

**ARMATH ENGINEERING LABORATORIES AS AN ARMENIAN SCIENTIFIC
-EDUCATIONAL BRAND AND A NEW COMMUNICATION PLATFORM**

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In the era of globalization, people from different countries and societies need to communicate with each other. As the world develops globally, where isolation and separation are excluded, the social media and networks are becoming more and more popular year by year. No matter where you are in the world the exchange of ideas and communication has become faster, easier, and more efficient due to advanced technologies. Cell phones, social networking websites, e-mail, and instant messaging are examples of technology which enable communication. Thus Information technology plays a crucial role in using technology to communicate.⁷⁴ In spite of the above-mentioned possibilities provided by IT technologies in intercultural communication, the varying values and norms can pose serious challenges. Nowadays people who are experienced in cross-cultural practices understand, that only developed linguistic skills do not provide your successful and comprehensible communication. Some cultures are informal, some cultures use a whole series of ritual greetings before having a conversation, and others consider it rude to show up to a meeting on time. In today's increasingly interconnected and globalised world, tradition is being supplemented by new and exciting ways to bring the world into our classrooms. Modern means of communication ensure that our students can easily get acquainted with foreign cultures. Even pupils from geographically distant schools (regions) get to know other cultures due to the comfort of their own classroom. The idea that children should be aware of themselves in respect of fitting into their community both on a local and global scale is of great importance nowadays. Every student, regardless of cultural or linguistic background, has the right to learn in a safe and inclusive environment, and schools should act as foundations of a multicultural society. Education, thus, having an acculturating role, becomes a means of not only sharing information but also of creating thoughtful, innovative and active members of society. Cultural education

⁷⁴ Zachary Fenell-The Impact of Information Technology on Communication
<https://www.techwalla.com/articles/the-impact-of-information-technology-on-communication>

broadens horizons through understanding cultures, identities and environments embodying our commitment to social purpose. Learning about other cultures, achievements and experiences in different places and ages help us to understand the world.

Studying other peoples' creativity experience challenges our students to develop their own creative thinking skills, which can prove useful to solve problems that they might encounter in the future. Such learning enables the students to develop the skills, understanding and flexibility to deal with change, to engage with ideas critically and independently, that will lead them to a better understanding of what types of problems they *would like to solve*.

Owing to its influence on a well-rounded development - both physical and spiritual education is essential for everyone. Precise education facilitates in self-actualization, develops the ability to acquire the skill sets needed for employability. Education is an exceptional investment in the present and the future⁷⁵.

In order to enable a person to succeed in the various environments in which they function daily, to empower students and guide them towards the development of new values, education should be provided in an accurate, scientific and understandable manner.

A very effective way of imparting the knowledge and skills the children need is through getting them involved in their own learning process. Thus the students within the school system develop the necessary skills and adapt these skills for the application within the border communities in which they live. Training should not only seek to inform students but to also allow their abilities to think and function, to develop progressively in age-appropriate stages.⁷⁶

Currently, education spreads its influence in communication through Information Technologies, and few people can deny the paramount role of education in communication and vice versa. Whether it is teacher to student, student to student, teacher to teacher, teacher to parent, teacher to admin or admin to parent, or vice versa, communication is needed to make sure that students are successful.

Technologies can help improve communication, as today's educational-systems stuff deals with each other through social networks. Using IT in classes makes it easier for both students and teachers to communicate.

⁷⁵ Mitsuyo Tamai-Exploring education via information communication technologies in India
<https://www.entrepreneur.com/article/287031>

⁷⁶ Peace Corps, Life Skills Manual, 2001.

https://www.unicef.org/jamaica/MOHEY_HFLE_EVALUATION_FINAL_REPORT.pdf

The use of Information Technology in the classroom has left behind the traditional methods of delivering long, often boring lectures. Using IT the teachers can create interesting audio and visual presentations which will keep the students engaged and give them a greater understanding of all the concepts discussed. Besides, such a methodology can give rise to interactive sessions between students and teachers; by importing IT in the educational system we can make the classes more fun, attractive and interactive.

A few years ago the students had to spend hours in libraries to search for information or data they needed for their dissertation or diverse assignments. Nowadays this problem can easily be solved. Thanks to IT they can now access any information they need using their computers or mobile phones. They can search for Google and YouTube for any sort of article they are looking for thus making their writing much more comprehensive and understandable.⁷⁷

Educational technology provides the way for students to be active participants in their learning and to present differentiated questioning approaches. It expands individualized education and encourages the progress of personalized learning plans. Students are encouraged to use multimedia components and to integrate the knowledge they achieved in innovative ways.

