Uniqbu Journal of Social Sciences (UJSS)
E-ISSN: 2723-3669
Volume 2 Nomor 3, December 2021 Halaman 1—7

STEM EDUCATION AND EFFECTS OF THE STUDENTS' PERCEPTION

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(Received 17 December; Revised 26 December; Accepted 30 December 2021)

Abstract

In recent years there has been a significant change in the learning areas of technology courses and those of the sciences. The introduction of STEM courses in the school at all levels has dramatically helped young students understand science's essence and practice. An essential point in this change was the participation of students in such STEM programs, which changed the data in education worldwide. Although the introduction of STEM has become significant for the empowerment of students and their shift to science, it is now an essential tool in the hands of teachers to create studies and presentations with their students in many different subjects, even in theoretical lessons. This has important implications for children's abilities in the learning process, in the approach to scientific fields, and Physiology. In the present research, the results of the implementation of STEM programs in schools are studied and analyzed concerning improving the parameters of students' perceptions.
Keywords: *STEM, Education, Science, Physiology, Perception*

INTRODUCTION

Implementing STEM programs may initially be an essential tool for extending knowledge in some courses. However, much more, it seems to have significant results in the management of knowledge and the extension of scientific knowledge in other scientific fields through substantial cooperation of sciences. It is imperative to understand how children through a STEM program understand the sciences and their role in producing an overall result. Many years ago, we believed that each science shows an integral and unique role in the learning process and that each student should understand each science separately without necessarily being able to combine it with other sciences.

This made students display individual knowledge and specialize in gaining a turn and love for science, which was not always something that worked on its own but was already well integrated and well hidden among other sciences. This was a detail that in the past had led great researchers and naturalists to realize that perhaps all the

sciences had a role to play and a special place in what we now call science. Let's look at Physiology, for example. It is an essential part of medical science that describes the rules of life and physiological changes in the human body.

But it is crucial to see that physiology has been created from many other parts of scientific theory and experimental data (Drougas V.(2006)).

For example, it contains enough physics, essential mathematics, geometry and trigonometry, important topics from electricity and magnetism, and much Medicine. All these together are an essential specialty for research in Medicine with significant results.

STEM In Modern Education

Today, we know that physics and engineering and materials and mathematics are also the core group of engineering courses.

This is a crucial point to understand the essence of implementing STEM programs in education and especially in school. Children have meaningful experiences and experiences which we as teachers can translate scientifically and highlight the tools from any science to children to understand the role of each science in their learning.

STEM education is an integral part of holistic school education where everything can be used for the benefit of creation and a practice that will bring out the sciences and experiment but much more what is happening around us and we know it, can, to participate in it but we may not have understood the scientific data of this problem.

Thus it can be the way to discover and document ideas and an essential tool of group participation of students to discover and solve questions. If we look at STEM education in this direction, we will understand that it is an educational creation tool where the role of science in every problem is discovered. Through guidance from the teacher, students are invited to discover these sciences, see their role in who they create, and find themselves in the problem by discovering and creating questions, ideas, and actions that help their perceptual ability (Drougas V. (2006)).

But what does it mean to discover or create controversies over the data through the use and data of the mouthpieces. It is a method that helps the student and later the researcher act independently and discover. This is the first step in research and discovery. Through STEM programs, the student creates questions related to the perception in each event and more specific to the space where the object being studied evolves or a phenomenon related to science.

This is how he changes the way he can see the world around him evolving. He discovers science at every moment and realizes the essence and value of science and learning. This enhances the learning process in the school and, of course, the school entity as a core of discovery and lifelong learning. Through this process, however, he learns to rediscover, to question, to parallel, to support, and to reject, and to understand.

Every process in a STEM program presupposes the participation of children in a project that can have construction and collective creation. The creation is the result of the union of all the sciences involved in learning by the students. The essence lies in the discovery of creation and conclusion. In the present study, the orientation of the study

is in conclusion related to the result and the effects on the Physiological perception.

The Physiological Parameters

Let's see what happens. The discovery process activates data coordinates in memory that have been repositioned in previous experiences. This data can be used as a basis for the cooperation of the problem data with science and will be a crucial criterion to function as a starting point for creating proposals and actions for the analysis and solution of the problem.

Whenever the experience is lacking, the data of the problem narrows the limits for quick discovery and easy management. Every STEM study presents such problems, especially if students do not have prior experience and sufficient basic knowledge from the sciences involved in the data of the problem analysis. Effect not only science but also construction skills by students.

This is because students do not participate in the program to listen to a lecture but to create the conditions themselves to study the problem, and this requires skills and imagination and an understanding of what they will create and what will come next.

So students should acquire perceptual skills related to visual and memory which will help students engage the sciences in the data of the problem.

The perception of space plays a vital role in completing a STEM problem because it is essential for creating the representation of the problem either by constructing a model or with an accurate three-dimensional model (Drougas V. (2021)).

In the case of creating a model, students need to take action by creating constructions and solving problems, especially when it comes to the representation of natural phenomena and problems related to everyday life.

