher come together in a broader reflection to accept the incompleteness of life and learning then strives to progress the wholeness of the educational process. Taking incompleteness in life can be a liberating moment for all. However, this can only be supported by a learning community steeped in knowing how to use this fact (McCloskey, 2005). Teaching styles that guide this coming to the truth for all parties within the learning community to be appropriately formed and function

towards a means that sees all experiences as formative. Teaching and learning are to be guided towards a style that supports all forms of education to lend themselves to the formation of the human person in all their various aspects.

Community of Teaching and Learning

The Community, formed for the established relationship between learners and teachers to provide greater care and support for all, can evolve into a deeper extrapolation for how learning and teaching are commenced. A formed group of those seeking to grow their knowledge basis through the communal efforts of exploring and searching calls for a creative approach to progressing the communal aspect of the classroom. Creating a learning environment that promotes educated thinking and the creation of both virtual and physical models to be further explored is a topic provided by Fan and Yu (2015). Fan and Yu see this variety of learning to be more in line with Engineering themes in their pursuit of knowledge. Creativity and allowing the students to feel safe from worries are also needed to grow into the joy of learning (Immerwahr, 2010). The intentionality of first building up the learning community and providing support for its fostering to support the proposed learning style calls for continual awareness.

Teaching and learning, then, must be something that is not only built upon a community aspect but additionally function as formed communities that are personalized for the group and the student's individual needs (Ryoo & Winkelmann, 2021). Coming through this means growing and conveying knowledge to student groups and showing them how to grow with their members for a lifelong community. Shifting our understanding towards one that looks at the entire process of education as an 'ecosystem' of learning lends to a more comprehensive and, therefore, educationally minded framework for the betterment of all (National Research Council, 2014b). Fuller (2001) suggests 'studio time' or moments that draw the learners to practice and

explore the task being directed can build their confidence level by increasing their knowledge of skills for their proficiency within the workplace following graduation. Connecting contents in completing formative assignments that lead to their overall development as human beings are proposed to flourish within a learning environment arranged in this nature. The National Research Council (2010) encourages school environments set up in this way to require constant review and evaluation. However, it can be challenging to demonstrate to the students, teachers, and educational leadership that STEM learning can be found in all aspects of life (National Research Council, 2014b).

Presenting themes in a formal educational structure that encourages inquiry and design learning experiences relevant to the student's real world for valuable connections can be lived out in this arrangement (National Research Council, 2015). Adequate preparation for the teachers and letting the students understand how learning will take place can lessen the struggle with more traditional classroom models. The role of the community of practice incorporates relationships with others and the connection between disciplines to become a more concise and realistic place for all who take part. Demonstrating the need to establish dialog and communication intertwined amongst the focused learning directive can instill this proficiency and form lifelong learners (Kelley & Knowles, 2016). Understanding how to address the creation and setting of these classroom methods comes with adequate training of teachers and support staff for success. Shifting the outlook of the student, in general, will require a great deal of effort, as told by Roehrig et al. (2021a), for such programs to come to full stature. Shifting the culture around the school in the placement of students and how learning is conducted brings additional focus to comprehending the overall knowledge transfer.

Transfer of Knowledge, Learning Process

In the most basic understanding, education can be seen as information or content conveyed to students for intellectual growth and development. Beginning with the notion that the learning process takes place within the individual through exposure to the metaphysical light of knowledge, words set forth the intellectual journey in uncovering the ability of the learning agent (Chidester, 1983). Leading the student to be captivated by information that excites their desire to grow and expand the knowledge in which they have can be considered the hallmark of any learning process. Focusing on how the human person gains knowledge and fundamentally learns is required for a thoughtful and meaningful curriculum to be developed for the benefit of the students (Yogis, 2008). The learner's search for understanding originates in fostering a love for learning and truth (Franchi, 2011). Turning to Augustine for guidance in this area directs the reader to focus on intellectual development to view those engaged in the education process. Augustine's doctrine of creation through the Christian lens, creating the material of knowledge as a product of this process, begins as light by the influence of the Divine for the enlightenment of the learner (Chidester, 1983). The light, therefore, when viewing the learning process, can be seen as the light of a candle flame. It must remain lit for its sustained life to continue the flame's burning. The same can be seen in learning content that has to be ignited by the educator and continually fostered and fueled for the ongoing development and journey sought in this process.

The types of knowledge to be conveyed to the student and introduced in the learning environment can be arranged then in a method that ignites the learner's intellect for their love of growing in knowledge to take place. Beginning with the basics of a discipline for further development is fundamental to the thoughts of Fan and Yu (2015). Once this groundwork is established, the progression and introduction of more advanced concepts and ideas can be shown

to the student. Using Engineering learning activities as a delivery means for them can then seek to demonstrate higher-ordered thinking in identifying the problem, determining the solution, and leading to the final approach to solving the problem in an accumulative fashion (Fan & Yu, 2015). Engagement with the content for the student to be enthusiastic about exploring knowledge afforded higher progress in the learning system. Engaging the learner in activities that mimic play through a structured format can give rise to the student's interest in a more organic upliftment of knowledge growth (Miller et al., 2019). This engagement with the learning schema should encapsulate the students' minds and souls toward the importance of continual self-directed formation.

Counteracting interest in learning is fought with boredom which can hamper any educational program. The teacher's awareness of student interest in a topic and understanding of a particular field draws the curricular process as a gauging tool. Boredom is not something the educator should be afraid of or shy away from, but allow it to serve as the litmus test towards the conduction of the learning environment (Chin, 2006). Honing their teaching skills through this lens is a balance that must always be related to the mental capacity to keep their mind and body involved. Constructing a curriculum to ensure these traits for the style of teaching and learning will involve deep reflection for the curriculum writer. Turning to Augustine, Chin (2006) references *De Catechizandis Rudibus* with boredom as something that all are susceptible to; if a lesson is moving too fast, then the information will be seen as a flash leaving the student unconsumed and uninterested. On the other hand, if content delivery progresses too slowly, students will seek stimulation in different ways that may not be in congruence with learning.

Awareness of time as it relates to the student and teacher guiding the class can be relevant in content presentations, student activities, and retention. Relevance in arranging relatable

content and cognizance of the learners' ability lends itself to being productive in the learning system (National Research Council, 2009). Separating knowledge in procedural and conceptual spheres is fundamental for any future production of the student. Teaching 'how to do' versus 'what it is' is a question for consideration of what is essential to suit the needs of the modern student (Fan & Yu, 2015). Arranging a context for helpful learning material that the student can utilize after the formal education period strives to see the learning operative in a tri-part fashion of content, practice, and connection (National Research Council, 2013b). Barnard's (2007) explanation of the concept of learning thoughts that were present during the time of Augustine, his thought process, and recorded view of education to be a reflection for the modern learner all lend themselves to show how the old ideas can contribute to our modern day—creating a feasible context for the content to be used to integrate for the establishment of a cohesive learning environment. It furthermore offers an outlook on modeling curriculum (Moore & Smith, 2014).

Contextualizing topics within a style that expresses concrete examples of what is being taught for authentic learning to take place calls upon the inclusion of self-reflection to make internal connections and interactions within the world around them (Asunda, 2014). Teaching in a way that leads the students to search out the problem and solution rather than hold the correct answer is the primary shift in this learning style. This, in part, draws attention to the student's need to accept the world's ambiguity. Knowing how to search out resources and draw well-intentioned thoughts to include a problem can lead to a better comprehension of the world and personally for the individual student (Klein, 2005).

An example of presenting Math and Science content can be arranged in a style that supports the concepts to form a stronger union among disciplines, leading them to become well-formed graduates of the world (Stohlmann et al., 2012). The teaching process moves from an

individualistic approach to the disciplines taught to a more comprehensive promulgation. Using Engineering design and being aware of how to incorporate the variety of subject matters that interconnect one another into the overall context of STEM learning will shift learning from the ‘silo’ form of education (Moore & Smith, 2014). Striving for a mode that uses various subject areas and reflects the learner’s and teacher’s overall world can lead students to be adequately formed thinkers for their contribution to society.

Dialogue and Communication

Teaching and dictating knowledge from learning materials to aid in conveying the content of educating students falls on the need to communicate effectively. Communication in the classroom from teacher to students and among students then calls to mind how this can promote dialogue and the search for knowledge. Living out the communal aspect of the educational environment naturally springs forth practical and thoughtful conversation. Presenting thought-provoking questions to significant problems can engage and instill a communication mode to tackle life’s various challenges (Reinking et al., 2017). Having the curriculum foster this dialogue in asking questions and communally exploring solutions from the different life experiences of the students gathered can seek to then not only promote a greater sense of the other members and the directed problem in examination. Communication and cross-discipline content utilization and implementation can enable students to be cognizant of the goals of STEM education, for not only the learning program’s mere purpose but also its role in advancing society (National Academies of Sciences et al., 2018).

Letting discussion take place can strive to create a more fluid approach to gaining knowledge by agreements and the division that can bubble up, among others (McCloskey, 2005). Letting love prevail in a tone that sees all views can lend itself to creating a more diverse and

comprehensive learning environment. This calls for proper conversation to be practiced. Growing in teams and communicating through learning activities that support the students as individuals and learning groups can strive to be another skill that can be introduced to them in the classroom and carried on with them throughout their life (Guzey et al., 2016). Seeing the importance of dialogue among others with conversation and within the self through reflection can ideals that can be supported by a carefully constructed learning curriculum. Dialogue expressed between student learners can function in the communal aspect of completing design projects or problems. Diving deeper to understand the types of words used in the learning process and presented themes as the foundation to either aid or hamper a pedagogy's productivity.

Use of Words

Therefore, words are the key to presenting learning material to the students by the teacher, conducting fruitful dialogue among students, and setting up an understanding of a learning system. In a world that has constant communication with words, either verbal or written, the careful selection to choose the proper words to guide the learning process is imperative. Thibaut et al. (2018) notes that the overuse of words within circles of education regarding initiatives and programs causes much confusion and an inability to the program then. This is especially noticed from the numerous STEM learning programs that demonstrate the stalemate within research that results from the need for a commonly held definition of what these programs even entail. Constructing a 'shared language' to be held within a classroom environment and by educational leadership to limit the words of the block can have on our intellect is to be addressed (National Research Council, 2014a). When too many terms revolve around the same topic, the ability to be in the same learning space can be lost (Thibaut et al., 2018). Staying consistent with

how a program is to be understood in a common theme is then lending itself to progress deeper into its overall goals.

Shifting the focus to the teacher's use of words when they direct learning is then something that can either make or break a class's success. The words the teacher uses are imperative to lead students to search for knowledge (Howell & Scales, 2017). The quality of instruction provided to the students within the learning environment is therefore hinged on the ability of the teacher to present and foster the students' interests. Relying on the personal humility of the teacher to know where the students are situated in the learning process is used to gauge when to speak with specific means (Jacobs, 2000). Feeding the students with words that do not teach will not produce intellectual fruits, like food with no nutritional value. It is necessary to know what the teacher is speaking and writing during their lessons and how they portray their lives to one another in building a mutual searching relationship for truth (Kanu, 2020). A constant awareness of how a teacher speaks and writes should always be under continuous reflection and consideration.

Since language choice is the foundation of communication and conversation, sharing thoughts and ideas with others is a far superior teaching method and building among learners and teachers (Howell & Scales, 2017). Letting authentic and realistic speech radiate the mouths of those participants in the classroom to blossom towards further exploration as a communal effort is stringent on how to lead the dialogue best. However, Scianna (2006) sees that fundamental learning can only be achieved by the individual but can guide and lead them to enlightenment through the words and symbols of the teacher. Letting this enlightenment take place for student learning to grow and form them into lovers of learning is a dual responsibility. The teacher needs to be functional in their written word, but the student must also be able to converse in written and

verbal means to convey their integration and absorption of the material (Yogis, 2008). Setting the course of action to stem from a foremost concern of what and how to speak is needed for learning to progress. Be it in the classroom through the student and teacher's proficiency in communicating the learning goals of professional curriculum writers, being coherent and striving towards a shared language of understanding lessens unnecessary confusion. Involving the nomenclature of industry to shape the words unitized, especially with STEM contents, then serves to craft a curriculum that is not only relevant for the content but furthermore equips the students to be adequately prepared for their entry into the workforce (National Research Council, 2015). Using words to describe them and convey the message of a lesson or greater discipline presents the inclusion of the lives of the students and teachers to create a more realistic learning community.

Real World and the Lived Experience for Learning

Since the formal schooling period of a student's life only involves a mere fraction of their probable life expectancy, incorporating the world outside the classroom to be infused within the learning program can contribute to a greater connection to life. Drawing on the utilization of learning content to be expressed through a realistic approach for the students to become more aware of the importance of learning calls for the curriculum to include actual situations from the world. Cultivating the capacities of the mind for a more profound unveiling of knowledge utilizing the bodily senses of the lived experience is a mere glimpse into the realm of something greater (Chidester, 1983). Incorporating real-world issues to demonstrate a more comprehensive view of the world's influence reflects the interconnectedness of everything (Roehrig et al., 2021b). Seeking to be purposeful in creating learning content that has the student look outside of

the class to comprehend how the content is congruent with their overall life experience can influence that desire to grow and search deeper within a discipline.

Making learning relevant and motivating students to engage with the instructional materials is another critical point for the learners to be successful and prepared for society (Guzey et al., 2016). Within this thread, real-world problems that make practical use and application of technology should be seen as tools to promote effective student learning environments (Wang et al., 2011). It is not only meant to include the utilization of real-world examples to be framed for learning content but to include the personal students' life experiences to shape and guide their learning can be monumental.

McCloskey (2014) included that teaching through the lived experience of students and communities brings the classroom into the lives of the students and teachers, for all are continual and mutual learners. Activities that ask questions for the student to reflect on past moments of their lives in how they may be feeling towards a practical lesson can shed light on how they may be personally feeling towards that lesson. Addressing the learners in personal recognition but expanding them in sharing life experiences with fellow students can demonstrate the unique lives of all. This can then seek to foster a more profound sense of community. Learning in this way also emphasizes the importance of the experience of life for the individual and collective. In the inward search, interpersonal relationships are required to advance toward a greater understanding of the self and the whole (Young, 2014). Thibaut et al. (2018) additionally supports the grace that can be gained by including an authentic life to be lived, having the student engage with content in a wide range of contexts and disciplines simultaneously through such experiences. Translating this to be expressed in the classroom then calls for its practical implementation.

Including Career and Technical Education traits for a curriculum offered to students where they can physically connect within actual content can be put into practice along with the overall comprehension of the skills to be in future environments (Asunda, 2014). Curriculum that is meaningful and thoughtfully composed to refer to these fundamental world skills for technical abilities and even other fields. Carrying out design projects that apply to the direct lives of the student within that given life state can influence their formation and desire to learn. Teaching makes connections to not only the content across several disciplines but also the needed flexibility in noticing the ongoing life changes that can be fostered within an educational style that Klein (2005) presents. Breaking out of the traditional silo format of institutional learning is more respectful to the lived experience of all world citizens. Being purposeful in integrating learning concepts over several disciplines and reinforcing real-world application skills can lead to a more positive use of the STEM curriculum (Roehrig et al., 2021b). Addressing the modern needs of the students from a learning framework of the individual STEM core areas and how they are presented calls upon educational leadership to craft a framework to align with the requirements of being literate in society (National Research Council, 2011a).

Calling upon reflection for learners and teachers to be productive in their educational pursuits is a continual process. Implementing teacher preparation programs to be practical and applicable to the students negates the disconnect from theoretical coursework for its actual execution within the classroom (Eckman et al., 2016). Eckman furthermore seeks to promote internships like learning experiences that make application of Math and Science skills within an industry setting. Instilling content and answering the student question of ‘when will I ever use this’ can be minimized when a curriculum is structured around this format. Making connections between curriculum and integrative concepts to be demonstrated in other means through

involved learning activities will not only instill the place and relevance of the different core subjects. However, it can additionally serve as a tool to captivate learners for further educational endeavors (National Research Council, 2009). Understanding that curriculum is limited in the scope of actual real world connections calls for curriculum to be more reflective and relevant to the outside world of the student and teacher (National Research Council, 2014b). Modes of learning that utilize lived experience serve to not only influence the individual but call to action the entire community to search for Truth mutually (McCloskey, 2005). This search is a restless journey as McCloskey goes on to write within the approach of Augustine. The intention is to let the life of the students' world contribute to more practical learning. Allowing this to influence formal curriculum development in the learning platform will show how the curriculum seeks to progress and suit the overall function of established educational programs.