All the developed and developing countries try to use educational facilities necessary to prepare young people to play full roles in modern society and to contribute to a knowledgeable nation.

Educational technologies and materials that reflect **Own** national and regional cultures are key components in achieving *Education for ALL GOALS*.⁷⁸ In the search for further innovation both the developed and developing countries must be able to benefit from truly very rapid technological progress that leads to changes in work, especially of its organization: required competencies are therefore changed. A secondary curriculum should contribute to the building up of the teams of professionals with these new competencies.

A very unique educational model of transmitting values, attitudes and cultural identity through the process which prepares individuals to understand

⁷⁷ Julian Watson-Role of Information Technology Education

<https://www.dailyonweb.com/Technology/Role-of-Information-Technology-in-Education.html>

⁷⁸ Evgueni Khvilon, Mariana Patru -Information and communication technology in education: A curriculum for schools and programme of teacher development, Division of Higher Education, UNESCO 2002

and cope with themselves and others is the introduction of ARMATH engineering laboratories in the public school- system of Armenia. The young engineers are given the opportunity to design, build, test, and improve their own creations in a safe and fun environment while making new friends, communicating and creating startups.

The newly introduced ARMATH educational system is expected to have a serious impact on the social and cultural value of the younger generation. It can revolutionize the way we perceive education and eventually bring fundamental changes to the traditional educational model widely practised in Armenia (and not only) mainly based on information storage without analyzing and comprehending it. Textbook knowledge, intransigent ideas, and the importance of the tests have transformed the purpose of education, with open debates and logical reasoning taking a back seat. It obviously discourages critical thinking and creativity is lacking. Meanwhile, we need to develop “free thinking” in learners, give them possibilities to speculate, criticize, and form conclusions about the knowledge they already have as well as information they **will** acquire in the future. As Researcher Dr Peter Facione states “Education is nothing more, nor less than learning to think.”⁷⁹The most important phenomenon highlighted in the children attending ARMATH laboratories is their constant interest in technology. It is truly important that the child goes home, finds something on YouTube, generates new ideas and tries to call them to life during the next classes of ARMATH.

There are now *more than 250 engineering laboratories* functioning in the RA, Artsakh and Georgia. More than *6500 students* are involved in the programs. Through interactive after-school classes, exciting competitions, innovative camps at Armath Engineering Laboratories children *aged 10-18 are introduced to science, technology, engineering and math education.*

The project aims to promote the technological education in all schools of the Armenian community, assist pupils in their early interest emergence in modern technology, to boost the development of engineering mindset from early ages, prepare the professional workforce and solve a wide range of social-economic issues linked to the national security, economic development and education.⁸⁰ Studying at ARMATH labs students develop skills not only

⁷⁹ How can teachers encourage and promote critical thinking among their students
<https://k12teacherstaffdevelopment.com/tlb/how-can-teachers-encourage-and-promote-critical-thinking-among-their-students/>

⁸⁰ <https://armath.am/en/about>

essential to their education but also their personal and professional development as well. They gain important competencies and skills that are important for the professional organization of work, such as: 1. critical thinking, 2. broad competencies, 3. decision-making, And solid strategies such as: 1. competencies enabling expert work, 2. Dynamic decision making, 3. working as a member of a team, 4. communicating effectively.

The project is managed by the Union of Advanced Technology Enterprise (UATE) and has a number of supporting structures, such as the government, private business sector, adjacent programs, international organizations and research centres. The most important outcome is the activating of technological education in Armenia, contribution to regional development.

As a result of the project implementation the main expected impacts are:

1. Professional orientation towards the engineering profession workforce with new quality
3. Promotion of entrepreneurial culture
4. Strengthening of the chain "school system-labour market-university system-labour market"
5. Improvement of the demographical situation
6. The link between the companies of the sector and the educational system, etc. ⁸¹

The economic activity increase in the ICT sector will lead to

1. Development of other sectors of the economy,
2. Regional development,
3. Termination of emigration a promotion of immigration,
4. Formation of leads and entrepreneurs of new quality.