For example, the representation of an earthquake, the derailment of a train, or even the reconstruction of the foundations of a bridge over the river. All this has to do with a particular global knowledge from many different fields of science that can highlight the collaborations of sciences with each other (S. ÇINAR, N. PIRASA, N. UZUN, S.ERENLER (2016)).

Every step in a STEM program, especially in constructing a model, is a process where perception plays an important role. Students really need to have the model in their fanaticism as they would like to make it, but in the process, they create the model changes. The perceptual ability of the children and the teacher plays an essential role in this. We do not expect to build something unless we are a fan of it.

Our perceptual ability guides each step. It has two states, and both are very important for completing a STEM program. In the first, we expect to have cultivated the possibility of perceiving the essence of the problem and relating knowledge that is placed in memory either as knowledge of learning science or as a participatory and visual experience.

In this phase, students can retrieve prior knowledge experiences and compare them with the data and demands of the problem. (Chesky Nataly Z., Wolfmeyer Mark R. (2015)).

Most of the time, children do not have this opportunity, but they can very quickly acquire it and become more active and flexible through their participation in more different STEM programs each time. Thus they learn to arrange in their minds and thoughts their existing knowledge and experiences and to discover the conditions under which this knowledge will be used. In

the second case, perception is related to reality. That is the fundamental nature of the problem, which requires its realization—for example, constructing an actual 3D model or a model (Drougas V. (2021)).

Students are invited here to have construction and functional skills that will help complete the project. Suppose there is no such possibility, then the program can hardly be completed. In this case, the appropriate conditions must be created for the children to have such possibilities. Skills workshops cultivate such possibilities in children and provide constructive information and the introductory technology lesson taught in school.

These courses are fundamental to collaborating and creating essential learning areas for students. Therefore we have to look behind each STEM program for its completion. It should not be defined as an independent program that is highly specialized but as an extension, a continuation of other programs through which students adapt ideas, change action conditions, and learn to create using prior knowledge and imagination. Imagination plays a crucial role in learning. Without it, prior knowledge cannot be shaken, but it is also challenging to create new models.

Imagination is crucial for play, knowledge, STEM, and research. In any case, the students through STEM become small researchers where they reproduce data and suggest new ones while exploring conditions and giving suggestions according to their experience. And this is very important for the dissemination of knowledge and its consolidation.

It may be more important than books with many pages of theories with limited formats and standard self-efficacy exercises for students.

This way, they often force anxious young researchers to lag far behind without cultivating their imagination and creativity. We often find them disgusted with science and learning because they usually do not understand things they cannot participate actively. So they are often disgusted with the sciences. STEM comes very well to overcome this problem and stimulate the children to follow the sciences with a lot of appetite and mood and understand the way and why they work together.

So through the constructions and the creation, they develop a perfect relation with the characteristics of the space that are related to the space-time perception (Drougas V.(2006)). They experientially discover the coordinates by calculating distances concerning the data of the problem, and they analyze parameters and conditions related to reality and not to virtual reality.

This means that they study and participate in the reality that is an essential part of the application of science. It is also crucial to see the value of creation as a uniqueness because everything created in actual conditions cannot be destroyed and created the same from the beginning.

Each recreating is different from the previous one, so it produces a different result.

In virtual reality courses where we can see programs for Physics, Mathematics, Engineering, Chemistry, and others, the methods and conditions are different.

It is possible to have the imagination that will work in any experiment or construction, but we can very quickly restructure the problem through which we can create perfection and repeat the construction as

many times as we want. In reality, however, things are very different.

Take, for example, the construction of a bridge. A STEM program that may be done at the school. Every failure results in the bridge's destruction and fall, which is very important. The children understand this, so they find that the reality is different, and there must be an organized plan of knowledge and practice. We cannot press a button like on the computer and restart and create a new bridge.

So students need to cultivate their perceptions. This, together with imagination and knowledge, are the criteria for a proper presentation of STEM and construction. Thus, the perception in both hypostases can help complete STEM presentation.

Every time children complete a new program, their perceptual ability improves, as do the factors associated with perception, such as cultivating the senses related to everyday life. Therefore, it is imperative to see the reality behind each STEM program that can help children in their daily lives and everyday lives by allowing them to make decisions and be active.

An essential part in which STEM presents substantial results is the creation of the integration of students in the philosophy of the globality of thought.

This has to do with discovering the essence of the correlation of things and can significantly help students create their own patterns of discovery and invention.

This is the most straightforward process by which students can create their discovery plan. Depending on their experiences and previous knowledge, this plan changes from student to student and from school to school.

So we can say that the same educational model and program can work differently for different students and schools and in countries with specific standards of education.

Therefore, education systems play an important role in the future of education and the response of modern programs such as STEM programs.

As a comprehensive educational program, it can definitely help improve the quality of education but much more it can help students improve their perception in their learning, knowledge, science, and application.

Although we can see a STEM program as a complete program in a field of study, the discovery method used in this particular program is directly related to the perceptual ability of children. Students who have previously worked on other related construction consolidation or development projects can more easily assist in completing a STEM program (Caine, R.N., Caine, G., McClintic, C.L., & Klimek, K.J. (2004)).

