

MATHEMATICAL MODEL FOR TEACHING DYNAMICS DURING COVID-19

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Abstract. Covid -19 pandemic has disrupted the world in more than one way and the effect on education is tremendous. The teachers and the students are the two main pillars who are devastated in terms of quality of teaching and learning: economically and the most psychologically. The authors in this paper with the help of a mathematical model proved that the psychological effect is the most in both the pillars. As the online mode of teaching increased the negative psychological behaviour also increased and vice a versa. The paper also included survey to find the impact on students and teachers. The stability analysis done using basic reproduction number also points towards negative effects of psychology by using online mode.

Keywords. pandemic, teaching-learning impact, teachers, students, online, offline

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1 Introduction

The recent pandemic Covid 19 impacted almost the whole world and tightened its grip on all the possible sectors right from trade to travel. The whole world is jostling to come to terms with the economic and human loss in unprecedented numbers. According to the World Health Organization reports the economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year. Jaime Saavedra, Global Director for Education, describes it as the largest simultaneous shock to all education systems in our lifetimes (World Bank 2020).

The silent sufferer of the pandemic has been education which will directly and indirectly have a strong and undeniable effect on the world economy. It has left a mark on every country where the pandemic had laid its cruel presence. Long lockdowns and social distancing, though was very essential to contain the pandemic, has impacted the education sector and left it breathless. The traditional educational practices got restricted and the stakeholders of this sector were forced to think of different and sustainable practices to continue the process of teaching and learning unabated. Schools, colleges and universities catering to any sector and age groups were forced to think of ways and means to keep the learning continuous. In this scenario the most viable option discovered by almost every institute was the digital mode of education where the universities have transformed teaching and learning and the lecturers have been conducting online classes(Rahim and Chandran, 2021).

This mode of teaching and learning not only equipped the learners and teachers for social distancing but also offered them the necessary shelter of protection from the spread of the