International Journal of Linguistics and Literature (IJLL)
ISSN (P): 2319-3956; ISSN (E): 2319-3964
Vol. 9, Issue 2, Feb–Mar 2020, 21–24

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

NEXTGEN LANGUAGE ACQUISITION OPPORTUNITIES FOR ENGLISH LANGUAGE LEARNERS IN SCIENCE & ENGINEERING PRACTICES

VSV Laxmi Ramana

Professor, Department of English, Anurag Group of Institutions, Hyderabad, India

ABSTRACT

Before discussing the next generation's challenges and demands, let us consider today's modern learner, who is a multifaceted, energetic and tech-savvy individual. He is inspired and be ready to accept the challenges. He integrates technology into classroom experiences. Amalgamating technology in education can range from replacing the existing educational practices through digital media. The teachers are challenged if they are not prepared. It's not an easy task for the teachers to prepare the students for the next generation challenges. This paper tries to address two issues: (1) language skills involved as students engage in science and engineering practices and (2) features of science text and science talk. What capabilities and traits will serve them in a time that is changing so swiftly?

KEYWORDS: *Nextgen Challenges, Language Skills, Science Standards, Engineering Practices, English Language Learning*

Article History

Received: *01 Feb 2020* **|** ***Revised:*** *24 Feb 2020* **|** ***Accepted:*** *29 Feb 2020*

INTRODUCTION

Generation Z is the digital natives. They are born with digital devices and have required knowledge in technology. Social media platforms are used to communicate and considered to be creative and collaborative and can show a significant impact when they join the workforce. They will know how to apply principles, strategies, and skills while interacting with others.

The future of education is all about augmenting and incorporates student-centric learning. It witnesses a paradigm shift in its focus – i.e. the personality behind the ability which prepares the students sustainable, progressive and application-oriented. The learning skills include 4Cs- Critical Thinking, Creativity, Collaboration, and Communication to strengthen the students. In this effort, the saddle is on teachers to take on personalized learning and teaching patterns. Flexibility in learning is the keyword that governs the forthcoming tendency of imparting quality education to students. Whether it is in the past or the future, Learning is specified in life but education is not, since education involves both intention and an instructor, whether that instructor may be a parent, a teacher, books, or any other instructive resource such as the internet. Education is a prerequisite, for, without it, society cannot succeed. Language, needless to say, it need not be specific to learn or teach, the students who are involved in the educational process will have to use it for all practical purposes.

Teaching has always been a conventional trade as far as India is concerned. Hence, learning is largely a guided process. Hence, there is a gap between the industry and academia. The students of higher education should know the

fundamental concepts but they should also know the application part of their knowledge. The examination system examines the retention power of students but fails to examine the application part of the language. The students are not tested to analyze a situation, instead, they are asked to write the definitions and theory part of the topic. The transformational changes are read but not practiced by teachers, because if the teacher doesn't get the required pass percentage, the teacher's position will be at a stake. The teachers who are willing to experiment will be not be encouraged and the students will not be ready to come out of their comfort zone. The institutions that are encouraging witness distinctive and rapid changes in teaching and learning process, roles and responsibilities, learning ambiance and situations, patterns of interaction, strategies, and theories, as well as, modes of assessment.

If the instruction is given through technological assistance, certainly it strengthens students' learning experience. Additionally, digital learning can be used for professional learning opportunities for teachers to provide personalized education experiences, learning experiences for students. It certainly improves the students' learning experiences, but it is not at all easy as we have strong conventional educational practices in our education system and integrating ICT will demand the innovative role of the teacher as the facilitator of the learning to the active role of the learner.

This digital age is a potentially liberating process freeing teachers and students from the acquisition and retention of information and enabling them to focus more on the creative processes of making connections and creating new paths that have meaning and purpose for the present time (Anderson and Krathwohl, 2000).

While a recent Washington Post article entitled 'The Surprising Thing Google Learned about its Employees- and What it Means for Today's Students' (July 20, 2018) it reported that Google had surveyed the key characteristics for attaining success as a Google employee. Surprisingly, knowledge of STEM subjects (Science, Technology, Engineering, and Maths) did not appear first. Instead, the survey placed skills such as coaching, insight, empathy, critical thinking, problem-solving, dealing with complex ideas at the top of the list.

The National Research Council (2011) document A framework for K-12 science education: Practices, crosscutting concepts, and core ideas (hereafter called the Framework) mentioned the term "inquiry-based science" by identifying a set of science and engineering practices. The Framework defines science learning as having three dimensions:

- Science and Engineering Practices,
- Crosscutting Concepts, and
- Core Ideas in each Science Discipline

The Core ideas are in four disciplinary areas—physical sciences, life sciences, earth and space sciences, and engineering, technology, and the applications of science. Unquestionably it is a language learning environment for all students, as the discipline itself brings patterns of discourse and terminology that are unfamiliar to most of them.