Curriculum Sequencing. Teaching for Formation

The formal curriculum that is composed and utilized in the learning institution then serves as the guide for how information is presented and experienced by the student. Viewing the curriculum as a tool that helps the students rather than the students remaining stringent and coerced to what the plan dictates. Being thoughtful and cognizant of the types and meaning of how the curriculum is constructed, implemented, and evaluated is told by Khan and Law (2015) to be something that lends itself to producing thoughtful graduates ready for the challenges of life following their formal educational experience. Shifting education from an 'ends-mean' learning style will require much adjustment toward teaching to demonstrate the connection between the course and actual life application, as previously mentioned (Herschbach, 2011). The content that is then formally constructed to function in the learning mode that aligns with these themes. Drawing students to learn continually from their knowledge will allow them to express

themselves through creative and engaging learning experiences with open-ended means (Herschbach, 2011). Arranging the questions to be asked by the teacher to explore and search for answers outside predicated selections explores a broader scope of what a correct answer may be. Making learning meaningful from applicable content lets the learners recognize at they already know and then become introduced to additional content to expand their minds and abilities (Roehrig et al., 2021b).

However, even though it can be beneficial to group contents together through an integrative format, the National Research Council (2014a) still supports the essential separation of discipline information as the means to convey these ideas to the students. Integrated learning includes an infusion of disciplines, which can foster students to become more involved and interested in a particular subject. Promoting connection and capturing their attention and imagination stimulates their intellect to be more adept and prepared for the current and future society (International Technology Education Association, 2007). Letting learners see the interconnectedness of contents which could have traditionally been seen as separated, is something that the ITEA stresses. Teaching in this tone with a supporting curriculum can contribute to guiding engagement and intellectual exploration. Structuring learning that starts within this approach to various contents breaks down the silos that once held specific disciplines for a broader range of learning to foster (Nadelson & Seifert, 2017). Creating this fluid sphere of education encircled around a common theme is purposeful in highlighting the various connections and contributions to bear much fruit to further learning progress (Wang et al., 2011). Evoking students in multi-subject content draws them to pursue a more profound understanding and application of the content to be successful in this ever-changing world (National Research Council, 2013b). Guiding and learning students through this greater, more in-depth approach to

learning can be challenging and requires a rethinking on behalf of educational leadership and teacher preparation programs.

Educating in this style of integration curriculum then needs to be aligned with teacher and learning styles that are engaging and approach to draw students towards the love of learning, not confusion. Setting intentionality in the learning environment to show the system's goal for their recognition and use (Nadelson & Seifert, 2017). When examining content and discipline as the singular subject, highlighting themes such as Cross-, Multi-, Trans-, and Interdisciplinary is a complex endeavor that presents several styles in structuring a curriculum. With the various modes of content construction, the previously mentioned styles, though varied, ultimately lead to the same overarching goal to combine an infusion of learning content. Addressing the individual benefit of each type of use involves further study of specific learning communities (Roehrig et al., 2021b; Wang et al., 2011). Allowing the basis of STEM education to be the focal point of curriculum creation, not just holding the traditional cores of STEM but a more comprehensive inclusion of other contents can be the jumping-off point to reform education.

Leaders in STEM promote using learning experiences and exercises that shift themselves from pure informational lectures to accumulative assessments. An activity-based curriculum involving students in a discipline is the beginning of themes (Herschbach, 2011). Learning activities that instigate critical thinking outside of the text to comprehend and examine the world around them are a learning culture shift through thoughtful and safe curriculum design considerations (Reinking et al., 2017). Fostering students to search for knowledge in their intellectual and human formation is more integral than a mere grade; this will call for a change in the learning culture. Using skills and concepts from various subject matters that involve STEM and beyond can create a learning environment that seeks to have students be investigators of

knowledge rather than just absorbing facts (Iwuanyanwu, 2020). To be more reflective of the student's real world, having these ill-structured problems carried out in project-based learning can strive to be a more comprehensive means to instill student interests. Relying on project-based learning and opened-ended (ill-structured) learning experiences for the learners can significantly contribute to fostering their intellect to respond better than when learning is conducted within a closed box void of outside influences (Nadelson & Seifert, 2017). Then, a curriculum arranged systematically to display congruent themes and applications lessens the disconnect that can ravage student learning capabilities. Sequencing themes to align with one another promotes and guides a more cohesive learning experience for all parties involved. Letting learning activities, regardless of their shape and style, demonstrate the apparent themes and applications can afford itself to overall productivity (Herschbach, 2011).

Redefining the role of curriculum to serve the students' needs to engage and foster more in-depth engagement in their learning comes from how the curriculum is written and directed towards the students. Examining curriculum as broad in clustering related subjects through relevant means is more in-depth than the traditional correlated system. Going beyond the application of Math within a Physics course only shows a mere tip of how both subjects can be lived out in the world (Herschbach, 2011). Curriculum that works through one another in co-presenting themes and topics as working together has been shown by the National Research Council (2014a) as successful. Letting the broad field of Engineering drive a learning curriculum is where multiple contents can become one focus toward a common goal. Engineering learning can then be shown to learners as a design process and research capacities from students to research, reflect, and evaluate solutions to problems by using several disciplines to complete their tasks (Roehrig et al., 2021a). Applying technology to function in application to teach and

lead students to understand the needs for and how to engage with the technical advances of the world appropriately is something that is hoped to be cleared in this new approach to education (International Technology Education Association, 2007). The importance of having a curriculum be influenced by several avenues to engage and direct for a more comprehensive educational community will be seen to be functional as a better method of student formation.

Presenting tasks for learning that draw the learners through engineering, asking, and synthesizing content on a broader schema demonstrates better knowledge retention (National Research Council, 2015). Not just letting these ideas be reserved for academic circles but expressed in the classroom needs to let learning standards shape this endeavor. Developing a learning system that instructs the various core disciplines in STEM education means that they are relevant and applicable to learners and can lend themselves to the formation and shift in the overall culture formed within the circles of education (Bybee, 2010). Leaders and teachers who are attentive to this need to be investigative and systematic in their curriculum need a well-thought-out adaptation to already constructed standards. Such standards for Technological Literacy were designed not to set strict curricula to be followed but to provide teachers and local school leaders with the tools to curtail themes for their particular students (International Technology Education Association, 2007).

Furthermore, Herschbach (2011) informs the reader that since STEM is not a solid learning platform but represents a style of learning in our current understanding, 'STEM' has continued to be used as a blanket term for any educational program that is remotely connected to the disciplines of Science, Technology, Engineering, or Mathematics. This only exacerbates the issues of coming to a solid communally held definition of how to foster students to fully grasp the foundational element of STEM to respond to the needs of society. Leading students,

therefore, to search for knowledge and build upon what they have already learned in other courses or from outside the classroom can foster an excellent intention for lifelong learning (Herschbach, 2011). The structure of how content is arranged then will require collective knowledge and reflection to move away from single-course instruction to something more in tune with the intricacies of the world.

Problem-Solving

Inclusion of content that leads the students to engage in the solving of multi-level problems will make sure the content is more in line with enhancing the educational experience. Problem-Solving in the means that presents the question to be ill-formed, being that there is no clear answer towards the completion, can be utilized for a more comprehensive learning exercise (Iwuanyanwu, 2020). Moving beyond traditional multiple-choice tests to involve the students in relating the learned content within a more realistic structure is proposed to push them to a greater understanding. Including big and small challenges that are ‘real’ in their nature can lend itself to preparing the students to succeed in their future endeavors (Fuller, 2001).

Additionally, it was noted by the National Research Council (2011b) that students were introduced to a learning platform through an environment that focuses on problem-solving and learning through project based-student centered approaches. As a result, they typically contributed to overall standardized test scores. Applying problem-solving in the teaching and learning content then calls for a shift in how students are introduced to base content and further empowered to search for how to utilize the information. Given the complexities of society, a heightened ability to focus on the problem requires one to draw upon various sources for inspiration in coming to a solution (Klein, 2005). Allowing Problem-solving and Inquiry

exploration to be at the heart of the learning system, however, brings about a deeper discussion on appropriately introducing it within the institution (Wang et al., 2011).

Iwuanyanwu (2020) proposed that older contextual lecture-based learning modes could be lessened in their use for more problems arranged in an open or ill-structured format. This demonstrates the utilization and interconnectedness of disciplines, especially within a STEM-focused classroom. Having students struggle and intellectually wrestle with problems suited to the proposed nature will produce graduates who are prepared for the real world and the slew of the issues they may eventually face (Iwuanyanwu, 2020). Retooling the classroom structure to accompany such a technique in challenging students to connect and further instigate their learning or intellectual conquests. Teaching by design projects and learning experiences through a more integrative means by including such ideals in their approach to problems leads to a style of education that can be more reflective of life outside the classroom. Having students learn how to process, question, and seek a solution to a given assignment can then aid the students to be more self-motivated and capable in various contexts within and outside the school building (Sanders, 2012). Letting projects that draw the student to seek an approach to a solution is furthermore proposed by Sanders (2012), and letting design projects include concepts such as Math and Science to be a part of the overarching exercise can be the pathway to becoming a more integrative and wholistic practitioner of knowledge. Connecting contents and disciplines by thoughtful methods for a more comprehensive learning style is something curriculum writers and educational professionals can strive towards in forming learning materials to be more reflective of life.

Connections in Learning

Building and letting content be joined within the learning environment can be a mode to integrate disciplines and lessons for the student. Creating and promoting learning seeks to demonstrate the connections and the various contents of how the practical application of a skill can be conducted to cement the ideas better for the learner (Sanders, 2012). Being meaningful in how to link a discipline integrally or by including other topics can be easily adapted towards promoting a higher expression of education. In reference to STEM learning, being integrative and enacting cross-discipline with content areas for learning will demonstrate the interconnectedness STEM concepts have with one another and how to draw students in making the connection internally towards the direct subject matter and beyond their being (National Research Council, 2011a).

Recognizing the relationships of the entire person and the role and place of education to serve as the link in this joining together incites an intention to demonstrate this link to the students and administration. Integrative topics that touch their souls and allow them to grow and become nurtured are further deepened by Miller et al. (2019). Examining the student from a transpersonal perspective leads them towards a more connected view of their place in the world and the subsequent events that can be noticed. Linking and demonstrating the connection between core concepts to use the ideas and better contextualize the ongoing learning process can then draw the student to a deeper internalization of the content being taught (Roehrig et al., 2021a).

Having a concerted effort in place to strive for a more connected curriculum comes with caution; however, Roehrig et al. (2021a) notes that the mere number of contents being disciplined is not the overall goal, but the quality within the explicit content that is administered

to the students. Impactful integration for coming to the broad spectrum of education can be productive when implemented and supported by teachers and the overall learning institution. Consistency in this shift of connecting content can help teachers to work together toward this common goal (Thibaut et al., 2018). Reimagining the view placed on learning material and its exposure to draw learners to the greater relationship among typically disconnected curriculums places not only direct the importance of a particular subject matter but learning as a whole, integrated process (Reinking et al., 2017). Striving to see how this can be done brings into question another critical aspect of formalized teaching and learning, grading student performance in coming to comprehension on the part of the institution in gauging how students are taking in the information leads to an examination of assessment styles.

Assessment Styles

Being able to gauge and understand the effectiveness of a learning program then relies on formal assessments to be administered to the students. Not only can these be used further to comprehend the students' internalization of the content, but they can also help notice where a teacher may have fallen short of the ability to guide the students. Assessing content absorption has been seen as archaic and not conducive to practical intellectual formation. Setting students on application rather than mere content retention provides a more realistic evaluation (National Research Council, 2015). If the prepared curriculum is constructed to be in tune with this ideal, how learners recall information after its initial presentation should be more integrative and comprehensive than a mere multiple-choice test. The National Research Council (2013b) furthermore stresses that the assessment style should be within the kind that lets the learner apply the information in an actual world situation. Engineering design and inquiry are essential aspects of this framework to assess performance rather than mere memorization (National Research

Council, 2013b). Understanding that an individual's access to information can be recalled by using the internet, judging their ability to process and find the content can be more feasible.

Shifting the gravity of high-stakes testing placed within the educational institution has been touted as ineffective for the learner through the lens of Augustine (Barnard, 2007).

Implying creativity by educational leadership to be more thoughtful in how they ultimately understand a student's proficiency towards a subject will call for a deeper reflection on the whole. Conveying a new way that is in line with the times of the modern student to foster their abilities and intellectual endeavors comes with innovative methods in teaching as well.

Examining new means of content delivery for students and envisioning new ways to assess and evaluate student growth can lend themselves to creating a framework that suits the needs of the individual student learner (Ryoo & Winkelmann, 2021). Application assessment is viewed as much more in line with life's journey. As one learns the material, it is not until they practice and repeat its use that it becomes more internalized and part of their being. The National Research Council (2011a) provided a system under the BOLT acronym to dive deeper into a more comprehensive assessment tool.

However, the lack of a cohesive means to evaluate student performance in its overall productivity towards the students' growth of knowledge is a challenge for many STEM programs. Roehrig et al. (2021b) sees that when evaluating a program's strengths, a more fruitful process than simply checking a list box is to be used. Creating a learning space that does not hinge student performance on mere grades but seeks to instill the overall love of learning and exploration is a needed adjustment for the modern classroom. Letting students show what they are learning in how it can be executed outside of the traditional classroom can lessen the stress placed on tests and grades and more to that of trying and exploring (Walker, 1995). Seeking to

build a learning space that motivates students to learn and not just take a test demonstrates a more holistic and humanistic approach to the student learner. Being that Assessments are just a piece of the overall learning environment, letting them be a tool to grow and not the end of the course calls for a more profound shift in fostering curriculum construction.

Integration for Education

Paying closer attention to integration within the educational sphere can be carried into practice for the success of deeper learning. Moving past a style of education with bits and pieces of content that eventually exhausts the students from learning further is what an integrated education can lessen. When bits of information are presented without a real-world overview of their purpose, it can lead to a lack of absorption and an inability to apply the taught skill (Roehrig et al., 2021b). Taking a purposeful look at how to come then and unite learning to be more fluid and complementary of one another is how the topics are influenced. Integrative learning, when used, can seek to be congruent with the overall mission of education and strive for greater productivity aside from the traditional separate-subject curriculum model (Herschbach, 2011). An integrative education model can achieve a comprehensive learning system that uses various pedagogy styles and works to develop the whole person (Khan & Law, 2015). Therefore Khan and Law continue to write that integrative education that includes technical and developmental human skills is essential.

Modifying learning within the institution to be more unified with one another can be combined in form and function for a modern expression of educating and teaching. Being integrative and presenting materials through a cross-discipline means increased student interaction with content material and their awareness of their place and interaction with the world (Han et al., 2021). Having the communal dynamic present within the classroom and the greater

institution of education can support and encourage teachers to work together for a more profound sense of integration towards their teaching style. The Community of Practice then creates the context for student learners and teachers alike to see that cross-discipline, community engagement, and collaboration are foundational for providing a healthy and involved learning environment (Han et al., 2021). Connections to develop and foster integrative learning are not just for the student but also for the curriculum structures that support education.

The curriculum formed for its use within the classroom requires a thoughtful reflection on how it can help the students to recognize and grow from the combined knowledge. Connections to develop and foster integrative learning not just for the student but also for the curriculum structure are to be closely viewed (Roehrig et al., 2021b). Even examining the term ‘Integrative learning’ calls into question what it even means to the greater educational community. Coming to a shared universal understanding of how it can be expressed is critical for any formal documentation or framework (National Research Council, 2014a). Allowing integration to take place in the STEM learning mode can be fruitful ground to not only come to a greater understanding of Integrative learning but also letting it be expressed around the STEM themes for its practical explosion.

Allowing integration to be present in the cultivation of STEM programs can lessen the difficulties many schools face. Ernst et al. (2017) reminds the reader that the main struggle with STEM education has been the primary approach to teaching and learning. In many cases, understanding awareness of integrating the curriculum so that disciplines can converse with one another is foundational for its success. Simply eliminating the segregated course structures and courses placed in separate silos does not lend itself to being more functional for the learner. Ernst et al. (2017) supports several elements in the conversation for curriculum composition: Goal,

Essential Questions, Authentic Problems, Purposeful Content, Critical Thinking, and Performance Assessment. Allowing Ernst's ideas to serve as the roadmap for curriculum creators can provide more meaningful content to the students.

