

Development of 21st-century life skills among students: Teacher TPACK as guideline factor

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Abstract

Education is not intended to provide only degrees. It is meant to prepare an individual as a human being as per the need of society and also inculcate skills in them so that they can contribute to the development of society. The 21st century is facing rapid growth in technology, which has impacted every global sector. The emergence of knowledge and information has given major exposure to change in every working sector. To cope with rapid change, we need to adopt new skills, bring necessary change, and upgradation of our knowledge is important. So, the 21st cent skills & competencies inculcation in students is essential to be successful in the 21st-century industry. TPACK is a framework that supports teachers in the planning, implementation, and reflection on their teaching method with appropriate use of their domain of education which is Technology Pedagogy & content knowledge. Life skills talked about the skill which will be the pillar of students' holistic development for their future.

Keywords: Students, Teachers, Life skills, Pharma, TPACK..

INTRODUCTION

Education is not intended to provide only degrees. It is meant to prepare an individual as a human being as per the need of society and also inculcate skills in them so that they can contribute to the development of society. Education is a process that instills learning skills, life skills & literacy skills in students, through this practice only the aim of education can be achieved. Nowadays learning is not limited to classrooms room and teachers; it includes a variety of settings like community, classroom, etc. Skills are eminent for every individual personal life as well as professional life, they should be inculcated in every student regardless of stream, higher studies, or school students. In pharmacy students associate with multiple faculties and due to this they face many challenges in their course. The intervention of technology has made the process affluent. The University of Sydney has employed the Pharmacy Dashboard, developed to address these challenges following TPACK to integrate technology into teaching. The dashboard is used to pull student learning experience through the proper feedback which will help enhance their skills. (Bartlett et al., 2021) An article mentions the Future nursing report which says that the role of the nurse will be altered in the US in this decade because of the demographic and technological development in the field. The development will impact nurses' skills in tackling patients and adopting an advanced culture of health care. Further, this article indicates adopting the TPACK framework for their trainee students of nursing to make them competent and instill skills per the 21st cent. (How TPACK Can Improve Nursing Education - Elsevier Education, n.d.) Students are the future of society; their development is important for the advancement of society. In the 21st cent technological advancement constantly is evolving. So the in current scenario student needs a new set of skills to perform & cope with an intricate and continuously evolving society. Various work is done on the categorization, definition, and applicability of these skills has been generated. (Erdem, 2020). "The literature on 21st-century skills is based on the assumption that the new century requires different skills for individuals to function effectively in every walk of life."(OCDE, 2009)

CBSE has to define 21st-century skills as "The term 21st-century skills refer to a broad set of knowledge, skills, work habits, and character traits that are believed— by educators, school reformers, college professors, employers, and others—to be

critically important to success in today’s world”. School plays a very important role in children's development and desired change.

Background of the study

The 21st century is facing rapid growth in technology, which has impacted every global sector. The emergence of knowledge and information has given major exposure to change in every working sector. To cope with rapid change, we need to adopt new skills, bring necessary change, and upgradation of our knowledge is important. Education is the core of society, bringing positive and skilled change to our environment. So, the 21st cent skills & competencies inculcation in students is essential to be successful in the 21st-century industry. A survey is conducted by the world economic forum which elaborates on the modification in demand of skills in working society. The data is shown in the graphical method.