This is due to their previous experience but much more because of their improved perceptual ability to promote ideas, to discover ways to implement the theme given to them, and much more because they know where to look back and how to use their prior knowledge.

We can therefore conclude that the perceptual ability of students who will participate in a comprehensive STEM program is mainly related to previous experience, their discovery, prior knowledge, their ability to create and construct, to find the application of science in everyday life and applications and also to be able to concentrate on the goal because in this way the best result can be achieved (Drougas V. (2021)).

Perception as a parameter of learning

Finally, perception is also related to the organization because everything in the knowledge that is not organized is lost and scattered without substance through an infinite escape process, and so the goal and the correct result are increasingly removed. Children who are less focused in classes or their daily lives even outside of school and not focused on the goal should start with more accessible STEM programs to be educated and adapt to the specifics and requirements of similar programs at school and beyond.

Because in every program, the participation has an impact and the active action and the production and management of ideas in an exploratory process and a storm of ideas that it is vital to manage them.

Among the immediate results that STEM can give us such as:

a. Improves creativity
b. Increases team collaboration
c. Empowers critical thinking skills
d. Improves cognitive skills
e. Cognitive behavior
f. Perceptual stimulation

It is essential to see how to manage the data to reach the documented results as efficiently and safely as possible.

After that, each participant will be a field of prior knowledge and experience for students and teachers and a criterion for improving their perceptual parameters.

These will be the legacy for each subsequent program, difficult or easy, and will also be the basis of the essence of its methodology for improving and discovering knowledge in the modern school (Kennedy, T. J.; Odell, M. R. L. (2014)).

Summarizing the perceptual changes in students are related to the perception of space, the perception of time, the perception of depth of field, color perception, the discovery of relief, the ability to compare, and the perception of scale when it comes to creating models or a scale model for the study of a phenomenon or a technological construction (David W. White, (2014)).

Perception is sketched in STEM with discovery through approximation processes such as constructions and understanding of the parameters sketched with the representation of the problem (Drougas V.(2006)).

Perception in STEM is related to the discovery through approximation processes such as constructions and understanding the parameters related to the representation of the problem.

Everything contained in the problem solving and the relationship of the sciences to each other can be considered as a visual and mnemonic method of problem-solving where students can compare data to discover ways and methods that will help implement their ideas and discover ways to complete their implementation (Ansari, D. & Coch, D. (2006)).

Thus the perception is related to the visual and memorable experience and the capture of the image of the problem data. Imagination, therefore, plays a critical role and the ability of perception to properly arrange the valuable data that have studies of those who have gained from their experience in school and their social life and even in games with their classmates.

CONCLUSION

STEM is a modern process of adapting the sciences in collaboration with discovery and applications. This adaptation can significantly help students discover actions

through which they will find and document the essence of science. This is an experience that can be a process of daily viruses and discovering the richness of science applications in our lives.

In fact, any such process of adaptation of students to a particular STEM program is a process of self-discovery and consolidation and also an adaptation to the ability and tendency of students to improve and identify knowledge.

Through this process, young researchers are created almost ready to be active in the daily discovery and identification of knowledge.

Any such effort involves improving the parameters of perception that are typically essential tools for improving learning activity in the modern school.

Thus the essence of discovery is related and goes hand in hand with the essence of creative ability and effort. Each such process is based on the succession of perception, commitment, and acceptance.

Because a STEM program is a functional tool in both the knowledge and psychology of the students involved in it and the teachers, the STEM is a process of aesthetic perception that incorporates the sciences involved each time. So it is a complete program of modern educational activity in the modern demanding school.

BIBLIOGRAPHY

Ansari, D., & Coch, D. (2006). Bridges over troubled waters: education and cognitive neuroscience. Trends in Cognitive Sciences, 10(4), 146-151.

Caine, R.N., Caine, G., McClintic, C.L., & Klimek, K.J. (2004). 12 Brain/Mind Learning Principles in Action: The Fieldbook for Making Connections, Teaching, and the Human Brain. Thousand Oaks, CA: Corwin Press.

Chesky Nataly Z., Wolfmeyer Mark R. (2015) Philosophy of STEM Education: A Critical Investigation, Palgrave Macmillan, New York 2015

David W. White, (2014) What Is STEM Education and Why Is It Important? Florida Association of Teacher Educators Journal Volume 1 Number 14 2014 1-9.

Drougas V.(2006) PhD Thesis School of Medicine University of Ioannina Greece 2006

Drougas V. (2021)."Discovering the Person with a 3D model" Under approval at the PanHellenic and International Conference "STE (A) M educators and education" May 7-9, 2021

Kennedy, T. J.; Odell, M. R. L. (2014) ¨Engaging Students in STEM Education Science Education International, v25 n3 p246-258, 2014

S. ÇINAR, N. PIRASA, N. UZUN, S.ERENLER (2016). The Effect of Stem Education on Pre-Service Science Teachers' Perception of Interdisciplinary Education Journal of Turkish Science Education July 2016, 13(Special Issue), 118-142http://www.tused.orgISSN:1304-6020