Within the frames of the ARMATH engineering laboratories *motivating events, contests, summer camps such as* “3D modelling competition”, “DigiCode Applied Programming Youth Contest”, “Open game”, etc. are held. All of them aim at awakening and raising the schoolchildren’s creative potential, developing their algorithmic thinking and turning them from *game consumers to game makers*.⁸² While working in this environment, schoolchildren from all the regions of Armenia meet each other, discuss the strengths and weaknesses of their games and evaluate each other’s work, share knowledge and innovative ideas. The initiated summer *camps such as* ‘Armath Technocamp’, ‘Digicamp’

⁸¹ the same place

⁸² <https://armath.am/en/events/7>

in a totally new format *provide the children with an opportunity* to recognize their homeland, *Armenian culture, customs and traditions*, express their admiration and, why not, cherish the idea to return and live in Armenia. The summer camps strengthen the bond between the children living in the Republic of Armenia and in the Diaspora. Eventually, they serve as an excellent opportunity for an open dialogue, teamwork, for sharing experience and knowledge, establishing ties and educating a generation with national commitment.

In his welcome speech, the Minister of Science and Education, Arayik Harutyunyan noted, "Education is an important part of the program of the government and we want it to become one of the significant brands of our country. And on our way to that, it is very important to note that the network of ARMATH Engineering Laboratories is already expanding outside the borders of Armenia thus becoming one of our scientific and educational brands".⁸³ We can thus conclude that ARMATH educational laboratories have ample opportunity to develop the schoolchildren's individual capacities in a safe and supportive environment, promote their physical, psychological, spiritual, social, emotional, cognitive and cultural development.

⁸³ <http://whyarmenia.am/work-here/extreme-living/detail/the-225th-armath-engineering-laboratory-opened-in-akhalkalaki-georgia>

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Գ. Մ. Գրիգորյան. «Արմաթ» ինժեներական լաբորատորիաները որպես հայկական գիտակրթական ապրանքանիշ և հաղորդակցության նոր հարթակ - Հայաստանի դպրոցական կրթական համակարգում ներդրվել է կրթական ինքնատիպ մի մոդել, որը մշակութային արժեքները, հարաբերությունները և ինքնությունը փոխանցում է՝ անհատին նախապատրաստելով փոխըմբռնման և հաղորդակցության: «Արմաթ» անվանմամբ նոր գիտակրթական ապրանքանիշն արդեն տարածում է գտել ՀՀ սահմաններից դուրս: Ակնկալվում է, որ նրա կիրառումը կնպաստի մտածելակերպի և ստեղծագործական մոտեցման փոփոխություններին, ինչի շնորհիվ կվերանայվեն երիտասարդ սերնդի սոցիալական արժեքները: Նոր կրթական մոդելը թույլ կտա նորարարական գաղափարներ առաջարկել, զարգացնել ազատ, քննադատական, անկախ մտածելակերպ և ճիշտ կիրառել եղած և ստանալիք գիտելիքները: «Արմաթ» ինժեներական լաբորատորիաները երիտասարդ ինժեներներին ապահովում են առողջ և անվտանգ միջավայրով՝ նա-

խագծելու, կառուցելու, փորձարկելու և սեփական ստեղծագործությունները բարելավելու համար, միաժամանակ նրանք ձեռք են բերում նոր ընկերներ, նոր մեկնարկների սկիզբ դնում, և այս ամենը՝ շարունակական հաղորդակցման միջոցով:

Г. М. Григорян. Инженерные лаборатории АРМАТ как армянский научно- образовательный бренд и новая платформа коммуникации. Весьма уникальная образовательная модель, которая передает культурные ценности, отношения и идентичность посредством подготовки личности к пониманию, самоовладению и общению, внедрена в школьную образовательную систему Армении. Новый научно-образовательный бренд, носящий название АРМАТ, уже выходит за пределы Армении и ожидается, что благодаря переменам в менталитете и подходе к творчеству произойдет пересмотр социальных ценностей у молодого поколения. Новая образовательная модель позволит выдвигать инновационные идеи, развить свободное, критическое, независимое мышление и правильно использовать имеющиеся и ожидаемые знания. Инженерные лаборатории АРМАТ создают для новых инженеров здоровую и безопасную среду для проектирования, построения, тестирования и улучшения собственных творений. В процессе этого дети приобретают новых друзей, создают новые стартапы и все это-путем непрерывного общения.