Blending the core disciplines of STEM allows students to interact with learning experiences involving problem-solving and design projects. Deliberate and meaningful ways to show the students the understanding of the disciplines with knowledge and linkage of recognizing that interconnectedness is essential to STEM education (Roehrig et al., 2021b). As a result, Wang et al. (2011) noted different perceptions of integrative STEM curricula. Integrating a true sense of technology is the most challenging aspect of comprehension for education. Allowing problem-solving to be a key to student involvement can be very influential. Placing a greater emphasis on Technology and Engineering through the integration of Science and Mathematics can contribute to fostering learners to utilize these different tools to be leaders for the next generation (Bybee, 2010). What makes Integrative STEM different from former technology education/ industrial arts curriculum is the overall function of the models. In traditional learning methods, the flow of information leads from the teacher to the students, who then retell the information to the teacher on an assessment or through demonstration of a skill (Sanders, 2012). Following the premise of the integrative style of teaching and learning, teaching the students the process and how to question and seek solutions to a problem is more congruent to forming them to be self-motivated and showing capacity in various contexts outside of the school.

Letting integration be present in the learning system to allow for the subjects to be infused and in recognition of one another is what can be afforded by a firm commitment to its inclusion. This system can flourish by supporting content and allowing for a broader scope of

awareness and utilization of other disciplines aside from the central theme (Crippen et al., 2015). Having the disciplines interact to convey information to the student learner can lead to productivity post-graduation (Nadelson & Seifert, 2017).

Additionally, explaining and contrasting curriculum that is not based on a singular skill but a wide range of contents through problem-solving and inquiry-based activities. Applying integration from both the content perspective and student learners' cultures and life experiences can seek to form their entire being (Klein, 2005).

STEM learning's function and role in the overall schema of education can then strive to support and progress an integrative educational model. Letting the core disciplines then serve as the basis and promote a more reflective learning community that is not only steeped in the core subjects but also has an awareness of their overall place in life is where STEM ed can encourage change (Thibaut et al., 2018).

STEM Education

Approaching one of the main fields of study, STEM education, examining its intended purpose of inclusion within the field of teaching and learning can bring about a more profound understanding of how to practically implement this teaching style in schools. From its start, STEM education has been a model learning system based on the disciplines of Science, Technology, Engineering, and Mathematics. Asunda (2014) provides that an intended goal was to prepare students to be adequately equipped for the demands of a technologically based world. As industry and modern life have become more inundated with literacy within these subjects, leaders within education have provided a more integrative effort to form students in these fields. However, the struggle that has been uncovered is that there has never been a clear definition of what a STEM program should entail (Crippen et al., 2015). This has caused much confusion

about how it can be practically implemented for schools already working in a set way of segregated subjects. Thoroughly reflecting on models that can support a more straightforward function and inclusion into institutions of learning is called for by Moore and Smith (2014). Integrating the concepts of STEM, therefore, can be sought through Wang et al. (2011), who proposes a four-pronged method: Experience, Social, Knowledge, and Curriculum Design as the cornerstone in how to build a learning experience to be thoughtful and applicable to students. Having the student guided by a teacher in not only applying content knowledge but building upon what they already possess intellectually can result in a well-thought-out and developmentally integrative STEM program.

Focusing on real-world problems, a centrality to engineering, content integration, 21st-century skills, and informing students of careers is sought by Roehrig et al. (2021a) for STEM's framework. Being purposeful and innovative in teaching in a way that sees the use of the core subjects in a greater schema can lead to more outstanding student and teacher success. The goal is to move beyond merely applying the label of 'STEM' to any program that remotely addresses a discipline and to form and foster a technical mindset in solving problems and embarking on design projects (Bybee, 2010). Starting to foster an engineering mindset for the learners to find solutions will seek to equip them in their ongoing endeavors. Taking the Block and Tackle disposition of STEM learning platforms is beautiful in how the different subject matters revolve around one another towards letting Mathematics be the language of it all (Kelley & Knowles, 2016). Initiatives and programs are then sought to be arranged to make the individual core principle clear to the students by demonstrating its actual world use for life (Crippen et al., 2015). Choosing the means of curriculum and tools to engage the students in projects and learning guides can reimagine how STEM-related education is conducted.

Initiatives such as Project Lead the Way and the Next Generation Science Standards focus on the inclusion activities to deeply interact with the content and foster the connections between disciplines through project-based learning (National Research Council, 2015; Stohlmann et al., 2012). The challenge of initiating a STEM-based program in a school can be lessened by staying connected to such learning standards to the needs of the student body and teacher skill set (Stohlmann et al., 2012). Allowing these standards to become infused and carried out in a partially crafted plan for a school can then strive to promulgate program effectiveness.

Additionally, the National Research Council (2013b) proposed that a mode of evaluating and analyzing a STEM educational program's productivity be established to gauge its impact on schooling institutions. Monitoring progress and examining the structure of how STEM learning is partaking within the school's overall curriculum leads to joining teachers and stakeholders in the conversation (National Research Council, 2011a). Letting the different learning models based on Problems, Projects, or Inquiry-based learning along with a cooperative and designed learning style sets the stage to present the unique pedagogies in how to lead student learning (Thibaut et al., 2018).

Assessing the national need for a more technically literate workforce to respond to the growing industry demand sets the STEM curriculum's function to be paramount (Crippen et al., 2015). Conversing with schools, policymakers, and industry leaders furthermore calls for STEM learning to be applicable to meet the demands of society (Ernst et al., 2017). Bringing in concepts from various STEM-related disciplines can enhance learning in engineering curricula. However, the National Research Council (2010) calls for it to be done in a way that includes realistic problems through a cultivated engagement that allows for the expression of ingenuity

and technical creativity. Structuring a STEM program around the areas of Recruitment, Retention, Recapture, Quality Assurance, and Quality control within a practical STEM program then is something that can create the groundwork for the concept of an educational program that is meaningful for those who lead and participate (Crippen et al., 2015). Integrating the core STEM disciplines to explore one another and inciting the mindset of the greater world can be provided when a STEM learning program is in tune with the various aspects presented.

Holistic Education

Continuing to strive towards an educational framework that sets to form student learning in a multidimensional way, highlighting the influence of Holistic Education is another asset that can lead towards a shift in the culture of learning. Looking to educate the entire person is the groundwork for how to view this theme (Bardon, 2001). Acknowledging the student as a holistic being, comprised of three main parts of body, mind, and soul, can then attend to educational leadership to address this more in-depth view of the student and see the fullness of the human experience. Therefore Walker (1995) attempts to present that learning materials and contents to be constructed in such a way as to demonstrate these connections to the student learners to allow them to reach their full potential in life. Learning to be in touch with the entire being of the student and even the teacher can provide a more comprehensive and inclusive learning environment (Mahmoudi et al., 2012). Arriving at some balance in life through the formal education process will prepare them for their continual journey.

Therefore, the curriculum following the theme of Holistic learning should be approached in a meaningful and relevant way to the learner's various needs. Crafting the learning experience to be one that is in touch with the tri-part being of the student contributing to their overall interaction and desire to grow within themselves can then foster a societal change (Miller et al.,

2019). Letting the student and others in the learning process retrospectively look inwards towards their personhood and recognize the presence of the ‘inner teacher’ is a theme that Augustine supports within the role of education and the formation of souls (Bardon, 2001). Letting holistic education be built upon relationships in how they are expressed and presented can seek to connect the learner to their interior selves and the wider world (Miller et al., 2019).

STEM learning can contribute to this function as well. Arranging a STEM-based curriculum that incorporates the actions of noticing and reflecting on how various technological concepts interact with one another through engagement can look to foster skills and the traits for a more comprehensive graduate (National Research Council, 2014b). The fluidity of education then requires the leadership of learning institutions to know how they bundle concepts together for their greater use and context of learning (National Research Council, 2013b). They argue that this expression of the learning environment can be lived out by adopting NGSS learning standards, allowing students to see the entire piece, not just particular topics, for forming a technical graduate (National Research Council, 2013a). Balancing talents, education, and life experiences seeks to develop the maturity to become a more complete and holistic person (McCloskey, 2014). Moving to let the learning system not only nurture the intellectual capacities of the participants but also to recognize a more comprehensive understanding of the person and incorporating such themes into the overall structure of learning can then try to embody the wholeness of life through learning (Howell & Scales, 2017). Letting a holistically minded framework be invited into the greater schema of education can foster and develop the student to become a more outstanding thinker and participant in life’s journey.

Diversity and Cultural Awareness

Addressing the views to allow education to be more comprehensive in handling a broader scope of the human person internally can also seek a greater awareness of the world and its cultures. Demonstrating to students not only the interconnectedness of contents to learning but also their global citizenship can influence students to take on the world's challenges to promote peace and well-being to all (National Research Council, 2011a). Utilizing group discussion and implementing cultural awareness for the student and the localized society can bring a new meaning to a lesson in the learners' lives. Promoting love in the class and the role of education in helping others can instill a desire to care for others (Kanu, 2020). Letting human dignity be spoken of and connected to a lesson can instill this desire for greater awareness of our global citizenship (Canning, 2004).

Letting the teachers and institution support an acute awareness of diversity to be conducted locally within the classroom and how to respond and interact with a caring disposition to all people. Approaching problems through learning experiences that connect to social, political, economic, international, and environmental concerns seeks to cement the need for learning to instill a more just and peaceful world (Roehrig et al., 2021a). Drawing this attention to the integration of the world and greater care for a communally focused society can spring forth from a learning environment that is more culturally diverse and aware (Miller et al., 2019). Teachers and students can be influenced to be more aware and expressive of the world's vastness through meaningful inclusions to expand education's power on the planet.

Augustinian Education as Holistic

Holistic education seeks not only the formation of the intellectual part of the student but strives for a more total encompassing and acknowledgment of the entire person. Educating the

whole person is the message and mission of this learning process. Augustinian Pedagogy then welcomes and accompanies this mentality as laid out through the exposition of and introduction of the concept of the 'Inner Teacher' that resides interiorly (Bardon, 2001). Furthermore, since there has been a variety of resources gathered that respect several different cultures and geographic regions further highlights the use of this teaching model. Being holistic in education, then, will not only be helpful in students' superficial absorption of material but can direct them into seeing the world's wholeness. Franchi's (2011) application of Augustinian education is not only used to instruct theology but also to be applied overall.

In an attempt to construct a formalized view of how Augustinian education approaches and teaches the entire person, McCloskey (2020) establishes and presents this ideal as a circular movement from the self that flows outwards, cementing the need to be internally present to a degree before directing one's thoughts and actions to be involved in the greater world. Educators and administrations can then focus lessons to include and address a more holistic approach to the learner rather than being just a sponge for knowledge. The Augustinian Reflection Circle activity also attempts to create a circular motion of thoughts and ideas through our lived experiences, confessions, evaluations, and reflections (McCloskey, 2019). Teachers can use this tool to establish a better relationship with and understanding of their students. However, it must be completed individually and shared with a learning community through dialogue. These models and processes then demonstrate the journey of heart and mind required for fruits in formation to blossom.

Teaching holistically for Howell and Scales (2017) comes with struggles and a reordering of methods to teach pupils holistically and inevitably embody the information of a discipline. Being transformative in learning to convey a subject's importance directs students to have the

intellectual appetite to embrace knowledge to change the world and not seek selfish consumption. The gift and indirect outcomes of grasping a subject allow the learner to see the wider world and their place in it. Companioning students with a servant-teacher attitude demonstrates that the role of the teacher is to be a facilitator in the search for truth and life. Supporting students with learning struggles inspires pupils to empower their hearts and minds. Balancing talents, education, and experiences seeks to develop the maturity to become an effective and holistic educator. Employing the thoughts and concepts of this writing can be beneficial in creating a style of learning that addresses human formation much further than merely acquiring facts and data. Teachers who seek to promote this type of education in their classroom will equip learners to recognize the connection a subject area has to their personal lives and, therefore, can form their intellect and whole being (McCloskey, 2014). Shifting the teacher's mentality for how they live out their vocation and in the scope of their teaching ability is a tremendously unique characteristic and positive contribution that can be carried out by accepting and implementing Augustinian Pedagogy.

Curriculum and content material can be organized and presented in ways that touch the students to see their true and most total sense of themselves; however, though, the physical environment that is formed and concretely built to foster and assist learning is just as crucial for a productive learning experience for students and teacher. To meet the students where they are physically, socially, and intellectually located is essential in carrying out this pedagogy. Having spaces and classrooms built and arranged that exhibit and promote life and growth is just as crucial to the lessons the teacher presents. Furniture and lighting that is uncomfortable or distracting will hamper the students' willingness to learn. The influence of the physical building has a substantial contribution and effect on the students, such as wall color or air temperature

(Morahan, 2006). Finally, how content retention is measured is another realm for Augustinian education. Student evaluations that hinge on high-stakes testing is also touted as being ineffective for the Augustinian learner (Barnard, 2007). Engaging and welcoming the entire person of the student then is the mainstay of an Augustinian education. The person is a union of many different components, a variety of life experiences that have shaped and formed their being, so the educator should embrace and encourage the use of a wide lens. At the same time, teachers will seek to build bridges within themselves.

The Crux of Augustinian Pedagogy

Presenting the components of Augustine's education leads the learner to continue from understanding the fundamental aspects of the topic solely, there needs to be congruence amongst ideas to continue to extrapolation and practical implementation of this educational method. Inaugurating conversations on comprehending terms and educational philosophies will lend themselves to a broader acceptance and proper conducting in the formalized educational institution. Education and the act thereof are presented as fundamentally starting with the self. Continuing lessons will fail to have a profound and lasting impact if there is no firm and personal understanding and internalization of the student learner and teacher (Tack, 2015). The need and process to journey deeper into the mindfulness of the soul and to be of the individual will be touched on later.

Furthermore, Scianna (2006) says that learning can be achieved by the individual and guided to the Truth with words and symbols by the teacher. This reliance on truth and its conveyance leads to the means and practice of curriculum construction that seeks to implement those ideals. Truth's place in an Augustinian Education does not directly follow the functionalist models of some pedagogists but seeks to form learners to be influential searchers and lovers of

truth (Barnard, 2007). Formation of the human person to be a lifelong learner is the hoped for outcome, since the student may only be in the physical classroom for twelve years but will seek to live and experience life multiples of that.

Education's outcome is acquiring and possessing knowledge; the search for knowledge originates from the love of learning and truth. In particular, Augustine explains that one must have a solid foundation in understanding the scriptures and embody and live out their message daily (Franchi, 2011). The internalization and integration of information then will become part of the learner in how they present themselves to the world. Kelley (1999) suggests to the reader that it is necessary to acknowledge the presence of and the reliance on grace for humankind, which is fundamental to gaining knowledge. That extrinsic element of the human person leads and guides all in their tireless pursuit of intellectual flourishing. Establishing and equipping an environment conducive to learning, the act and process of taking in information, is quintessential for gaining knowledge. In progression, that learning space will not only make the practice of spreading or teaching come with greater ease but will foster a mentality where students not only take in information but also internalize and come to a personal understanding of the content rather than a superficial reiteration of facts (Jacobs, 2000). Learning for Augustine in the classroom is conceived in the students' minds, for it extends to all the different facets of life (Tack, 2015).

Teaching and learning for more effective implementation of knowledge for life endorse and promote learning for life. Learning to grow as a human person and member of society is mirrored in the pedagogy of utilizing lived experiences to propagate education for curriculum creation for learning. Revising and reviewing the content once created is imperative when constructing educational systems. Just as people change and adapt through the advances in technology and society, so must how the art of education is practiced. That lived experience of

the individual and collective whole should be addressed not only by educational institutions but acknowledged and included in their teaching. McCloskey (2005) reminds us of this continuum of the everchanging human being that must suit the students' particular needs, being comfortable with knowing that everything the institution does is an attempt to draw the perfect educational roadmap which will never be fully accomplished. These modes of learning that utilize lived experience serve to not only influence the individual but call to action the entire community to search for truth mutually. This search is a restless journey, as McCloskey (2005, 2014) writes, since coming from Augustine's Christian background, this human life is only momentary for the eternal life above that is to follow.

Additionally, it brings the classroom into the lives of the students and teachers, for all are continual and mutual learners. Fostering the ability to have students listen for and enact change from their different life experiences causes the learner to search for wisdom and truth (McCloskey, 2014). Augustinian education is much more than the physical classroom building but to be ingrained for the student's continual life of learning and discovery. The methods and movement of knowledge are pervasive in lessons or instruction suited to address the topics or needs of the class. However, how that material is written or spoken aloud is fundamental to transferring information.

Contemplation and Interiority – The Inner Teacher

Learning and education are conceptually a practice of the intellect in how the learner presents, is absorbed, internalizes, and actualizes content information. Augustine notes the concept of the 'Inner Teacher,' which exists in all of us and can only be accessed through listening and quieting from external distractions (Tack, 2015). Shifting the gaze from the things of the exterior to the internal recesses of the soul is understood to be where the indwelling of

truth resides. Enlightening the Inner Teacher through the practice of Active Listening and Humility are methods presented by McCloskey (2014) in which one can attempt to make progress within themselves. True and lasting education recognizes the Inner Teacher, shown through enlightenment by divine grace (Kelley, 1999). The process of first noticing the inner teacher comes about as means to connect the self through its various aspects. By accepting humility, the physical body or ego requires the learner to be still and present to their inner being.