The central content of the Framework document is a detailed rationalization of what is intended in each dimension, how the three dimensions should be incorporated in curriculum and instruction, and how these dimensions step forward in sophistication across K-12. A paradigm shift from basic skills to digital immersion has changed and is going to change further in the landscape for educators. In this context, teacher's knowledge about language and language learning support strategies can improve the overall science learning experience of all students, especially ELLs since learning that occurs in a content-rich classroom environment.

The framework defines eight science and engineering practices:

- Asking questions (for science) and defining problems (for engineering);
- Developing and using models;
- Planning and carrying out investigations;
- Analyzing and interpreting data;
- Using mathematics and computational thinking;
- Constructing explanations (for science) and developing designs (for engineering);
- Engaging in argument from evidence; and
- Obtaining, evaluating and communicating information.

Engagement in any of these practices involves both logic and language use. The practices entwine with one another during the process. This logic is key to venture for students as it helps them transition from their inexperienced notion of the world to more scientifically-based conceptions.

The Next Generation may not have English language classes because the language education that they receive in the school will suffice to proceed and face the world. Their doubts regarding language use can easily be clarified through online resources. Since globalization, every country in the world started learning and mastering the English language for all business and professional success. The thinking tongue will not trouble the English Language users. The content that they are going to master in their graduation will certainly be in English and all the K-12 frameworks automatically followed. Inquiry-based education involves students in the learning process. Teachers truly are the facilitators to encourage and entail the students in collaborative learning. The project works that they undertake as a part of the curriculum will help the community. The curriculum of the future generation includes

- Language Intensive Tasks to Engage in Science and Engineering Practices
- Science Text and Science Talk
- Language Intensive Tasks to Engage in Science and Engineering Practices

Language is the basis for all communication and the primary instrument of thought. Thinking, Learning and Language go hand in hand. Language is governed by rules and principles which are used to explore and explain information. The philosophy of language describes a personal ability, interpersonal relationships (socialization), extending experiences, reflecting on thought and action to develop a better society. The professional education should augment the needs of the community. Language, therefore, is essential to the people's rational, social and is a key for all learning areas.

The teacher must explain and assist a classroom culture of discourse. It invites contributions to share while accepting the imperfect usage of the language. Discussions help the students learn, unlearn and relearn many things. The English Language Learners find many opportunities to engage in. Adeptness in the language lets the students contact, practice and remain abreast of information to connect with the wider and more diverse communities. Successful learning involves listening, speaking, reading and writing activities. It encourages the students to recognize, accept, value and build confidence to develop communicative competence and critical thinking.

Features of Science Language

Science talk deals with information related to science. It develops language use. It helps to practice communication and allows the students to apply their idea and share about what they have seen and done. The exchange of ideas helps students broaden their perspectives. The face-to-face interactions support both science learning and the development of language. The vocabulary of science needs to be mastered and the students while sharing the ideas, use specific vocabulary. While teaching these intricacies, the teachers face a challenge with students' general use of language that they bring to the classroom. The role of a teacher is to build a bridge between the known language's usage and academic ways of using it properly. To share an idea on Science, the structure of the sentence is very important to sort out the thought process which arrests the attention of the audience. The multiliteracy skills help the students to appreciate the inclined socio-cultural multiplicity and assess the meaning of any form of a message depends on perspective, intention, and addressees. Learning the register of a discourse of a discipline is a form of socialization into how members of the discipline talk, write and participate in the knowledge construction. Receptive skills, productive skills, grammar, and vocabulary will be taught in an integrated manner. Effective language use includes skills content, theme, topic, value integration, and knowledge. It helps the students to develop macro-skills and allows the students to think critically and creatively to make meaning through language.

REFERENCES

1. *Anderson, L. and Krathwohl, D. (2000): Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Allyn & Bacon: New York*
2. *Quinn, H., Lee, O., & Valdés, G. (2012). Language demands and opportunities in relation to Next Generation Science Standards for English language learners: What teachers need to know. Commissioned papers on language and literacy issues in the Common Core State Standards and Next Generation Science Standards, 94, 32.*
3. *Brown, P., Lauder, H., & Ashton, D. (2008). Education, globalization and the Knowledge Society. London: The Teaching and Learning Research Programme.*
4. *Garcia, O. (2009). Bilingual Education in the 21st century. Malden, MA: Wiley-Blackwell Press.*
5. *Gay, G. (2002). Preparing for Culturally Responsive Teaching. Journal of Teacher Education, 9*
6. *Gibbons, P. (2006). Bridging discourses in the ESL classroom. New York: Continuum Press.*
7. *Halliday, M. A. K., & Martin, J. R. (1993). Writing science: Literacy and discursive power. Pittsburgh, PA: University of Pittsburgh Press.*
8. *Halliday, M. A. K., & Matthiessen, C. (2004). An introduction to functional grammar (3rd ed.). London: Arnold Press.*
9. *Hudicourt-Barnes, J. (2003). The Use of Argumentation in Haitian Creole science classrooms. Harvard Educational Review*
10. *The new literacy (online). Technology and Learning magazine. Retrieved from http://www.techlearning.com/curriculum/0035/the-new-literacy/42060*