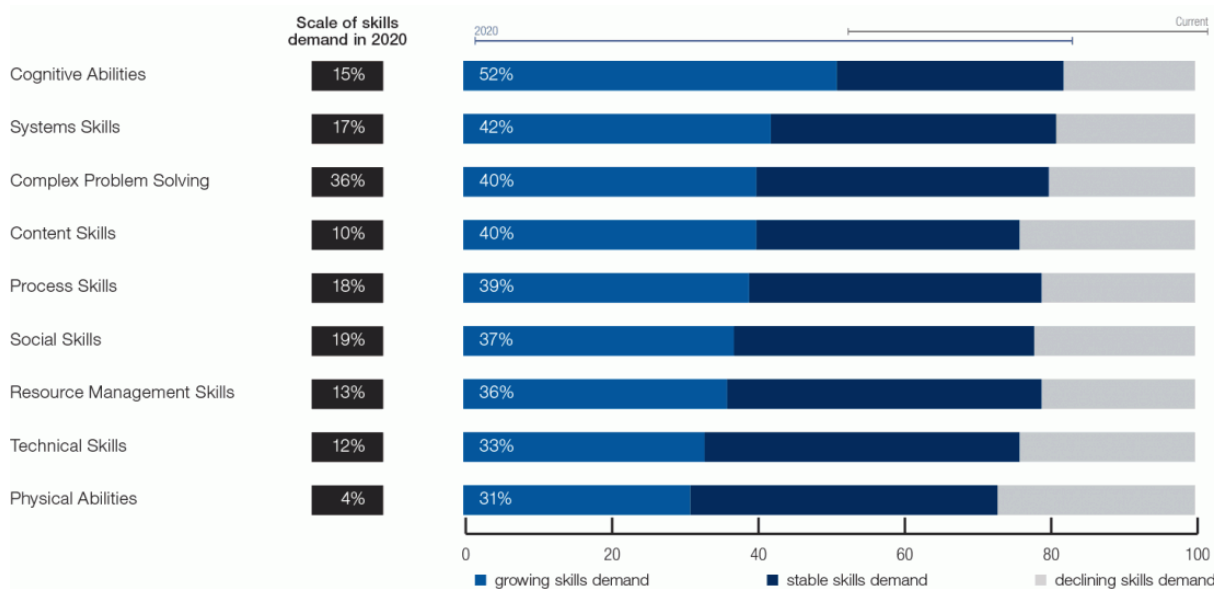


Figure 1: Demand for work-related skills in industries (Survey done by world economic forum) (World Economic Forum, 2016)

The policy maker and educationists have focused on the demand of society and they have brought up needed development in the curriculum and also focused on holistic development and preparing the student for the future. The teaching methods have been reoriented from authoritarian to laissez-faire. In the last few years, teachers’ professional skills have been changed or modified, presently, a teacher should be proficient with the subject knowledge and teaching skill as well as should have adroit technological skills for the teaching-learning process. The 21st-century skills not only talk about the content knowledge this is formed to integrate other skills like technological skills, critical thinking, problem-solving skills, etc.

21st Century Skills refer to the skills that are required to enable an individual to face the challenges of the 21st-century world that is globally active, digitally transforming, collaboratively moving forward, creatively progressing, seeking competent human-resource, and quick in adopting changes. NCF 2005 define life skill as the “Development of life skills such as critical thinking skills, interpersonal communication skills, negotiation/ refusal skills, decision making/ problem-solving skills, and coping and self-management skills is also very critical for dealing with the demands and challenges of everyday life.” (“National Curriculum Framework 2005,” 2005)

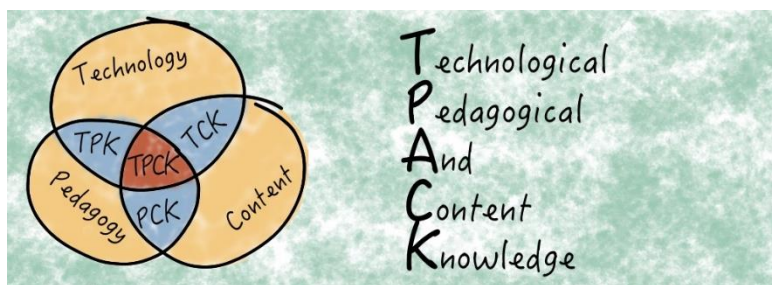


Fig 2: TPACK Framework (Tpack.org, 2012)

TPACK: “Technological Pedagogical Content Knowledge tries to identify the nature of knowledge required by teachers for technology integration in their teaching while addressing the complex, multifaceted and situated nature of teacher knowledge. The TPACK framework extends Shulman’s idea of Pedagogical Content Knowledge.”(Tpack.org, 2012)TPACK discusses the complex nature of three pillars of teaching which is technology, pedagogy, and content. TPACK is the combination of seven domains i.e., technical knowledge, Pedagogical Knowledge, and Content knowledge. Pedagogical content knowledge, Technological content knowledge, Technological pedagogical content knowledge, and technological pedagogical content knowledge, each domain is related to each other to fulfill the need of students for classroom activities. There is no fixed idea to apply technology to content but the teacher who has mastery in these seven domains can cater to the need of students in 21st-century classrooms.

21st-century skills: The Pandemic has thrown many challenges in human life, every individual is struggling and trying to cope with the sudden lifestyle change. Out of many things, students’ future was also at stake because of the shutting down of the schools. But this pandemic also taught us that we need to develop and enhance our skills for coping with real-life change. In the education field, the holistic development of students was always a priority adding to this the set of skills was introduced as 21st-century skills. Now the holistic development of students comprises 21st cent skills that will prepare them for the future. The 21st cent skill is classified into three categories. they are Learning skills, Life skills literacy skills. Learning skills components are: Critical Thinking, Creativity, Collaboration, and Communication literacy skills component are: Literacy of Information, media & technology. Life skills components are FLIPS: Flexibility & Adaptability, Leadership & Responsibility, Initiative &Self-Direction, Productivity, and Social & Cross-Cultural Interaction. (Education, 2020)In this paper, we are discussing the component of life skills for preparing students as better citizens.