Fostering the importance of interiority for learners and teachers alike can be difficult in an age where we are constantly bombarded with messages and updates through personal electronic devices. Promoting the disconnect from technology periodically and encouraging mindfulness activities such as meditation can reorder the soul into an appropriate status of being (McCloskey, 2019). Being mindful of the person one has become vital for promoting greater awareness of who they are and wish to be in the world. Labinski's (2017) attention to the importance of being reflective draws the doer into a deeper meaning of their role and mission in the world. Moving beyond the superficial, external world into a more centered view presents a new and unadulterated outlook for the individual and those who are joined together within the community.

The teacher's self-reflection on Augustine from his work, *Confessions*, is critical for the teacher and their quality of instruction. By viewing *Confessions* in particular, Stimming (1999) informs the reader of how Augustine saw some of the pitfalls of education. Given the nature of the position and status that a teacher can attain, it certainly affords the possibility to neglect the need for personal humility. Kelley (1999) also points out the dangers and traps humans have set for themselves with the power associated with positions of responsibility within the educational institution. In the end, when a teacher forgoes their self-centering exercises and becomes

absorbed in the human desires for affection and esteem, their quality of teaching and even life can be placed at risk for the wanting of self-achievements. Shedding light on some of the struggles teachers face then and embracing measures to realign themselves to their original goal and mission of the teacher's vocation will become evident to their students and be noticed in the overall health of the educational institution.

Humility

For there to be a formed relationship of any type, a necessary element is humility. Recognizing one's faults and accepting the incompleteness of this life can be a liberating moment for the learner. However, the methods and execution of how one teaches and guides others to truth is an area of struggle. Learning the 'wholeheartedness for learning' transcends desires to search the unknown. It requires one to enact bravery and love on the part of trust. Loving then opens one to humility and doubt that false appearances and sin can commonly mask (McCloskey, 2005). However, the benefit of this gift requires sacrifice and openness to self and others. Joining together in this search for recognizing the self cannot be done individually and foundationally involves the company of others to help this function of the intellect and growth of the human person. Comprehending this life on earth in the Augustinian mindset of it being a restless journey is a hallmark in the construction of this pedagogy. Acknowledging that the journey of life and education will never fully be achieved perfectly draws learners and teachers to form intentional communities out of love (Immerwahr, 2008).

More specifically, McCloskey (2020) synthesized Augustinian education with concepts within the Social and Emotional Learning (SEL) framework. Recognizing the advent and connection the modern-day citizen of the world has with technology offers suggestions to lessen the bind that our electronic devices have gripped on us and to rekindle the personal awareness of

the self and others through real-authentic relationships is presented. Self-management and awareness are vital concepts of SEL and of Augustinian Pedagogy, demonstrating the timelessness of such an educational framework. While in communion with others, it is also imperative to recognize the brokenness we all possess and to not shy away from it but embrace and allow it to cultivate greater self-knowledge and awareness. Ordering our love to be diligent and teaching us to love rightly grows a person's character and can radiate outward to enact societal renewal. Cultivating this personal seeking, the reader is reminded to safeguard against the sin of pride, which can quickly enter the student, requiring humility (Howell & Scales, 2017).

Looking for and noticing the frailty and incompleteness of our life is a much-needed step in growing as a student and capable members of society. The teacher must also be open to the transformative process of allowing humility to shape their person for the better. When the teacher humbly participates in conversations directed towards shedding light on areas of their life that may require more attention, it will facilitate the growth of self and radiate towards their students (Barnard, 2007). Humility, in its most distinctive form, has a tremendous need to be a part of the learning environment. Education and the formation of the greater person can take shape when it comes to conversation and lessons in appropriate and constructive ways.

Relationship

Augustine's need to commune with others in this life is a common theme that repeatedly presents itself throughout his expansive contribution to society. Regarding education, the place and primacy of shedding light on setting up relationships among the self, learners, family, and teachers aid in not only forming the student to be a more productive member of society but also furthermore in how they interact with all people. Having proper relationships formed is foundational to having productive education take place. Being creative and allowing students to

feel safe from worries is also needed if they are to grow into the joy of learning eventually (Immerwahr, 2010). It begins by setting forth the thoughts and construction of the types of proper relationships within the Augustinian educational mindset. This affords a more conducive learning environment that allows students to grow in their self-knowledge and value and in how they interact with parents, teachers, and fellow students (Morahan, 2006).

Examining the self as a composition of heart and mind is foundational for further thought and must be contemplated to the best of one's ability. Augustine stresses noticing these inner components; the relationship within the self between the intellect (mind) and passion (heart) influences the desire to learn and grow into a fuller person (Morahan, 2006; Tack, 2015). For Augustine, education of the heart and mind is built upon the bedrock of love, which is the only way to achieve true educational success. Fostering and allowing the individual students to see who they are in this newfound light of their being, the mentality of a restorative classroom endorses the theme of being *with* others and is conducive to a holistic educational experience (McCloskey, 2014; Morahan, 2006).

Before the student learner even steps foot inside the school building, the family situation of the learner is tremendous in shaping how the student will respond to instruction and the school environment. Therefore, there is a foundational need for the involvement of the family unit for the educational process to be successful and looks to allow everyone to learn regardless of their social or political class (Yogis, 2008). Examining the precursor to Christianity, Judaism, whose faith formation relied upon the family unit, builds a nurturing means for teaching a broad spectrum of subjects. Augustine then works at weaving together thoughts of religion and philosophical disciplines as he progresses into the life of a Christian and eventual Bishop in

North Africa (Franchi, 2011). The family is where the student has a place to feel safe, loved, and nurtured.

The quality and extent of how that is conducted will significantly impact the student's growth as they advance through the educational system. The parent's role and influence are central because the parent interacts most with the student. The *Family Climate*, therefore, is what sets the Augustinian school apart from others (Morahan, 2006). In consideration, just as the family unit traverses through the journey of life together with its physical and emotional highs and lows, so does a school community where all are focused on searching together for *Truth*.

Having the right relationships between teachers and students is foundational to having productive education (Immerwahr, 2010). The teacher must know who their students are, their love, dreams, influences, and fears, so that curriculum is formed to suit their needs, and to correspond and form a union with the learners initially. Howell and Scales (2017) remind us that when a teacher knows how to exercise the intellectual muscles of the students per their place in life, it is quintessential to foster a love of learning and personal growth. Being a teacher that comprehends what to teach and how it is to be taught is foundational for ensuring students make learning their vocation. A lifelong learner is something all people are by capacity, and the teacher not only serves as the catalyst for instilling a love for learning in their students, but also for themselves. As for anything someone does in life, it requires a push or desire for that person or group to set out on the journey to search initially. The teacher must foster encouragement and proper persuasion to pursue knowledge exploration for it to be mirrored and embodied by the students (Howell & Scales, 2017). Having a connection with the personal being of the individual, who is cared for and loved by their family, with teachers that are holistic in their approach to

establishing appropriate relationships with their students can advance an Augustinian approach to education.

Primacy of Love

Within all the plethora of concepts mentioned that form the structure of Augustinian Pedagogy, the foundational source for everything is Love. The primacy of Love mentioned by Kelley (1999) reminds us that if anything is not done with the slightest concern for self or others, it will have no place for the knowledge to settle or become a part of the learner. Teaching that is done without clarity of heart and mind will be done so in vain. Establishing and promoting love as the foremost critical principle condition for educational institutions and students. Also, learning conducted with the thought of being *with others* instead *for others* encourages the reader to rethink how they know the craft. Teaching students the art of loving rightly is the tool to suffice for greater growth in their student's ability to understand life experiences (McCloskey, 2019).

Building and forming relationships with others must be based on love. The love of self, love of students, love of teachers, and love of learning are vital components in this greater theme and keystone part of education. Immerwahr (2008) explains that relationships, friendships, dialogue, and community must be instilled before institutional learning occurs. The unity and bond of fellowship that can flourish out of this relationship to be lifelong learners is the driving force for the progression of education and the greater world (Labinski, 2017). Therefore, love is fundamental in any expression of schooling and life if the proper benefits are to be experienced.

CHAPTER III: METHODOLOGY

This thesis will use reflection from research and analysis for the composition that not only highlights the various aspects of the topic but also brings forth common themes for their fuller synthesis. Therefore, Brookfield's Four Lenses will guide the synthesis of ideas culminating in the deliverable learning guide (Brookfield, 1995). The four lenses allow reflection to be conducted: Self, Students, Colleague, and Literary reflection. This approach will then seek to support the research goals. Finally, utilizing a form of Brookfield in union with the thoughts and reflective style of Augustine of Hippo will seek to lend itself to the overall literature review. It will then generate the final learning model.

Rationale of the Research Process

Using this style of critical reflection in the methodology allows the gathered literary research to culminate in a realistic and authentic discourse addressing the topic in the examination. Thoughtfully examining the overall topic guided by the thesis in constructing a more significant learning model contributes to a more directed focus on how and whom this can affect the education community. Taking notice of the various parties independently and in conjunction with one another then lays the foundation for a more coherent and creative extrapolation of thoughts to join together for the promulgation of the intended purpose of the thesis. It was decided to go about this means of critical reflection due to the lack of empirical data on the subjects in attention for research. Allowing Brookfield's basis of reflection to relate to the content of STEM and Augustinian Education provided the author of this thesis a foundation on which to construct their thought. This style of research was chosen because of how it encapsulates the various viewpoints that are involved within the realm of education. Drawing attention to the different parties all partaking in teaching and learning through various capacities

introduces the need to observe and reflect on societal shifts to be the most responsive for forming students. Selecting this review method and research is critical in delivering content and directing education toward becoming more aligned with the modern world.

It is then imperative that through research and study of the various components, to be open to their message and critical towards its reliability and influence for the progression of the research goals as presented. Making use of the online database systems offered through the Milner Library at Illinois State University, the Falvey Memorial Library located on the campus of Villanova University, and the Paul Bechtold Library from the Catholic Theological Union provided an abundance of sources for further review and evaluation for their subsequent inclusion. Additionally, preliminary searches from Google Scholar provided research, and materials were also used to compile a wide berth of information to satisfy the research goal. Reviewing and coming to recognize the individual source contributions and evaluate their reliability, relevance, and innovation in how they seek to progress the development of Integrative STEM education was conducted. Viewing STEM through the lens of Augustinian Pedagogy brought the research into more profound thought and reflection for further review and construction of the proposed model. It was also essential to include resources from an international perspective due to the global connection technology has been able to lessen due to communication of sharing of ideas (National Research Council, 2011b). Widening the influence on international contributors and those who offer insights in realms not directly associated with the craft of education seeks to provide a more integrative scope to the accumulated research for synthesis and extrapolation.

Research Questions

While reviewing the collected sources and conducting thoughtful and reflective analysis, the following questions were asked for their later inclusion and reference to the collective composition.

- Does this work's publishing or sponsoring body contribute to the promulgation of expanding the human person, either through their direct or indirect reference to working towards a society that is more aware and reflective of their role in society and the greater world (Guzey et al., 2016)?
- Does the work highlight the areas of growth and productive components of the presented topic so that one must be able to extend critical evaluation on one's own body of writing (Fuller, 2001)?
- Can the source under evaluation be used for a broader outlook on the world or supply foundational thoughts that can lead to constructing a framework for further development?
- Is there a thread of innovation or advancement for working towards drawing attention to the needs of students and teachers to work towards the reform of educational institutions and a culture shift? With an ever-growing society advancing through the development of new industrial technology, the same should be reflected in how learners are taught and fostered to grow intellectually and in morals and virtue (National Research Council, 2011a).
- Through the inclusion of an authored source, does it present material for the nuances of education and the connection to the 'real world'? This should draw on the importance of the lived experience so that all learners, regardless of their age or status, should have their

formal educational experience suit their formation to be competent and well-prepared for the world outside of the physical school building (Chidester, 1983).

Engaging with the previously presented questions and the brief rationale for their inclusion will enhance the overall status and theme of the composed contribution.

Research Process

The framework produced through the following methodological process sets the basis for the subsequent infusion of content to construct a systematic learning system in tune with the thoughts of Augustinian Pedagogy and STEM learning as the focal points. Embarking on the task of bringing about a greater understanding of the research questions entailed, the lack of empirical data presented itself with the means to construct a theoretical solution to this problem encountered (National Academies of Sciences et al., 2018). Given the broad scope of literature available on both STEM education and Augustinian Pedagogy, more research needed to be conducted on the feasibility and productivity of either learning system rather than an educational platform that sought to be influenced by both main groups. STEM is a common theme expressed within many academic circles in all its different realms from primary to higher education and beyond; research examining how learning is either currently or wished to be planned out in this fashion presented itself with an unconventional means. When reviewing the main topics as separate in terms of research when conducting the initial searches of topics, the main keyword such as Augustinian Education/ Pedagogy, (w)holistic education, integrative curriculum, and STEM were utilized among various iterations. The content quality and the publishing body were used to evaluate and examine the collected literature to develop a more concise and focused understanding of sources.

Literature was then evaluated for further review and analysis coming from several criteria. First, the date and publishing source were considered once a course was found under the previously mentioned keywords. If it was issued within the past ten years, then its understanding of the role of the research goal can be understood and related to the current sphere of knowledge. Items collected older than ten years were still considered but underwent a deeper view of their message. This was done not to discriminate against older sources but to ensure that the various authors highlighted modern attitudes toward the place of education. Concerning the sources revolving around Augustinian Pedagogy, being that there is a lesser amount of material present, the publication date span was expanded beyond twenty years in some selected sources. Second, while being reviewed, the presented themes of the various sources were highlighted for their congruent thoughts with other sources of similar nature, along with any confounding statements that lead to a deeper investigation of that particular source's contribution. Third, arranging and gathering notes within a source management system led to forming of a collection of ideas and topics that led to a more comprehensive understanding. Lastly, once all of the resources were gathered, reviewed, and input into the source management program, personal review, and reflection brought about the ideas of presentation for of Candle Learning Model. Allowing Brookfield's four lenses to shape the review of the four main areas of reflection contributed to developing a model that strives to encapsulate the wholeness of education.

Brookfield's Fours Lenses of Critical Reflection

Therefore, using Brookfield's Four Lenses will function as a critical reflection to approach the gathered research. The four lenses composing this system supply the review of research to be seen in a light encompassing a more comprehensive range of views and insights. As previously mentioned, Brookfield's four lenses in his analysis touch on the Self, Student,

Colleague, and Literary. Since this work is focused on a theoretical extrapolation of concepts with a lack of empirical data, as already mentioned, it will use this method of critical reflection in a fashion tailored to be better suited within the context of this work. As Brookfield said, this essential process of reflection involves education practitioners discovering, researching, and challenging the assumptions that professionals within education hold (Brookfield, 1998). When engaging in such a process of reflection, it is then understood to make the parties involved more aware and cognizant of the scope and influence of their role within the institution of formalized education. Framing the research to be viewed through these four lenses can contribute to the deeper crafting and development of curriculum to be more in touch with the needs of students engaged within formalized educational programs.

The Lens of the Self

Viewing the education task through the foundational lenses of the self within an autobiographical nature can contribute to setting forth the process of exploring more deeply and authentically within the given task. Approaching this process with an open and willing disposition to become more aware and cognizant of their growing edges and performance overall is something that can set the basis to reform and advance their craft as an educator (Brookfield, 1995). Paying attention to the thoughts and feelings surrounding a given instruction topic serves as a guide to properly equip the given individual to come to a more grounded response to how they perform their task as an educator. Staying within the mindset as a continual learner sets in part their approaches to the profession. Asking questions to challenge and stretch one's beliefs is thought to maintain their perspective and not to become inflated or out of touch with those they have been commissioned to serve. Keeping the student's reflection and viewing the

professional's performance as an educator with a student's mindset can introduce anxieties or lack of productivity.

The Lens of the Colleague

The same can be said of the influence sought from an educator's colleagues and supervisors, all seeking to be constructive and formative in responding to the more significant task of teaching and learning (Brookfield, 1998). Coming to review and research within grounded sources provided by literature, then support the teacher and attempt to clarify the context in which they perform their duties (Miller, 2010). Returning to the insight provided by experts and fellow participants within education demonstrates that one's difficulties are not unique. This then spreads the berth of knowledge to come to a deeper cementing of ideals for the progression of the field of teaching and learning. Engaging and spending time in authentic reflection to understand how they present themselves towards developing the education task can then seek to contribute to a more well-thought-out learning environment. Being influenced by Brookfield to set out in the research and cumulation to the research goal will rely on this mode of critical methodological reflection.

