RE-THINKING PEDAGOGY - KNOWLEDGE, THINKING AND APPLICATION: THE CURRICULUM MIX THAT IMPACTS THE FUTURE OF EDUCATION

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Abstract- With the global transformations rapidly changing the skill requirements of the 21st century, a new learning process needs to be developed to tide over the global challenges of unemployment and ever fluctuating job market. The critical skills to succeed in the workplace of 2020 are Complex Problem Solving, Critical Thinking, Creativity, Emotional Intelligence, People Management and Collaboration, Negotiation, Judgment and Decision Making, Flexibility and Stress Management. The increased emphasis on the development of these new set of skills and competencies require a new teaching pedagogy that integrates content knowledge, analytical approach to assimilation of this knowledge and its practical applications in the real world. The new pedagogy is based on a collaborative learning partnership between students and teachers as well as among students themselves that leverages the intrinsic motivations of both. The paper tries to explore the drawbacks in the existing "learningscape", the key learning outcomes that need to be facilitated by the new pedagogy and the vital characteristics of the new teaching pedagogy. It is based on interviews with academicians, students and industry alumni and observation during conduct of classes.

Keywords- Pedagogy, 21st century skills, application-based, learning progression

I. INTRODUCTION

The existing "lecture model" of education is highly ineffective as it does not offer opportunities to the students to practice and apply their knowledge in different contexts which is important for adaptation and integration of the new knowledge, or provide scope to solve complex problems through collaboration. This leads to stifling creativity and indifference, apathy and boredom. Hence, the new age learning outcomes need to focus not only on content knowledge but must develop the skills required to function in the real world and the new age economy. Digital Technology will also play a crucial role in enabling and accelerating the learning progression. In the old education model, a teacher's capability was determined by his efficiency in delivering content rather than his pedagogical capacity. However, the new system will base the evaluation a teacher's ability on the range of his teaching strategies and his capacity to engage with the students in collaborative partnership. Although our current society is spending more time and monetary resources on education, the results are far from being satisfactory. Unemployment rates are high and adults aged 18 to 35 believe that they developed their employability skills outside the formal education system. As such it is imperative to being innovation in the education system that directly address these challenges as the existing system has become obsolete being suited to the mass production-industrial era.

II. LITERATURE REVIEW

The new learning outcomes and competency requirements necessitates the development of new curriculum. Traditionally, the following four models of curriculum development have been widely followed until recent times.

The Tyler Model: It is based on the basic premises like the educational purposes, the type of educational experiences and their delivery and ensuring that the experiences meet the purposes. He believed that the educational experiences should develop thinking skills, research orientation, create interest and a socially responsible attitude.

The Olivia Model: It focuses on two areas of curriculum and instructional strategies. According to this model, the process of developing curriculum begins with setting educational aims based on societal and students' needs. Next, the instructional goals are decided and the evaluation methods for measuring students' achievements are identified. The instructional strategies are then implemented and their effectiveness is measured which leads to the fine tuning of curriculum components.

The Dewey Model: This model is conceptualized on the belief that the ultimate problem in education is to provide experiences that are balanced between "social ends and means" and "individual traits" of the child and the curriculum is a flexible process of learning.

The Taba Model: It considers understanding the child as the most important element in planning of a curriculum and is inductive in nature. Teachers create pilot learning units and analyze the students' needs. The analysis leads to the selection of content, activities and evaluation methods. The test units in classrooms are used to evaluate the effectiveness of unit and adjust the same.

As per recent developments in the global marketplace and is ever changing realities, it has become

important to appreciate that people learn in different ways and the primarily responsibility of the teachers is to discover the approaches that enable the students to learn in the most effective manner. Traditional approaches emphasizing memorization or the application of simple procedures will not advance learners' critical thinking skills or autonomy. To develop the higher-order skills individuals must engage in meaningful enquiry-based learning that has genuine value and relevance for them personally and their communities. Real-world experiences merged with sustained engagement and collaboration offer opportunities for learners to construct and organize knowledge; engage in detailed research, enquiry, writing and analysis; and communicate effectively to audiences (Barron and Darling-Hammond, 2008). The successful re-orientation of the education system depends on the adoption of innovative pedagogy based on technology and revising learning tasks.

III. METHODOLOGY

The findings and the recommendations have been derived through interviews with academicians (12), students (30) and industry alumni (10) and also through observation during conduct of classes. These individuals shared their opinions on lesson plans, pedagogy, learning environment and evaluation strategies.