Life Skills in the 21st-century classroom:



Figure3: Life skills component of 21st-century skills

Flexibility & Adaptability: In students, Flexibility will instill the ability to change the action or decision as per the situation, without compromising their values. Adaptability will train them to cope with the situations and will adopt a problem-solving attitude in difficult conditions

Leadership & Responsibility: This skill gives a person the ability to lead a team and also responsibility towards the team and also for their own decision to accomplish a task. This ability shows a child's path for the development of human qualities like persistence, commitment, responsibility, commitment, confidence, etc.

Initiative & Self-Direction: Initiation skill involves taking initiation for any task and starting a task without help but with planning and self-motivation. It gives ability in a child critical thinking ability to organize a plan and develop their path for accomplishing the task.

Productivity: It gives understanding to a student to complete a task in a given time, and how to be efficient without distraction. Accountability will teach them a sense of responsibility for their action

Social & cross-cultural interaction: It is important to maintain good relations in different cultural environments. Work cooperatively, good communication, and understanding and respect for other cultures and values.

The objective of the study:

1. To understand the utility of TPACK for implicating life skills in school students.

Previous work:

This article discusses Kivunja's (2014a-2014b) work for understanding new development in learning for its career and life skills. The article discusses the factor of the related domain and how these skills can be instilled in student attitude for their future development—the paper talk about the strategies for teachers to inculcate career and life skills in students. (Kivunja, 2014)

This article discusses the parameters of 21st cent skills which is preparing students for the future. 21st cent. Is not limited to the knowledge of reading, writing & mathematics. it focuses on creativity skills, problem-solving attitude, and cooperative performance, mainly the skills which prepare students for today's workforce where they can effectively perform. The author has suggested a few strategies to incorporate 21st cent skills with learning, like collaborating and communicating through digital medals as well as in physical form. A learner can engage themselves in virtual discussions, science forums, etc Students can collaboratively research a particular topic. Students need to enhance their knowledge of research and development with the help of technology. The teacher should encourage the student for applying their knowledge in practical life.

(Hiong & Osman, 2015) This study aims to form a framework for integrating the 21st cent. Skills in the biology stream. An interdisciplinary technique is proposed for integrating the 21st cent. Skills in with the present curriculum of biology. The interdisciplinary approach helps the students to understand the connection between the discipline. The Interdisciplinary approach BTEM gives students subject knowledge as well as makes them proficient in sub-disciplinary skills. Researchers mention that the main approach used for teaching biology is problem-based learning and inquiry-based learning which needs knowledge and skills both. The interdisciplinary technique is planned in a way that develops students' capability to construct their knowledge with practical and cognitive activities. Students need to emphasize scientific inquiry for developing their skills.

(Kim et al., 2019) An article in a blog published on 30 January 2019 talks about the need for education system alignment for teaching learning 21st-century skills. The blog writer said that the main objective of education is to provide knowledge and concept, but with changing society now educationists are focusing on skill development in learners. This article suggests the alignments in pedagogy curriculum and assessment technique that will support in learning of 21st-century skills for students. The article also suggests that we need to focus on a core understanding of 21st-century skills components and subcomponents so that only we can decide the process and subprocess for integrating skills.

(Bartlett et al., 2021) done a study on the use of a visual Dashboard to enhance pharmacy teaching. Researcher state that the university T-L process is very much dependent on technology. The tool used for the teaching-learning process have an amount of data and the concerned person do not understand how to use data, so it is important to Acclimate teaching strategies for improving students' outcome and skills. The researcher mentioned that the USyd Pharmacy Dashboard was developed in a period of three years. which supports monitoring student performance constancy of staff and maintaining data. Researcher suggests that the TPACK framework interact suitably with all three dimensions of the modern education environment.

Research Question

How life skills can be developed in students with the help of teachers' TPACK?

Research Method

The nature of this paper is qualitative. The data collection for this paper is done through secondary sources like reports, Previous research, article & books. The research foundation is based on the literature data related to the area.

Strategies & Application

Now technical skills in teachers are basic needs with pedagogy and content for inculcating 21st cent skills in students. In this paper, we are discussing the life skills integration in students with the support of teachers' technical pedagogical and content knowledge. With constantly modernizing role of technology in education, have also impacted the way of teaching, and the curriculum is also modified as per the need of our society, A teacher's role is complex, they have to teach the latest development

in the curriculum and also have to adopt the new changes in educational society. they have to constantly work for their professional development as well as have to practice new things in the classroom for the betterment of the students.