Furthermore, expanding the student and teacher's viewpoint in their role and the various influences surrounding learning are to be examined. Coming from the mentality of education to the formation of human beings for life-long learning will catalyze further examination of research and composition (Reinking et al., 2017). Being 'whole' and integrative in not only the presentation of educational content but also in recognition of the human person further sets to present the task of educating to be something that is seen as continual and fluid in the approach to craft the most congruent learning system for the time and place for both the students, teachers, and stakeholders.

STEM education can then be used to satisfy the needs of our technological world. Still, sadly the inception and further development of learning content have been approached with much confusion and a need for shared understanding (Ernst et al., 2017). This foundational concern for there to be a productive adaptation of this learning framework to be executed within educational institutions is one that then necessitates a concrete and accepted outlook and mentality on how STEM education is to be expressed. Once this fundamental question is answered and, more importantly, shared amongst the learning community, the progression and fruit of this type of pedagogy can become influential and more widespread. Since education, in general, has been viewed as several distinct and separate subject matters all taking place within the formal school building, coming to recognize STEM then as something that does not just make mention of the core components individually but through a presentation and application of the content as skills that demonstrates their interconnectedness (Roehrig et al., 2021b). The use and production of the various cores of STEM, along with including other disciplines from the liberal arts and beyond, can all make their presence through this form of education.

The Lens of the Students

Furthermore, the end goal of preparing and equipping students to be technologically literate and ready for the ever-advancing world will require curriculum writers and teachers to instill the values of problem-solving and inquiry within their lessons (International Technology Education Association, 2007). Promoting and building a classroom environment of real-world problems that require learners to search and make decisions for the eventual solutions that seem to fit best can lead to building their confidence and comfort when faced with larger scaled problems in life. Research then seeks to notice and acknowledge the shortcomings of current

STEM programs and the productivity points that can lead to developing a grander and more cohesive educational platform.

The Literary Lens

Augustinian Pedagogy or Education, as expressed within the scope of formalized education for the context of institutional learning, comes with a depth of knowledge that is used mainly by those members of the Roman Catholic religious community of the Order of Saint Augustine or those who have been influenced by the various apostolates or formalized institutions of education that they have established. Those members of the Order of Saint Augustine, the Augustinians, are infused with not only the spirit and teaching of the Roman Catholic Tradition but, for the use of this research, the writings and spirituality of the noteworthy Philosopher and Theologian Augustine of Hippo. Augustine, the man, in his life during the 4th century, contributed to antiquity through the composition of over 300 texts, covering a variety of topics and styles of writing (Young, 2014). These various writings have continued to be influential primary sources for modern researchers and writers to extrapolate and bring his ancient thoughts into the contemporary era. Therefore, the sources that were collected concerning the area of Augustine and Augustinian Pedagogy were found in their institutions of education, such as Villanova University within the United States, along with international findings and contributions to the field, demonstrating the presence of the Order of Saint Augustine around the world (Bardon, 2001).

The findings will be presented using the life and spirituality of Augustine in both the extrapolation of his thoughts on teaching and learning into the overall construction of the proposed learning system and in the use of his processes more foundationally in coming to gain and seek knowledge. Immerwahr (2008) mentioned that the theme of the Restless heart ignites

Augustine's search for truth and knowledge in pursuing his eventual Christian faith and his outlook and experience of life. Taking a step back from the world through the experience of reflection and personal contemplation serves as a tool to look deeper inside oneself for the noticing inner person, or as described as the 'Inner Teacher' by several Augustine Scholars, including Tack (2015), Barnard (2007), Kelley (1999), and McCloskey (2014). Going about this reflection method and internal dialogue opens one up to the voiced conversation with those who share life within their day-to-day journey. Being in the presence of one another then, when expressed in mutual love and concern, seems to allow all involved parties to grow and flourish as human beings.

Being that the human process is surrounded by various nuances and intricacies, coming to a view that accepts and acknowledges such will tend to a more open and holistic perspective. In this research, which entails the sphere of education, the author will involve rethinking conventional styles to convey knowledge and content to students to one that brings forth an integrative mindset that seeks to bring several disciplines into the same conversation (Han et al., 2021). Eliminating the 'silo' system of disciplines in favor of a viewpoint that supports and encourages the inclusion and application within one another can be more congruent with how life is lived (Wang et al., 2011).

Setting forth through this methodological process in the construction of the proposed goals of this work will strive to provide the groundwork for the final synthesized learning framework. Remaining cognizant of the ever-shifting modes and thoughts that remain part of the human process will also require a presentation style that can remain timeless and congruent to various life expressions and societal axioms. Utilizing the thoughts that revolve around the topic of education as presented by Augustine of Hippo and the lasting contribution this patristic writer

has to offer through direct and influenced modern views lends itself to the establishment of a mode of teaching and learning that can serve the obligations of institutional learning to form graduates who are prepared and equipped to accept the ever-changing challenges they may face (National Research Council, 2014b). Infusing already provided standards composed by the National Research Council through *Next Generation Science Standards* (2013a) and the International Technology Education Association, *Standards for Technological Literacy* (2007), can further contribute to crafting the overall learning environment in thoughtful relation to their intended goals. Setting forth in this endeavor to not only develop curriculum but the general culture of teaching and learning to respond wholly to the needs of students for their success within the classroom and post-graduation.

CHAPTER IV: THE CANDLE LEARNING MODEL

As provided through Brookfield's insights, critical reflection can be included in various learning environments to provide a more comprehensive outcome for the students. Based on the study's research questions, the following model was composed to infuse into a model that can be used to advance the field of education to become more integrative of STEM and Augustinian learning ideals. The following model will highlight macro and micro ideals that will draw education into a more profound realm of forming students and potentially instigate a shift within the culture of Education. Setting forth to frame this model with the image of a lit candle will serve to extrapolate concepts that will revolve around the intended message—opening the dialogue of research to place not only the candle as the symbol of education but also the light that it produces, and those who view the light. The infusion of concepts from the literature review set the groundwork for this greater understanding to guide learning.

The model proposed functions in both vertical and horizontal extrapolation. Given the theme of light and observation, it will be presented with the name *The Candle Learning Model*. The rationale for this naming convention will be more evident as the apparent model is further examined. Starting with the Flame, lit on the top of the candle, seeks to stand for knowledge. When a candle is in use, it is always pointed upright. When a candle is tilted to either side or even upside down, the quality of the flame is diminished and even unable to continue burning. Therefore, the light on the top of the candle serves as the place where knowledge resides.

Additionally, the flame always points upward, whether through a bonfire's immensity or even a stove's internal workings; it is always reaching up. The role of knowledge in any of its expression strives not to be stagnant but to reach beyond itself to new heights. Knowledge within this model can then be seen through various lenses, the explicit content of a discipline or the

more innate topics of Love and Truth. Within the Augustinian tradition, the flame is present in the seal of the Order. The inclusion of this for the Friars can be construed as a reflection of the continual, restless search for truth that infatuated Augustine. “In yourself, you rouse us, giving us delight in glorifying you because you made us with yourself as our goal, and our heart is restless until it rests in you.” (Augustine, *Confessions*, 1.1) Just like the candle’s flame can never be grasped, this fact of light can be translated to the place of knowledge. Arriving at a realization that no one will ever come to complete comprehension is then learned for both the teacher and the student. Therefore, relying on humility to frame this understanding for the continual search is foundational in this proposed model. The flame of knowledge is essentially not self-seeking but calls those who view it to utilize and let the illumination advance the learning process toward newer and higher endeavors—inciting and allowing for the flame to represent knowledge for the growth and stepping off point to provide the further ground for the construction of this model.

The flame perched upon the top of the candle is lit off the wick. This continual string runs through the entire candle to give it a structure for strength and rigidity to form the candle. In representation of the proposed model, the wick represents the taught curriculum. The learning content that is modeled and developed does not only have to light the flame initially but to foster and keep it initially burning. Viewing learning as the presentation and continuation of knowledge to students, the curriculum then needs to be arranged in such a way to afford itself to keep the main focus of the lesson alive. The sequencing of content that is presented to the student learner then needs to be fashioned in such a way to be thoughtful and connected to the initial and proceeding learning units (Crippen et al., 2015). Consistency in how the overall theme of knowledge is presented is imperative and carries along through the learning environment.

Demonstrating the relationship and common thread or ‘wick’ of a lesson can be used to explain to the learners how a topic can be used within and beyond the classroom.

As the candle burns, the overall height changes as time goes on; this burning of the wick exposes new material that is then consumed through this process. Learning, as demonstrated within this model, can use this image as the continual journey and process sought in growing in knowledge. When the first spark and flame of knowledge is ignited, the first moments of the burning wick at the top of the candle move from the thinly tapered section to the broader region. The same can be expressed in learning; the teacher presents learning materials in small ‘thin’ sections that allow the students to comprehend the progressed detailed materials of the lesson (National Research Council, 2014a). Therefore, being mindful of the need to arrange curriculum around this common thread lends itself to be in line with the intended goal of maintaining the flame of knowledge illuminated.

The wax surrounding the wick serves as the fuel for the flame burning to shine bright. As the wax is consumed and turns from a solid to a liquid, the time spent preparing a lesson can either sustain the flame or be an air pocket causing the flame to extinguish. The wick provides the curriculum as the backbone of the learning system presented, but the wax comes as the learning experience and mode of engagement the students are fed by to keep the flame ablaze. “It is relatively easy to list what needs to be taught. What requires the greatest consideration is how it is taught so that teachers enjoy their work when they teach. The better they succeed, the more attractive they will be.” (Augustine, *Catechesis of Beginners*, 2, 4) Having the students then partake in experiences that are tangible and relatable to their real-life experiences leads to a better-formed learner (Guzey et al., 2016). Teaching in a mode that draws the student learner to search and come to the light of knowledge by the guidance of their teacher can then foster their

interest for the continuation of their formal learning and subsequent mentality for ongoing formation.

While the wax of the candle melts, it exposes the students through the presentation and application of learning experiences to maintain their attention to remain present and adequately disposed to accept their education. Crafting educational content to fuel the flame of knowledge calls for a meaningful and thoughtful curriculum (Khan & Law, 2015). The continual themes and applications are not just for the pure means of the individual learning exercises but also contribute to the more significant movement of teaching and learning. Additionally, the wax does not just stay on the top of the candle but flows down to the stand that keeps the candle upright and supported.

Professional Educators Role within the Candle Model

Viewing the stand of the candle as the learning institution, both administrators and teachers see their role as supportive within this proposed model. When a candle stick is made to have a broad base, it can then be sure that bumps and wind will not knock the lit candle over. Therefore, the same can be seen for the institution of learning, a cohesive community of professional education, and others in the broader community that support and allow for the light of knowledge to prosper (Nadelson & Seifert, 2017). Being formed with a shared purpose and understanding of what knowledge is to entail, to lead and guide students in coming to recognize the continual journey to learn and develop productive citizens of the world, this can then be the sturdy base for education to flourish (National Academies of Sciences et al., 2018). Coming towards this shared perspective with a disposition that is directed and committed to serving the student's best interest can allow the light to be firmly held. Exposing the involvement of outsiders to join in this endeavor and then seeking to secure the community's needs for their best

productivity and success within the workplace. Being open to comments and tailoring learning modes to suit these traits further ensures the well-being of the overall formation of students.

Administrators and educational leaders must respond to these needs in the best interest of the students they have been called to serve. “Carrying out a position of leadership does not consist in being above, but being before.” (Augustine, *Sermon* 340, 2). Furthermore, their function is to foster and go with the teachers who will interact directly with the student to direct and guide learning in the best way possible. Not placing restrictions and unnecessary demands on the teachers shifts the function of school administrators to be in a supportive role, demonstrating the intention of servant leadership qualities towards the learning community (National Research Council, 2015). Being innovative and complementary to fostering a professional environment directs the primary outreach for the best interests of the students. It can create a diverse and shared culture to lend all actions toward searching for and developing knowledge.

Teachers within this model will serve in a supporting role and provide an overarching function to direct knowledge toward the students, which is then presented to guide the students’ view and recognition of the light. Educating through a curriculum constructed to develop and draw students towards growing their desire and love to learn must be carefully presented. The teacher is not the light of knowledge nor a possessor of knowledge but a guide (Fernandes et al., 2017). Dictating facts or teaching the students as birds to regurgitate the information without applying context is futile. Taking the role of a facilitator of learning, as presented by Augustine, to lead the student learner towards a more significant uncovering of the light within themselves makes this mode of learning more formative than directive. “The teacher’s function is to develop a gradual approach for the student to the truth, especially for those who, while they may have a

love of learning, have yet to develop a sharpness of mind. Without a careful and progressive plan, success cannot be achieved.” (Augustine, *Soliloquies*, 1, 23) The teacher is also a learner along with the students; adjusting their teaching styles to support learning is like a candle that needs to be placed in a different stand, depending on the occasion. “Don’t hope to receive from me all the answers that you need. I am not a perfect teacher, but rather I continue learning new things every day in the very activity of teaching.” (Augustine, *Letter 266*, 2, 4) Maintaining an awareness of the students' needs and how to be the best presenter of the light will be seen as the goal of their purpose. Lifting the light to an appropriate level, not too high or too low, requires the teacher to look outwards at their students as they engage in the content. The teacher is the facilitator of learning, not the sole possessor of knowledge. Letting humility enter the teacher’s mind can teach them how to respond and develop a greater desire for their craft. “If we teach, we must always be ready to learn. It is better to be ready to be corrected than to be so inflexible that we may be shattered.” (Augustine, *Letter 193*, 10) Being reflective and joining in community with other teachers to share and express concerns and topics to increase their ability will then seek to expand the base of the candle, their skills to teach and guide.

Furthermore, being located at the base, the teacher needs to gaze upward towards knowledge, leading them to raise their hearts and mind to the things above and not to snub their noses downwards (Eckman et al., 2016). As the candle stands, the supporter of knowledge for the student’s ability to recognize the light will come forward through the curriculum and learning experiences chosen to foster knowledge’s prevalence and sustainability within the educational environment. “The love of knowledge and truth should invite us to continue learning. The love of others should compel us to teach.” (Augustine, *Answers to the Eight Questions of Dulcitius*, 3).

Directing the point of view upwards toward the top of the candle, the flame representing knowledge within this model is not just seen as a flame but also its produced illumination. Light is cast from the candle top, which shines outwards in all directions. Learning and knowledge are not just for a chosen few; all should be made available to witness and experience its fruits. The light spectrum produced by the flame demonstrates the type of knowledge to be transferred to the students. Candlelight, when viewed through a prism, produces all color. Therefore, the type of information passed onto the student within the classroom calls for an integrative and holistic presence. Teaching only a singular subject void of any other disciplines is not viewed as conducive within this model. Individual contents that are separated from any other relationship to other contents miss the wholeness of learning. Allowing for connection and instruction to be directly and even expanded to include a wider berth of all subject matters directs the learning to recognize the immense power of teaching and learning (Stohlmann et al., 2012).

Inclusion of STEM learning

Therefore, the mention of STEM education directs learning to be related to the other core subject of STEM and beyond can be used as a basis for further curriculum development. Teaching inclusivity among the various platforms in how content is connected towards and forms the overall theme of learning to grow and foster intellectual formation (National Research Council, 2015). The teachers already engaged in the process of singular discipline instruction within the traditional structure of institutional education do not need to take this change solely on themselves. A professional teaching community can be formed within the local school to share and exchange ideas that can be taught simultaneously between courses. This can then foster a greater sense of the subject matter through the overall learning process (Han et al., 2021). Community of learning is not just for the students partaking in the search for knowledge, which

will be presented in the following sections. However, the means to how educators join together towards this shared mission is just as necessary. “Where there is a sense of unity, there is community. Where there is no unity, there is a mob, that is to say, an unruly crowd.” (Augustine, *Sermon* 103, 4) Modeling appropriate relationships among fellow teachers and support staff in how they function in their roles can then set an example for the students (Miller et al., 2019). Bridging the gap that can exist within schools where departments are segregated by content area lacks the connection to direct a more intentional culture of teaching and learning. Singular departments must share and express their ideals. It should be conducted within the umbrella of allowing students to develop as diverse and integrative learners.

Candle Learning Model Overview

Setting the stage of the candle within the model places knowledge at the top as the flame, present, and although unable to be fully grasped. The wick is the curriculum that runs consistently through the learning process, placing the form and function as such to point upwards towards the flame. To be arranged and sequenced appropriately where subsequent themes and topics are placed so that the preceding information transitions to a clear continuation of the teaching process (Morahan, 2006). Allowing the candle wax to fuel the fire, the particular learning experience, and the content presentation provided to the students. To be in a means that provided intellectual nourishment to the learner. A style that is engaging and captivates their interests for authentic application. Using project bases and inquiry learning, rather than pure lecture and recitation of facts, draws the students to recognize and maintain a theme of life-long learning to be present even after their time within institutional learning has ceased (Nadelson & Seifert, 2017).