IV. FINDINGS

- The research highlights that the skills required for the 21st century are not emphasized in the current education system and the ways in which these skills can be explicitly incorporated in the teaching pedagogy need to be focused on.
- The current teaching practices do not promote a collaborative culture among faculty members. They seldom have knowledge about the content or mode of delivery in the classes of other faculty members as such it does not allow the students to apply their learning in cross functional environments.
- It is essential to ensure that the new pedagogies result in deep learning and technology needs to be incorporated as a key enabler in building new capacities and skills.
- The attitude of the teachers need to be changed in the way they approach their roles and responsibilities as limited to covering the content mandated by the rigorous curriculum and act as change leaders as the students no longer want to be passive receivers of learning.
- The educational implication of the digital era is that it redefines the traditional role of teachers and textbooks who no longer are the primary source of content knowledge as widespread in-depth knowledge on any subject is available in the digital space.
- The dimension of practical application of knowledge also needs to be expanded beyond classroom projects and hypothetical scenarios which are far removed from the actual challenges of the real marketplace.
- The cost effectiveness needs to be considered as a key variable while designing the new curriculum and pedagogical tools while setting up infrastructural facilities.
- The current system of evaluating a student's abilities on the basis of standardized assessments that focus merely on content reproduction needs to be re-looked at and the new evaluation should be based on mapping learning progression on the key skills required.
- An effective continuous 360 degree feedback system between students and teachers is the cornerstone to have a common understanding of the learning goals and progress. It also ensures the development of non-academic personality traits like perseverance, tenacity and determination essential for future long term success.
- There is an increased emphasis on the quality of education that ensures inclusive, relevant and equitable lifelong learning opportunities across social class and gender.

V. RECOMMENDATIONS

- The new curriculum and pedagogies should foster learning that is more engaging and relevant to real life and better prepares the students to succeed in life and work in the current environment.
- Teacher's Role should focus on developing the learning process and the ability to apply a wide range of pedagogical strategies and monitor the learning progression of the students through continuous evaluation. The teachers should develop expertise in stimulating a dynamic learning process allowing the students creatively explore new knowledge and think out of the box while ensuring the objectives of the curriculum are met. They should become partners in the learning process rather than instructors telling the students what and how to learn.
- The new pedagogy should encourage students to take risks and learn even from failures by collaboratively reflecting on them. It should allow the students to relate learning to their real life and aspirations and assimilate their experiences in an organic manner. Teachers should guide students to think in a metacognitive fashion.
- Curriculum development should follow an outcome oriented process with the 21st century skill needs forming the basis for content development and delivery. Curriculum mapping should become a tool to ensure the learning progression in short and long term both.
- The new pedagogy must integrate technology to enable discovering, creating and using knowledge. The digital medium allows the students to

test their concepts with real stakeholders in a real life environment.

- There should be emphasis on Project-Based Learning and Problem Solving. Current education system prepares the students to follow instructions. However, the workplace reality expects the students to handle complex situations without instructions. As such schools fail to prepare students adequately for their future jobs. If the new pedagogy focuses on developing complex problem solving skills and application of content knowledge in innovative ways, the students will become more industry savvy.
- The global economy of the 21st century requires individuals who can conceptualize new ideas, create new products, offer new solutions and develop new content. The deep learning tasks or projects should allow the students to develop new knowledge and apply that knowledge in the real world.
- Personalized and Collaborative Learning should be a vital component of the pedagogy. Personalized learning will allow the individuals to approach problems in their own way, develop and assimilate ideas at their own pace, respond to feedbacks in their unique ways and develop solutions based on their creative instincts. The ability to work together in groups coherently is mandatory requirement of the modern workplaces. The real workplace requires employees to share responsibility and handle challenges as cohesive teams. Enquiry based Collaborative learning promote the growth of both individual and collective knowledge , creates a platform for advanced discussion and debate leading to sharing of viewpoints in a professional manner and results in content understanding and acquisition of 21st century applied skills of empathy, team skills and negotiation skills.
- Continuous feedback and Engagement of the students is crucial for the success of the new pedagogy. Teachers should break down final learning outcomes into intermediate targets so that the students are not overwhelmed and monitor progress on a continuous basis. Initial concepts, products and strategies should be refined with constructive feedback and success should be rewarded and appreciated for keeping the students motivated and engaged.
- The assessment of the learning outcomes should be based on the key skills required in the new economy like 1) students' ability to master the learning process and new content; 2) collaboration, communication and interpersonal skills for value creation; 3) stress management and perseverance in the face of challenges; 4) developing practical solutions for market needs; and 5) ability to harness and leverage technology. The rubrics for assessment should be co-created by students and teachers should explicitly define levels of success for each learning goal.
- In order to successfully implement the new pedagogy, the availability of well-trained and competent teachers is non-negotiable. The new format of evaluation also requires assessment competency of the teachers. Training of the teachers is mandatory to meet the desired results.

CONCLUSION

The adoption of new teaching pedagogy requires building of professional teaching capacity, students and teachers should becoming life-long learners and creation of a learning ecosystem. The real challenge is the development of assessment system that can successfully evaluate the learning progression of the students in keeping with identified learning outcomes thereby developing the students into healthy, holistic human beings with a social responsibility in the interdependent world.

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