A skilled teacher can plan a strategy through which they can give exposure to real-life problematic situations to the students. The teacher can discuss current issues like political, social, or scientific and provide project work to the group of students to find the solution. Teachers can assign work for lesson development and can ask students to role play as a teacher or other professionals. Teachers can prepare a small activity for the student for the play way method. Students can assign to work on the diversity of our society for blogging. Review any show or book and take give a presentation as a classroom activity. Motivate them to participate in sports activities.

NCF 2005 indicates that the curriculum should expose students to practical life skills for various kinds of work experience. Teaching strategies must include activities that provide an experience of social life like participating in a cultural program, field trips, organizing events, and sports activities. Which will enhance their emotional confidence and sensitivity toward others. Life skills can be taught to students through various activities in school life. The students should get more exposure to experiential learning and deeper learning, If a student actively analyzes and reflect on their activities they will be able to take responsibility for their actions, this will boost confidence in them, and eventually, they will be a better leader in the future, Art integrated pedagogy, NPE 2020 cites "Art-integration is a cross-curricular pedagogical approach that utilizes various aspects and forms of art and culture as the basis for learning of concepts across subjects. It not only caters to joyful learning but also focuses on the integration of the Indian culture in the teaching-learning process at every stage of school life. (MHRD, 2020)

Scientific attitudes in them can encourage creativity which will elevate productivity. A teacher can use the inductive deductive reasoning method for encouraging higher-order thinking skills in students. A technically sound teacher can only give training for digital literacy to students. teaching-learnings upgraded from the pen-paper method to the involvement of Digital tools. Various applications and educational gadgets are used for teaching-related work from classroom activities to keeping data of students. A technically skilled teacher can only use their software proficiently and also assign the task to the student which they can assess for student progress.

Interdisciplinary approach: It will help students to understand the reason behind the content and they can build concepts by subtracting their preconceived notions. Interdisciplinary instruction will support students in understanding the ethical aspect of most issues. Ethical aspects involve moral values which can be referred to as the perception of good or bad, what is right and wrong etc. The inculcation of ethical values will make them good citizens for their future. According to The National Council for Teachers of English (NCTE 1995) "educational experiences are more authentic and of greater value to students when the curricula reflect real life, which is multi-faceted rather than being compartmentalized into neat subject-matter packages". This approach can be beneficial for redefining difficulties and attaining solutions established on an understanding of the complicated situation.

Gamification is a technique introduced in education for better student engagement. Through this technique, students can get training for math, language, reading, etc. using a video game interface. Now teachers are more tech-savvy so they can use this technique for better learning outcomes. Games always encourage teamwork and planning & collaboration. Students will practice critical thinking to overcome challenges. They also get training for self-control & self-sufficiency. In team playing this will enrich their communication skills.

Classroom activities through various strategies:

Project-based learning: Many research has shown that students who work in a group for learning activities have cogent benefits. "students who have difficulties with traditional classroom learning benefit significantly from a project-based learning experience which more closely aligns with their learning style and preference "(Barron & Darling-Hammond, 2008)

Inquiry-based learning allows teachers to give exposure to real-life problems through a case study. When students work in groups and research the solution to the problem they work in a multifaceted and collaborative environment. The student discusses various solutions and decides on the best ways for undertaking the project. This method also enriches their communication skills, and understanding of others' view and also provide exposure to real-life problems. There can be various pedagogy skills a teacher can use for teaching life skills to students, It is hard to say which method would be best for inculcating skills. But the teacher who has TPACK knowledge can plan the best way of using technology with appropriate pedagogy which supports the content for learning objectives and instills life skills in the student.

Conclusion

According to Soulé, "Education systems need to provide students with hands-on learning that mirrors real-world problems and work opportunities in an interdisciplinary way." The Delor reports in 1996 mention the four pillars of learning for the development of students they are: Learning to know is about providing updated knowledge, an individual should have proficient knowledge of upgraded curriculum also self-learning and ethical values, learning to do is about work skills mean an individual should be skilled in a manner that can deal with a various condition related to work-life, the education must give exposure of practicality of what they are learning. Learning to live together is a concern with developing social and cultural skills for developing understanding and respect for others. Learning to be is about holistic development to become a better citizen. Thus, we can say that nurturing skills in students was a concerning matter. But for shaping the future of students and preparing them as better citizens we need responsible and skilled teachers. The responsibility of students is in should of teachers and stakeholders of educational society. We need to implement new strategies on a practical basis and should face challenges in the implementation process. TPACK can be a supportive factor for incorporating skills in students Since TPACK is focused on the strategies of teaching what to teach and how to teach for better learning outcomes. Nowadays A teacher should not use technology in the classroom out of compulsion, but they should employ it for their professional development and also for the impactful and desired change in students. students are the future of society and teachers who shape them for their future.

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