Furthermore, the teacher and administration support the stand that holds the candle shining upward. To lend themselves to conveying and guiding the search and discovery of knowledge for the learning community, to join under a shared purpose directed to fueling the spread of knowledge in all of its varied forms to the students. Creating a culture intended to demonstrate learning not as individual subjects being taught in separate courses but as an educational model that infuses one another to progress the task of teaching and learning for a cohesive and thoughtfully expressed process (Bybee, 2010). Incorporating professional educators, as well as input from community members and professionals within the industry, to contribute to recognizing students' needs. "Truth is the inheritance of all and, for that reason, it is not the particular property of anyone. That which is in common is between all so that all who come may use it and be enlightened. It is equally distant from all and to all equally close." (Augustine, *Commentary on the Psalms*, 76, 12) Expressing these concerns in a manner that is in continual conversation towards the intended goal of maintaining knowledge's flame ablaze and everlasting as a society and modern needs arise.

The Light produced by the Candle

Transitioning then to the next component of this model, the horizontal expression, can place the candle of knowledge within the center of the overall teaching and learning process. The rays of light represent the knowledge originating from the student. The ray's purpose is to expand the students' minds to better grasp the intricacies of life and learning. "Look to that which is merely human and deprived in the man, and you will find lies and confusion. Do not depend on yourself alone. Expose yourself to the light that comes from high. If you stay closed in on yourself, you are seeking falsehood." (Augustine, *Sermon 32*, 10) Supporting learning to include a more excellent representation of the wholeness of the lived experience to be explored

within the learning environment (Mahmoudi et al., 2012). The light, therefore, should not be closed off from walls or restrictions that hamper learning but encouraged and fostered to shine forth to all. Institutional learning, supported by teachers and administrators, should strive to allow the knowledge to be transmitted to all within the learning community. Constructing the learning system to function within this model can invite all to journey in the pursuit of knowledge.

As the light radiates outward from the candle, its rays fall upon the student, both individual and the gathered community of learners. The knowledge that is then conveyed to the students must be first accepted into the student's intellectual space. Their minds and ability to be well suited to receiving the information from the arranged classroom make this possible. "Just as it is not anyone's advantage to open her or his eyes when in the dark, it is of no purpose to be in the light if we have our eyes tightly shut." (Augustine, Commentary on the Psalms, 25, 2, 14). Creating an environment where students can feel safe and comfortable taking risks, even recognizing the ability to learn, is foundational for the learner (Immerwahr, 2010). Fostering a mode within the community of learners to see that learning is a lifelong journey. However, within this mode, subsequent failures and challenges may be present and therefore provide students with a more conducive disposition to learn. Humility and letting failure be seen as welcomed within the classroom should be embraced and thus will prepare students to become fulfilled and accepting of the knowledge as it becomes present (McCloskey, 2022).

The first step in the search for truth is humility. The second, humility. The third, humility. And the last one, humility. Naturally, that does not mean that humility is the only virtue necessary for the discovery and enjoyment of truth. But if the other virtues are not preceded, accompanied, and followed by humility, pride will find an opening and

infiltrate them and, sooner or later, finish up destroying good intentions. All other vices are recognized when we are doing wrong; but pride is to be feared even when we do right. Test those things which are done in a praiseworthy manner lest they be spoiled by the desire for praise itself. (Augustine, *Letter* 118, 3, 22)

The light produced from the source can also be viewed as having a full spectrum of color. The same can then be interesting in the information portrayed to the student. Only providing the student with bits and pieces to the overall schema of human formation is doing a disservice to their ability to grow and become a well-rounded capable graduate. Relying back on the curriculum arranged within the ‘wax’ and ‘wick’ section of the model relies on an engaging learning system to keep the student enthused and willing to learn.

Student Formation for Learning

However, before the light reaches the student’s eyes, they must be initially formed to look upon and see the importance of learning. Calling back to the family unit and primary instruction can be seen as where the ‘love for learning’ is to be initially fostered and further progressed (Franchi, 2011). Once this foundational disposition is guided to the students, approaching the light with a willingness to be challenged and eventually transformed can be seen. “Put aside deception, speak the truth. Expose yourself to the illumination of the Truth and be open and transparent.” (Augustine, *Sermon* 166) As mentioned previously, not being afraid to be challenged to fail is vital to growing within this system. Humility within the learner to comprehend their boundaries, not shy too far away from the light, and not attempt to grasp the flame that can burn them. Ongoing lessons within this cornerstone of the human process will then lend themselves to being able to come to a more responsible disposition to learn and approach the challenges in life. Looking at the personal life of Augustine in his *Confessions*, he

speaks of an opportunity to leave his current teaching position in Carthage for the social prestige of becoming a teacher in Rome. Only seeing the glory that could come about, he traveled to Rome and ended up getting ‘burned’ by the students who vanished at the end of the course when it was time to pay their tuition. Falling into this trap inflated by our vanity is the fault of any student in life (Kelley, 1999). Acquiring the proper reflective process to decide appropriately internally is something that all can benefit significantly from throughout this life journey.

Engagement with the Inner Teacher

Once the light reaches the eyes and is absorbed into the student’s being, the awaking of the *inner teacher* comes into play. “We all consult that Truth, but it is only revealed to us according to our inner capacity to grasp it, which depends on our disposition. Moreover, suppose somebody, when consulting, makes a mistake. In that case, this does not happen because of some defect in the consulted truth, just as it is not the result of some defect in external light that frequently leads our physical eyes to falsify reality.” (Augustine, *The Teacher*, 11, 38) Enticing and relating to the indwelling that Augustine speaks of in how it can show us the truest sense of our being can be carried out through any learning process when crafted respectfully. “Do not look outside. Return to yourself. Truth resides inside a person. When you discover that you can change, transcend yourself...Go where the light of reason is illuminated.” (Augustine, *True Religion*, 39, 72) Paying close attention to this personal inner teacher to expand our abilities intellectually and as overall humans to grow in virtue and character can be afforded through this model. As the curriculum progresses and the student is then able to see more of not only the body of knowledge but to comprehend a more authentic and complete representation of themselves is where the learner can be prepared to tackle the ongoing journey of life.

Coming to see and learn the knowledge as presented is not only for the individual but best shared and expressed within the company of others. Taking a firm stance on collective learning and the shared learning journey cannot be overlooked when attempting to conduct learning within this framework. The community of learners, demonstrating love and compassion towards one another, can be brought out through various learning experiences that call for the need to work together in the search for knowledge. “Charity makes for harmony. Harmony generates unity. And unity leads to charity. Charity leads us towards our true destiny.” (Augustine, *Commentary on the Psalms*, 30, 2, 1) Arriving at the answer is not the end goal of learning, but recognizing the connection to previously learned content can be seen as superior. Learning from and with one another within the classroom further expands the learning circle not to be individually directed to the goal but seeks support from fellow students in the achievement of this taking in knowledge. The community of fellow learners that is set up can help one another to dispel misconceptions or confusion as they grasp the concepts presented. Joining together in the search for understanding can be seen from the light but also by their fellow learners. “Let us, therefore, search as people who are going to find, and find as people who are going to go on searching.” (Augustine, *The Trinity* 9, 1, 1) Inspiring the lived experience of the students to share their own life stories and expressions of life appropriately can expand students’ minds to come to a more diverse realization of the various ways all people attempt to progress in life. Sharing cultural, familial, and personal ideals into how an individual has aspired to comprehend knowledge can then seek to demonstrate the growing awareness of their personhood (Khan & Law, 2015). Much can be learned from mutual learners that can be conveyed toward comprehending knowledge.

Presenting the infusion of light to the individual, the greater need and influences a community of learning can have for one another through communion and a mentality of collective learning, then sees the necessity to practice meaningful reflection.

Let us leave something for people's reflection, a generous margin for silence. Go within yourself, leave the noise and the confusion behind. Look inside yourself and see if you can find that hidden corner of the soul, where, free of noises and arguments, you don't need to begin disputes or brood on pig-headed quarrels. Be gentle in hearing the word, in order to understand. Listen to the voice of truth in reflection and in silence so that you are able to understand it. (Augustine, *Sermon 52*, 19, 22).

Reflective Learning

Making room for reflection to be used in directing the learner to become advanced in their ability to comprehend, internalize, and apply the learned knowledge outwards to the greater community is seen as integral with the Candle Learning Model (Kelley & Knowles, 2016). Learning for the self and not using the new knowledge for others is selfish. Sharing and allowing for the grace bestowed on the students to shine toward the betterment of another and the community can be graced through this gift of education (Kelley, 1999). Reflecting on the intellectual gift of education and knowledge to open and expand the heart and mind to grow as a more capable adult is a grace provided through the Candle Model. Coming to a greater appreciation of how this gained information can then be used to reflect outwards to the greater community progresses to try to grow and advance society (Asunda, 2014). Reaching out to utilize the information learned in the classroom, both curriculum and human formation experienced through the learning community, can then strive to extend the role of education towards much more than the mere achievement of a grade or earned degree.

Allowing the learning institution, therefore, to be a sending-off point for the students to face and engage with the world around them can be fostered through this formal educational process. Reaching out to serve the world's needs by having the educational institution serve a holistic spectrum of the student learners' needs can set them forth to continue to learn and explore knowledge (McCloskey, 2014). Embracing the restlessness of life and the everlasting satisfaction that can be sought with knowledge and information can equip all parties involved in this role of education to be continually cognizant—asking questions and seeking the formulation of students to respond appropriately and be nurtured within the learning environment to become lovers of learning not only while they are formally engaged in the classroom, but even further beyond in their lives. Returning to the model of the candle flame, that ever-continual instigator of the journey to learn remains present within the student and those who deliver the curriculum.

Therefore, the success of education thus is not to be measured by the degree to which students become a 'photocopy' in attitude and beliefs of the external teacher, be it the mother or father of a family, or the class teacher. The goal is clearly an unfinished project, since each one is on a journey of ongoing discovery and on a path to maturity which involves the uniqueness of each individual and their ongoing dialogue with the Interior Teacher. In this sense education never finishes, and makes the world a great classroom in which all human beings are partners on the way together. (Bardon, 2001, pp. 12-13)

Taking notice of the modern needs of students within the fields of Technology and Science are prevalent, but maintaining attention to the basic human condition for growth and formation is everlasting. Letting the thoughts and philosophy of Augustine of Hippo enter the conversation of the how-to best model and serve those involved within the learning institutions

can further strive to create an environment of service and mutuality that is rooted in the common goal of the *Restless pursuit of Knowledge*. Reaffirming the commitment of both professional educators and students to this ideal and looking to continue to strive for its expression within the educational environment will require a wholehearted desire for productivity, as presented by this model.

Reflective Guide for the *Candle Learning Model*

Having presented the model as addressed above, the following guide is intended to serve the role of supplying reflective questions and ideas on how to implement the introduced model. Letting this guide be used within a STEM-based curriculum seeks to construct the learning environment to one that opens the view of the students to see the connections and use of several disciplines simultaneously. Taking notice that institutions of education have a wide variety of cultures and modes in how they best see fit in how to conduct teaching and learning, being sensitive to the pre-dispositions of teachers and educational leadership in approaching this model's inclusion. It can then look to incite a shift in how teaching and learning are conducted through individual classrooms and educational departments, striving to the supreme structure of an entire institution. Recognizing the challenges present within schooling communities with the traditional compartmentalization of courses and topics can allow the model to initially influence classrooms or groups of students. Not setting a strict, standardized approach to how this model can be utilized within a classroom experience but allowing its mentality and fruits to inspire educators as they seek to lead and conduct learning. Allowing the candle to be used to understand the intended ideas of this model provides the first viewer with a construct that can be easily understood. Reflecting deeper on this ordinary object found within the home can then be used to incite a more profound outlook toward the role and place of education. The following

sections seek to present the separate components of the model, combining them together towards an overall expression for practice.

While thoughtfully reading and reflecting on the following questions as they pertain to the presented model, the concluded responses will be unique to each reader's experience. Their purpose is to incite internal and communal dialogue focused on the best expression of learning to be provided to the students and the development of a more technically integrative educational environment. Making room for STEM's core subjects within this model, their utilization within a wider range of classrooms can provide students with their abilities to become engaged and thoughtful towards their learning and human formation. Searching for solutions through project and inquiry-based exercises alongside their fellow students as they solve problems in many types of content areas. Allowing for Engineering problem solving ideals to be present along with the appropriate use of technology to guide and direct student learning.

Flame of Knowledge

Starting with the candle model, having its directed focus on the overall theme of knowledge provides a firm foundation for any subsequent movement or development. The flame's use within the aforementioned analogy is a beautiful representation of the focus of education, which is to guide and lead others toward knowledge. Fostering the learning environment to suit this ideal can then be seen in a way first to acknowledge and come to a firm understanding of how knowledge can be perceived within this model. Letting Augustine lead us to this understanding allows it to be seen as the continual search to reach a more complete comprehension of the self, others, and the Divine. Beginning with this ultimate question of what is to be entailed in this structure sets the basis for how the teaching and learning process will follow.

Flame-1. How is the perceived content to be taught representative of the provided understanding of knowledge?

Flame-2. Does your understanding support the aim of drawing students to understand themselves fully?

Starting with this complex question for the teacher to examine their craft will lead them to set off on this task of reflecting on their primary purpose as an educator. If they do not think of their presence in the educational environment as leading students towards a greater understanding of their personhood from what the structuring of courses can provide, this complex question cannot be answered. Building this foundation supports the further progression and development of their teaching and curriculum construction. Furthermore, approaching knowledge with the understanding that it is something continual and everlasting will be accompanied by the subsequent disposition of its transforming capabilities for life.

Curriculum Wick

Focusing the curriculum on functioning as the continual thread that supports the expression of learning, being thoughtful in how it is further crafted lays out the content that will be eventually delivered to the students. Maintaining a thoughtful disposition in the sequencing of content to be delivered then introduces the structuring of such learning to be representative. First, acknowledging the overall outcome for the students and then selecting topics from there. Setting the goals that are attempted to be achieved within this learning framework can be provided by both the teacher and the students. Seeing what both the teachers and students are capable of at the start of a course to where the hope is to be towards the end can, in some circumstances, be the fuel to keep the student engaged and willing to achieve. Laying out an appropriate progression of topics within the course structure and then counteracting that will build off

previously learned knowledge can allow the learner to become more comfortable and willing to take charge of their learning responsibility. Teaching within a style that has the student fall in love with learning and gaining new knowledge can set them off properly for success in the educational environment and their life ahead of post-graduation.

Wick-1. Is the overall sequence of themes and topics relating to the previous and following presented within the classroom?

Wick-2. Does the content taught within the classroom seek to make the connection to other subjects outside of the direct discipline? Is there a witness of a STEM's motive to integrate curriculum underlying within the curriculum?

Wick-3. Are the students drawn into the lessons, or are they disconnected? This can then inform the teacher how they address this curriculum task.

Maintaining the common and growing presentation of materials for the students to be taught is something that can strive to foster educational leadership to form a cross and transdisciplinary curriculum for its inclusion within the school. Reflecting on the commonalities and areas that can have a more concentrated relation towards one another can therefore be sought to bring a more cohesive learning environment.

The Candle Wax as Learning Experience

Sustaining and fueling the prevailing fire of knowledge and having excellent and thoughtful experiences conducted within the classroom is monumental for the productivity of the learning system. Engaging and captivating the students to become involved and committed to the subject matter by utilizing a mode of student engagement plays a vital role in further fostering the student. Taking a purposive intention to include real-world topics can support and encourage the learners to take deeper ownership of their role as students. Addressing the common question

of “when will I ever use this” outside of the classroom calls for the introduction of and further instruction to be cognizant of the world outside of the school building. Directing and keeping the learning focused on the students’ life beyond the classroom introduces the need to not only have integrated subject content together but have the students interact with said content with a formative means. Taking notice of STEM learning that strives to draw the student to solve open-ended problems and set out in student direct, either individual or group, inquiry and research towards topics can seek to be supported within the classroom. Introducing a unit that has been carefully selected through the curriculum and then expressing it to the students to get them fully involved can lend to their fostering of learning. Equipping the students to know how to search for an answer rather than merely memorizing for recitation on a traditional multiple-choice test. Getting the student involved in projects that allow them to recall content and sincerely express its application fosters a mentality for lifelong learning. Allowing the students to use a topic then and let it be shown within a schema through a lens that pertains to a unique particularity of the student learner is an ever deeper means of fostering student growth.

Wax-1. Is the interaction of the taught material wholly engaging the student to include their interests directed toward the curriculum?

Wax-2. Is there a real-world connection being introduced from the taught discipline? How is the student coming to realize the importance of the material?

Wax-3. How is Technology being incorporated into the classroom? Can students engage appropriately with technology that aids their search and participation in learning activities?

Wax-4. Can the students practice and be fostered with an Engineering mindset that draws them to ask questions and search responsibly for practical solutions?

Wax-5. Is there an intention presented to the students in procedural knowledge to understand how to find a solution rather than merely memorizing the answer?

Wax-6. Are assessments being executed to lead the student to utilize the content material within the appropriate context? Can they be led to see the importance of what they are learning?

The Candle Base as the Institution of Learning

As mentioned in the first expression of this model, learning must be supported by the formal institution. Just as if a candle is set on an uneven surface, it can easily fall and extinguish the flame; the same can be said of any educational model. Having ‘buy-in’ from the teacher and administration to see the fruits of this model calls for a shift in how they view their function within the school. The teacher is a guide to help facilitate learning, not the knowledge holder. Framing the mode into how they conduct the institution and presentation of material needs to align with the overall model. Having both the students and teachers grow in humility to see their inclusion in teaching and learning requires all participants to co-learn and listen to each other. Augustine sees the teacher’s role within the classroom as that guide to encourage and lead learners to be an example to their students within the classroom. “It is not the teacher who illuminates with light the student’s soul. Just as someone brings light to a house by opening the windows, so it is with the teacher.” (Augustine, *Commentary on the Psalms*, 118, 18, 4) Being cognizant of their needs and fears, maintaining an open ear and heart to suit and serve their students in their full representation of their being. Taking notice of their intellectual, physical, and social capacities can allow for a deeper connection with the material being presented. Arranging the classroom to respond to their human abilities allows the students to recognize and internalize the light of knowledge. Creating a space where the learner can feel safe and loved can

then initiate their intellectual endeavors. Allowing them to make mistakes and even fail within a safe space can further provide them with the mentality to continue learning and life.

Candle Stand-1. Is your style of teaching and leading students showing the light around them in the world?

Candle Stand-2. Can you listen to the students' needs to adjust your approach appropriately as the teacher?

Candle Stand-3. Are you demonstrating genuine care and concern to foster the students' ability to love learning and search for knowledge?

School support staff and leadership must serve their teachers and provide them with the material and space to execute this model. Giving the teachers the space needed to allow them to flourish as professional educators and guide them in their tasks sees the position of administrators to serve the teacher and the students to whom they have been entrusted and not treat them like their subordinates. They are demonstrating and empowering the teachers to teach and be creative within the role of cultivators of the love of learning. "At the beginning, the student is a mere follower, guided and served by the authority, but, little by little, he becomes his own guide. The more mature the person becomes, the more that person will grow in knowledge and in wisdom." (Augustine, *Order*, 2, 26) Please realize that the educational institution is not an endpoint to their educational endeavors but the start of life for the continual search for knowledge. How the Administrators serve their teachers can then trickle down to how they conduct learning toward their students.

Candle Stand-4. Do educational initiatives and procedures within the school hamper or foster the overall learning process?

Candle Stand-5. Is the Administration training and supplying adequate care to their faculty to exercise their capabilities as teachers? Are they allowing them to serve their students best?

Candle Stand-6. Is there outside influence from professionals involved in industry contributing to the conversation of student learning and formation?

Additionally, all involved need to have a shared comprehension of the model, avoiding confusion and misunderstanding that can hamper its outcome. Coming together as a whole learning community to share the intentionality of their mission and how it can be conducted for the productivity of the students is something that will lead them in coming to greater nurturing and support for authentic learning to take place. Allowing the light to shine brightly for its authentic and continual burning is ultimately up to the teacher and wider school administrators for its productivity and success.

The Light Produced Towards the Community

Letting the light of knowledge shine forth from the candle towards the community of learners necessitates a mode of teaching and learning that can be supportive and free from biases or negative mentalities. Crafting the learning environment to accept the fullness of the light to reach the students for their eventual growth and acceptance of the learning material. Making the intentionality not to single out but to be fully inclusive and integrative as to how the learning content can be utilized for the students' life is critical. Presenting the complete picture of content so the learners can realize what it means and move the learning community to learn to love learning. Allowing for the presence of love to be expressed and fostered within the classroom sets the correct disposition to be able to come towards the knowledge with a willingness to

explore and question. Relating the learning process to be in line with the world of the student for their needs and desires can therefore be used to let the light be seen within its fullness.

Light-1. Are any blocks preventing the true light from being shown to the students? Prejudices, misunderstanding, cultural biases...?

Light-2. Can the 'full light,' a comprehensive and integrative view of knowledge towards a topic, be seen?

Stressing the fullness of knowledge to be shown to the students must be approached in a way that does not lead to the students' confusion but provides them with the space to make the connections between and within a subject matter. The complete information on a topic cannot be blatantly presented at first. However, through a thoughtful and comprehensive presentation, the students can see the importance and more profound desire to arrive at what they witness while engaged in the classroom.

The Student as They View the Light

Adequately preparing the student to be aware of the light and free within themselves to accept and let it transform them into something new and more significant is foundational for this endeavor. The fullness of the content is allotted the student to see the light with a willingness to grow and explore the delivered message, which can then be used for their holistic formation. Engaging within the materials to see and realize how it pertains to the students' lived experiences can shape their dispositions to perform and carry out their learning. Moving beyond traditional content regurgitation to integrative learning experiences that foster the flame of knowledge within the learning system presents itself to the learner for a more significant impact on their being. Falling in love with the exercise to learn and explore internally is then suited to humility and enthusiasm to participate in the education experience foundationally. Equipping learners to

explore and ask questions, research, and find an answer, to be tried and experimented on shows itself within the classroom as the learner attempts to respond to the light of knowledge.

Student-1. Are students able to initially be able to embark on the process of learning? Is there enough humility within themselves to be challenged?

Student-2. Is there a stressor that causes the student to become anxious and unwilling to engage in the learning process?

Student-3. Is there an interest of theirs that can be tapped into initially for the students to explore further and grow their knowledgeability?

Student-4. Can students eventually recognize that the learning process is lifelong and does not end once they complete a formal educational program?

Teaching the student to realize their wants and desires, fears and needs will enable the learner to engage within their Inner Teacher. Spending time reflecting on an academic topic or even topics related to their personhood present themselves to look within for change and growth.

Student-5. Can the student notice what moves them to learn and grow in their several realms of personhood? Can they notice that their teacher guides their learning without feeding them the facts?

Student-6. Can students disconnect from distractions to enter a deeper space of thought and mindfulness?

Student-7. Is the institution of learning allowing students to develop the skills to ask meaningful questions about forming an intellect and traveler in the world?

Community of Student Learners

Enacting a communal effort towards the gathered students as they conduct projects directed towards intellectual growth can additionally teach skills to communicate and learn about

themselves. Forming the classroom to take a stance on this shared journey in discovering knowledge furthermore makes room for the students to share their personal life experiences. Incorporating the diversity of life experiences in shaping this communal atmosphere can instruct students to gather a broader range of diversity and cultural awareness. Through this process, caring for one another and encouraging students to support each other within the classroom can demonstrate a greater understanding of others and oneself. Working together as they solve projects and create a mode of exploration within a subject area can contribute to their overall formation as human beings. As noted in both STEM and Augustinian learning modes, the communal aspect of life demonstrates the ability to work effectively with others as they are all focused on the same common goal: to explore and interact with the world outside of the school and the interior depth of their minds and souls.

Student Community-1. Is the classroom a space for the gathered students to feel comfortable with one another?

Student Community-2. Can the students see the difference between their classmates as something to learn from one another?

Student Community-3. Can conversation and dialogue be set up and conducted respectfully and thoughtfully between the students?

Student Community-4. Is Unity present as students work in teams to communally complete projects and ask questions in thoughtful ways?

Allowing the classroom to be the place that not only fosters the individual student's abilities to learn about a topic can be made present, but the means to join in the search for knowledge is integral in their overall formation. A community of learners set out to search and explore the world can be introduced to the student in the classroom to equip them to work well

with others in the workplace and industry. Arranging projects that challenge not only their intellectual knowledge but strive for the students to become better in dialogue to express and share their thoughts with their fellow learners as they continually journey together for a deeper understanding of knowledge.

Reflection of the Light Internally and Outwards from the Student.

After having the light become infused for the students' wholistic growth, charging them with their newfound gifts and talents to enact change for the society, both locally and abroad, presents the connection of this model as presented. Reflection on how one gained knowledge and how one views the world and themselves can be influenced by conducting this model. Diving into the depth of the interior person is continual within this life process and prepares them to respond to the world by utilizing their gifts and newfound knowledge. Letting the student use these gifts gained in the classroom and expanding their outreach to the world. Not letting the knowledge go to waste but commissioning them to see the good they can do within themselves and the wider world. Cultural awareness and setting the student to use what they have learned to be light to the world.

Reflected Light-1. Can the student recognize the holistic growth within themselves? How can students explain or demonstrate this growth?

Reflected Light-2. Can students see a need to use what they have learned to advance society, locally and abroad? Is there a social cause or humanitarian effort in which the students can become involved?

Reflected Light-3. In what way has students' institutional learning program fostered not only a love for learning but a love for their fellow citizens?

Reflected Light-4. Is there a realization that students' STEM literacy has advanced them to see the importance of all fields of learning, for all are connected and in relation with one another to lend towards a more well-rounded and integrated student of the world?

Ending Thoughts

Answering these questions does not come with a simple yes or no, but a thoughtful, critical response to how one engages and responds to each presented comment. Incorporating the themes and topics introduced, the following exposition combines the thoughts for their more significant contribution to the proposed learning platform. Beginning with the basis of reflection through interiority and communal dialogue will seek to demonstrate this ground to where further productivity can flourish. Taking Augustine's influence as the catalyst for its composition will lend itself to greater understanding. Being aware of the culture that surrounds many institutions of education that are hesitant to reform, coming about this in a style that is meaningful and adaptable to unique situations will further aid in this adaptation. Asking meaningful questions for deeper examination from the various stakeholders within learning to craft an educational environment that is responsive and aware of the need to wholly form learners to take on the challenges of the modern era.

Looking for a place of STEM education that insists on a project and inquiry-based learning can therefore strive to utilize several disciplines within a singular learning experience. Forming the teachers to be in a responsive disposition to guide an educational space that encourages the student to search and explore in a community of learners is then present to increase academic literacy, but foundationally their response to be reflective and dialogue with others and with themselves. Staying connected to the light of knowledge incites and encourages

the learning process to be continually sought for the ongoing journey of life. Approaching these questions with humility and without the fear of making mistakes or failing sets the course for this learning model to provide nourishment and reform within the realm of teaching and learning. Complimenting this guide with various other produced standards for STEM education, such as those produced by the National Research Council and the International Technology Education Association, can blossom forth a greater intentionality to shift institutional learning as human formation to be adequately prepared to search for the deeper purpose of life and one's role within the world.

CHAPTER V: PRIMACY OF LOVE & CONCLUSION

Allowing Love to be present and continually supported within the learning schema can be the bedrock of effective educational programming. Love is the source and motivation for all the participants in teaching and learning. It calls both the involved students and professional educators to lend themselves in turning towards love for the spreading and promoting of life that this basic indwelling of the human condition can afford. If the desire to love the variety of components within the learning system is present, then the ability to conduct education for the betterment of the student can be demonstrated.

Making room within the students' personhood to search and connect concepts to foster their lifelong motivation to learn can then be afforded by a model of learning as proposed. Integrating concepts from the basis of STEM education is therefore paramount to significantly influence and motivate the student to further engage with the delivered content for a lifelong learning journey. Completing projects to gain knowledge of not only the lesson being taught but also to expand the learner's view of the world and of themselves will hopefully fuel their inklings to continue the journey of education. Including technology and widening the conversation to include a deeper intentionality of the reference to other disciplines provides learners with a holistic view of education and prepares them to face the challenges of a modern-global society—supporting the Candle Model by an institution of learning that sees their function as guides of knowledge to allow for the students to reframe pedagogical styles in approaching and serving the learning community. Letting the light of knowledge shine in an unrestricted and appropriate fashion toward the student learners can incite their aspirations to become competent citizens and lifelong learners.

Love within the Learning Environment

Love always noticed within the plethora of concepts form the structure of this model. Profoundly stated, “Instruction is completed by love.” (Augustine, *Customs of the Catholic Church* 1, 28, 56). The primacy of Love mentioned by Kelley (1999) reminds us that if anything is not done with the slightest concern for self or others, it will have no place for the knowledge to settle or become a part of the learner. Teaching that is done without clarity of heart and mind will be done so in vain. “For the teacher, education is a work of love. The labors of people doing what they like doing are never burdensome but a pleasure in themselves.” (Augustine, *The Excellence of Widowhood*, 21, 26) For when any action is done in the theme or cover of love it is not work but joy. Establishing and promoting love is the foremost crucial principal condition in educational institutions. Also, students taught under the thought of being with others instead of being against others provide the mode to rethink how they know the craft of teaching and learning. Teaching students the art of loving rightly is the tool to suffice for more remarkable growth in their student’s ability to understand life experiences (McCloskey, 2019).

Examining the interior life of the individual members that form a learning community, their persuasions towards loving and loving rightly are essential in translating it into the broader whole. When it comes to the process of learning, “Let love be within you and what will follow is the fullness of knowledge. What in fact do you not know if you know love?” (Augustine, *Commentary on the Psalms*, 79, 2) Holding firm to the direction love can lead an educational community draws the participants in all its varied levels to be a growth of virtue. Embracing and allowing love to foster in the school also rids the environment of those things that act to ruin loving and learning. The safeguard of life imposed by love leads to a more profound and well-suited condition to pursue knowledge and truth.

Building and forming relationships with others must be based on love. The love of self, the love of students, the love of teachers, and the love of learning are some of the directly noticed components in this greater theme and keystone to education. “Set love as the criterion for all that you say, and whatever you teach, teach in such a way that the person to whom you speak, by hearing may believe, by believing hope, and by hoping love.” (Augustine, *Instructing Beginners in Faith*, 8) Immerwahr (2008) proposes that relationships, friendships, dialogue, and community must be instilled before any institutional learning can fruitfully take place. The unity and bond of fellowship that can flourish out of this relationship to be lifelong learners is the driving force for the progression of education and the greater world (Labinski, 2017). Love is ultimately fundamental in any schooling expression. To continue any further exegetical extrapolation on the role of love within the learning process will be of unnecessary use in its support. Establishing, directing, and maintaining life in the theme of love is the supreme light we must all attempt to walk towards both as learners, and as teachers. Applying this love in an educational framework confers the spread of knowledge to be fluid for both student and teacher. Love of Learning, Love of Truth, Love of Self, Love of Others, and Love of the World forms our Hearts, Minds, and Souls to seek the unknown in a mission to spread this message to all.

This love, or charity, is not to be thought of as a merely simple feel-good emotion but something much more. An honest, authentic genuine desire to wish the best for the other directs and guides the lover in discovering who they are and who they were made to be.

‘The fullness of the Law is love.’ Do not run about everywhere and strain yourself. The spread of the branches of the tree is so wide. Do not let it worry you. Do not waste time; take good care of the root, and you won’t have to bother yourself with the extremities of

the branches. If love finds a place within you, the fullness of knowledge will follow.

(Augustine, *Commentary on the Psalms*, 80, 2)

Therefore, this love is a necessary trait and common point of the educational system for Augustine, for it is not just something to be said, but lived out, embraced, and fostered for both the students and teachers. To reach the ability to spread and accept the love of self and others requires humility. Humility, as spoken, allows the individual to see the world around them and their interior selves as they indeed are, without judgment or criticism, through a pure and unblemished lens, for it directs us to expand the interior self-knowledge that is critical for human development. Uncovering the information of our inner beings by shedding light and asking questions in an environment that can accommodate proper dialogue can allow the student to grow in unimaginable ways. As noted, Barnard (2007) speaks of Augustinian learning as a pedagogy of conversation framed with mutual respect and humility for all parties involved. A learning community that lives out these values of love while promoting community in its search for truth is the hallmark of an Augustinian education.

Summary

When we look at the student as the learner and the willingness to be taught, it should be reminded that “How much wealth is stored within each one of us! But what use is this wealth to us, if we do not investigate it?” (Augustine, *Commentary on the Psalms*, 77, 8) The wealth spoken of is knowledge, embracing, and teaching to guide students in uncovering these components that comprise our innate selves that can contribute to building society locally and globally. For, “One loses nothing by questioning more carefully.” (Augustine, *Music*, 6, 23) Directing students to ask the most profound questions will contribute to their absorption of content material and connecting with their relationship to the world around them. Exploring the

technological advances and utilization of learning content outside the classroom seeks a curriculum to suit such a need (Nadelson & Seifert, 2017). It is vital to notice that not only the students are to be engaged and challenged by this educational system, but the teacher and those entrusted to the facilitation of learning additionally.

Adjusting the view of the teacher as someone who is a fellow student brings a new dimension to their role. The same humility needed to foster love between students and learning is also required in forming holistic and compassionate teachers in how they practice their craft. While growing into the position of teacher as a mutual searcher and not the ultimate purveyor of knowledge, they can understand their mission to “come to teach humility and overturn pride.” (Augustine, *Sermon 4A*, 1) This is not only for their pupils but also themselves. How curriculum and educational experiences are constructed and arranged should be focused on this growth of the human person to become a contributor to society who is about the search for knowledge both outwardly, more importantly, interiorly. A sound heart and mind serve as a means to human flourishing and growth.

As presented, the process of learning and the formation of students and teachers to be well-versed and engaged to accept the world is a task that requires diligent work for both teachers and students alike (Howell & Scales, 2017). The spectrum of components necessary to devise a formalized system will only be partially complete, for we are still sojourning towards the meaning of life on earth. Utilizing the concept of the ‘Golden Thread’ or wick as depicted within the Candle Model, weaves together various aspects of life and seeks to apply an understanding towards something so vast and beyond our complete comprehension. Presenting material on a subject matter is to explain the deeper meaning of the events as they are recounted, teaching to connect the real world of the students’ lives to captivate and draw them closer to the

importance of education (National Research Council, 2013b). The connections and acknowledgment of concepts lead us to deeply understand that everything is related to and reliant upon one another. Just as schoolmates and teachers form the learning community through circular dialogue and expression of ideas. The ardent foundational educational concepts are related to one another, and this union is not to ignore. Recognizing that we are all connected in how we act, live, and learn is critical in producing an educational method that will seek to produce graduates who are formed and cultivated as seekers and lovers of truth and learning. The notions presented strive to accommodate this desired outcome, for these concepts are not novel but primeval. “Late have I loved you, Beauty so ancient and so new, late have I loved you!” (Augustine, *Confessions*, X, 27, 38) Pursuing knowledge is a part of who humans were made to be. Exercising this faculty through the lens of Augustine can accentuate and grow the flame of knowledge.

Closing Thoughts

The ability to strive for a purposeful integration of technological and scientific concepts can be sought to provide an adequately prepared workforce for future generations. Teaching to not only be literate in the means of the STEM core concepts but to be a viewer and participant in the wholeness of the expression of life is the ultimate goal of the proposed teaching and learning model. Being responsible and aware of the intricacies of the world and the student’s personal and collective call to be beacons of transformation in the ever-changing society is what all teachers should aspire for their students. Allowing the classroom to serve as the foundation for the fostering of the students’ desire to love the art of learning and to be open to not only the taught curriculum but also the diversity of life experiences from the gathered students can strive to cultivate the learning community to expand beyond the brick-and-mortar school building.

Shifting the culture of education by professionals to be in an open and continual dialogue to identify the needs of the students is therefore imperative. Such a continued dialogue can create the most responsive model to address the current demands of society and call for ongoing, meaningful reform. Joining teachers and educational leaders with experts from industries can seek to establish and come to a shared understanding of how formal learning is to be expressed in the modern era. Setting clear and attainable goals that strive to equip students in their best interests to be productive and formed as ‘lifelong learners’ is something that this thesis can bring forward. Real-world and applicable content delivered meaningfully for the students’ internalization and personal and collective growth is the goal of the Candle Learning Model. Letting the students, once properly disposed, view and accept the taught knowledge can then carry forth to integrate what they were presented in the classroom in order to apply in the world around them. Joining with their fellow students, this process is not to be conducted within the individual silo but expressed among a community of fellow learners, including both students and teachers. Just as the content is to be delivered by connection with one another, so is the process of attaining greater knowledge. Setting out to enter into the proposed model of teaching and learning is something that can be utilized to transform the process of education into the communal search and growth of our technological and ever-changing world.

REFERENCES

- Asunda, P. A. (2014). A conceptual framework for STEM integration into curriculum through career and technical education. *Journal of STEM Teacher Education*., 49(1). DOI: doi.org/10.30707/JSTE49.1Asunda
- Augustine. (1997ff). *The works of Saint Augustine: A translation for the 21st century*. Brooklyn and Hyde Park, N.Y: New City Press.
- Bardon, P. (2001). *Education: An Augustinian approach*. (M. Morahan, Ed.). Villanova College, Coorparoo, Australia.
- Barnard, L. (2007). The pedagogical gospel according to Saint Augustine. *International Journal of the Humanities*, 5(2), 7–15. <https://doi.org/10.18848/1447-9508/CGP/v05i02/42014>
- Brookfield, S. (1998). Critically reflective practice. *Journal of Continuing Education in the Health Professions*, 18(4), 197–205. <https://doi.org/10.1002/chp.1340180402>
- Brookfield, S. D. (1995). *Becoming a critically reflective teacher*. Jossey-Bass.
- Bybee, R. W. (2010). Advancing STEM education: A 2020 Vision. *Technology and Engineering Teacher*, 70(1).
- Canning, R. (2004). Teaching and learning: An Augustinian perspective. *Australian EJournal of Theology*, (3), 1–10.
- Chidester, D. (1983). The symbolism of learning in St. Augustine. *The Harvard Theological Review*, 76(1), 73–90. <http://www.jstor.org/stable/1509437>
- Chin, C. (2006). Telling boring stories. *Augustinian Studies*, 37(1), 43–62. <https://doi.org/10.5840/augstudies20063713>

- Crippen, K. J., Brown, J. C., Apraiz, K., Busi, R., Evran, D., McLaughlin, C., Peace, M., & Temurtas, A. (2015). A process model of the U. S. federal perspective on STEM. *Journal of STEM Teacher Education, 50*(1).
<https://doi.org/10.30707/jste50.1crippen>
- Dan, V. (2017). *Empirical and non-empirical methods*. Free University of Berlin. Wilkey.
- Eckman, E. W., Williams, M. A., & Silver-Thorn, M. B. (2016). An integrated model for STEM teacher preparation: The value of a teaching cooperative educational experience. *Journal of STEM Teacher Education, 51*(1).
<https://doi.org/10.30707/jste51.1eckman>
- Ernst, J., Clark, A., DeLuca, B., & Kelley, D. (2017). STEM curricula. *Technology and Engineering Teacher*.
- Fan, S. C., & Yu, K. C. (2015). How an integrative STEM curriculum can benefit students in engineering design practices. *International Journal of Technology and Design Education, 27*(1), 107–129. <https://doi.org/10.1007/s10798-015-9328-x>
- Fernandes, F. C., Cortez, E. A., Laprovita, D., Almeida, L. P. de, Ferreira, A. F., & Corvino, M. P. F. (2017). Continuing education in health from the perspective of Augustine of Hippo. *Revista Brasileira de Enfermagem, 70*(3), 656–661.
<https://doi.org/10.1590/0034-7167-2016-0484>
- Franchi, L. (2011). Healing the wounds: St Augustine, catechesis, and religious education today. *Religious Education, 106*(3), 299–311.
<https://doi.org/10.1080/00344087.2011.569656>
- Fuller, J. (2001). *An integrative curriculum in architectural engineering technology*. (E. Petry, Ed.). University of Hartford; University of Hartford.

- Guzey, S. S., Moore, T. J., & Harwell, M. (2016). Building up stem: An analysis of teacher-developed engineering design-based STEM integration curricular materials. *Journal of Pre-College Engineering Education Research (J-PEER)*, 6(1).
<https://doi.org/10.7771/2157-9288.1129>
- Han, J., Kelley, T. R., Mentzer, N., & Knowles, J. G. (2021). Community of practice in integrated STEM education: A systematic literature review. *Journal of STEM Teacher Education*, 56(2). <https://doi.org/10.30707/JSTE56.2.1649165366.289356>
- Herschbach, D. R. (2011). The STEM initiative: constraints and challenges. *Journal of STEM Teacher Education*, 48(1).
- Howell, J. L., & Scales, T. L. (2017). Pedagogical practices: Lessons from Augustine of Hippo. *Christian Faith and University Life*, 117–130. https://doi.org/10.1007/978-3-319-61744-2_7
- Immerwahr, J. (2008). Augustine’s advice for college teachers: Ever ancient, ever new. *Metaphilosophy*, 39(4–5), 656–665.
- Immerwahr, J. (2010, March 30). *Teaching in the inspiration of St. Augustine: Seven Augustinian principles*. Villanova, PA; Villanova University.
- International Technology Education Association. (2007). *Standards for technological literacy: Content for the study of technology*.
- Iwuanyanwu, P, N. (2020). Nature of problem-solving skills for 21st century STEM learners: What teachers need to know. *Journal of STEM Teacher Education*, 54(1).
<https://doi.org/10.30707/jste55.1/mmdz8325>
- Jaakkola, E. (2020). Designing conceptual articles: Four approaches. *AMS Review*, 10(1-2), 18–26. <https://doi.org/10.1007/s13162-020-00161-0>

- Jacobs, R. M. (2000). Augustine's pedagogy of intellectual liberation: Turning students from the "truth of authority" and returning them to the "authority of truth"¹. In K. Paffenroth & K. L. Hughes (Eds.), *Augustine and Liberal Education* (pp. 111–123). essay, Ashgate Press.
- Kanu, I. A. (2020). Saint Augustine on teacher-student relationship: Religious perspective of education. *AMAMIHE: Journal of Applied Philosophy*, 17(1).
- Kelley, J. (1999, May 17). *Theological foundations for Augustinian education*. North Andover, Mass.; Merrimack College.
- Kelley, T. R., & Knowles, J. G. (2016). A conceptual framework for integrated STEM education. *International Journal of STEM Education*, 3(1).
<https://doi.org/10.1186/s40594-016-0046-z>
- Khan, M. A., & Law, L. S. (2015). An integrative approach to curriculum development in higher education in the USA: A theoretical framework. *International Education Studies*, 8(3). <https://doi.org/10.5539/ies.v8n3p66>
- Klein, J. T. (2005). Integrative learning and interdisciplinary studies. *Association of American Colleges and Universities*.
- Labinski, M. A. (2017). Pedagogical pleasures: Augustine in the feminist classroom. *Journal of Philosophy of Education*, 51(1), 281–297. <https://doi.org/10.1111/1467-9752.12222>
- Mahmoudi, S., Jafari, E., Nasrabadi, H. A., & Liaghatdar, M. J. (2012). Holistic education: An approach for the 21st century. *International Education Studies*, 5(3).
<https://doi.org/10.5539/ies.v5n3p178>
- McCloskey, G. N. (2005). The O.S.A. Educators International Congress. *In Threads to be woven: Characteristics of Augustinian pedagogy*. Rome, Italy.

- McCloskey, G. N. (2014). Augustinian Ethos Committee Meeting. *In Encouragement for the journey: Being an Augustinian educator*. Carlisle, United Kingdom.
- McCloskey, G. N. (2019). The International Conference on Education, Saint Augustine, Teacher for the 21st century. *In Augustinian learning practices for a technological world*. Bogota, Columbia.
- McCloskey, G. N. (2020). Augustinian Days in Carthage 2020 Relevance of the Pedagogical Theory of Saint Augustine to the 21st Century. *In Augustinian learning in a technological world: Social and emotional applications*. Carthage, Tunisia.
- McCloskey, G. N. (2022). *Augustinian practices for learning and teaching in a technological world*. Augustinian Journal - University of San Agustin Iloilo City, Philippines [in press].
- Miller, B. (2010). *Brookfield's four lenses: Becoming a critically reflective teacher*. University of Sydney.
- Miller, J. P., Nigh, K., Binder, M. J., Novak, B., & Crowell, S. (2019). *International handbook of holistic education*. Routledge.
- Moore, T. J., & Smith, K. A. (2014). Advancing the state of the art of STEM integration. *Journal of STEM Education, 15*(1).
- Morahan, M. (2006, July). Climate in the Augustinian school. Coorparoo, Australia; Villanova College.
- Nadelson, L. S., & Seifert, A. L. (2017). Integrated stem defined: Contexts, challenges, and the future. *The Journal of Educational Research, 110*(3), 221–223.
<https://doi.org/10.1080/00220671.2017.1289775>

- National Academies of Sciences, Engineering, and Medicine. (2018). Graduate STEM education for the 21st century. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25038>.
- National Research Council. (2009). Engineering in K-12 Education: Understanding the status and improving the prospects. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12635>.
- National Research Council. (2010). Standards for K-12 engineering education? Washington, DC: The National Academies Press. <https://doi.org/10.17226/12990>.
- National Research Council. (2011a). Successful K-12 STEM education: Identifying effective approaches in science, technology, engineering, and mathematics. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13158>.
- National Research Council. (2011b). Successful STEM education: A workshop summary. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13230>.
- National Research Council. (2013a). *The next generation science standards executive summary*. Washington, DC: The National Academies Press.
- National Research Council. (2013b). Monitoring progress toward successful K-12 STEM education: A nation advancing? Washington, DC: The National Academies Press. <https://doi.org/10.17226/13509>.
- National Research Council. (2014a). STEM integration in K-12 education: Status, prospects, and an agenda for research. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18612>.

- National Research Council. (2014b). STEM learning is everywhere: Summary of a convocation on building learning systems. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18818>.
- National Research Council. (2015). Guide to implementing the next generation science standards. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18802>.
- Reinking, Anni K.; Vetere III, Michael J.; and Percell, Jay C., "Collaborating with theatre, nature, and STEM: A multigenerational family event" (2017). Faculty Publications - College of Education. 12.
- Roehrig, G. H., Dare, E. A., Ellis, J. A., & Ring-Whalen, E. (2021a). Beyond the basics: A detailed conceptual framework of integrated stem. *Disciplinary and Interdisciplinary Science Education Research*, 3(1). <https://doi.org/10.1186/s43031-021-00041-y>
- Roehrig, G. H., Dare, E. A., Ring-Whalen, E., & Wieselmann, J. R. (2021b). Understanding coherence and integration in integrated STEM curriculum. *International Journal of STEM Education*, 8(1). <https://doi.org/10.1186/s40594-020-00259-8>
- Ryoo, J. & Winkelmann, K. (2021). Innovative learning environments in STEM higher education opportunities, challenges, and looking forward (Ryoo & K. Winkelmann, Eds.; 1st ed. 2021.). Springer International Publishing. <https://doi.org/10.1007/978-3-030-58948-6>
- Sanders, M. (2012). 7th Biennial International Technology Education Research Conference. *Integrative STEM education as "best practice"*. Australia.
- Scianna, B. C. (2006). A history of cascia hall preparatory school: A catholic, Augustinian school in Tulsa, Oklahoma (1924-2006) (dissertation). Norman, OK.

- Stimming, M. T. (1999). Confessions from the classroom teaching with Augustinian eyes. *Teaching Theology & Religion*, 2(2), 137. <https://doi.org/10.1111/1467-9647.00054>
- Stohlmann, M., Moore, T., & Roehrig, G. (2012). Considerations for teaching integrated stem education. *Journal of Pre-College Engineering Education Research*, 2(1), 28–34. <https://doi.org/10.5703/1288284314653>
- Tack, T. (2015, September 9). *Saint Augustine, student, and teacher*. Augustinian Pedagogy.
- Thibaut, L., Ceuppens, S., De Loof, H., De Meester, J., Goovaerts, L., Struyf, A., Boeve-de Pauw, J., Dehaene, W., Deprez, J., De Cock, M., Hellinckx, L., Knipprath, H., Langie, G., Struyven, K., Van de Velde, D., Van Petegem, P., & Depaepe, F. (2018). Integrated STEM education: A systematic review of instructional practices in secondary education. *European Journal of STEM Education*, 3(1). <https://doi.org/10.20897/ejsteme/85525>
- Walker, D. (1995). Integrative education. *National Association of Elementary School Principals*, 12(1).
- Wang, H., Moore, T. J., Roehrig, G. H., & Park, M. S. (2011). STEM integration: Teacher perceptions and practice. *Journal of Pre-College Engineering Education Research (J-PEER)*, 1(2), Article 2.
- Yogis, G. J. (2008, January 4). *The educational theory of St. Augustine*. Villanova, PA; Villanova University Office for Mission and Ministry.
- Young, R. A. (2014). *There your heart will be: An Augustinian approach to a ritual ethic rooted in the dynamic of valuing* (dissertation).