Impact of Technologies in Learning &Teaching Processes during Covid -19 in Teaching Applied Chemistry in Polytechnic System

Dr. Mudrika I Ahmed
Sr. Lecturer, Department of Chemistry
Government Polytechnic, Nagpur, Maharashtra, India
mudrika.ahmed2@gmail.com

Abstract: *This article is a proposal for an empirical study planned to study the impact of social media in learning and teaching processes during COVID-19 and its expected impact on post COVID-19. This study will be exclusively focus on teaching applied chemistry in Polytechnic system using the help of Technology blended learning at secondary level.*

Keywords: Applied Chemistry, Blended Learning, Integrated Learning, Pedagogy, Technology

I. INTRODUCTION

Classroom learning involves face to face interaction among students and it provides a refreshing and educative atmospher. Students in classroon1 learning, actively participate in asking questions and getting their queries resolved. It provides the dynamic learning experience in teaching chemistry. Dialogues with individuals lead to flow of conversations and provide opportunity to share their experiences.

II. MODES OF TEACHING

2.1 Traditional Methodology

In polytechnic system classroom teachers has lots of methodology to teach them concepts differently like role-play, debate, projects, model making as group and so on. Teachers come with their own teaching style and content, to be delivered. Content and consistency can be a concern for the classroon1 learning. Classroom learning plays in1portant role in teaching applied chemistry for polytechnic students, they have to understand the mechanisn1s, naming and drawing the structure of compounds and the teacher ensure that everyone is 'getting it', which generally means (within reason) going at a pace that ensures those who are slower in picking things up don't get left behind. Generally, classroon1 learning will therefore be done in work hours, and depending on the pressure of the job, it might be difficult to find the time to get away. Teacher and the students in the classroon1 often really help to bring the subject 'alive', and having a teacher in the class room can help the students to relate the subject to their own experiences but classroom learning can be fun by arranging group activities, assignn1ents where students work together. Such exercises, provide a chance to actively engage in the process of learning. Also, being in the classroom means that a teacher can give on-the-spot help, over and above the standard course curriculum and certain drawbacks in classroom teaching is some concept in applied chemistry couldn't visualize (ore refining, preparation of some compounds, recrystallization and its application) by the students.

2.2 Social Media Model/Virtual Mode /Blended Approach

No one could have in1agined that the academic year would have ended this way. Due to the pandemic, education begins at home! Virtual mode of teaching changes the way of study in the current generation. The definition of social media is "the relationships that connect between networks of people". The use of social media has also demonstrated increased teacher-student and student-student interaction because they have a direct pipeline to the teacher via e-mail, they can solve their doubts and get answered directly. Many students aren't con1fortable asking questions in class for fear of feeling stupid. Teaching chemistry in virtual mode has an advantage of students to virtualize the aton1s and how the atoms are forming compounds by sharing / transferring of electrons provoke the students to virtualize and think

beyond chemistry. Rather than trying to ren1ember to ask it or forgetting it, but now it's easy for the student can send an e-mail to the teacher. Student's opportunity to learn is enhanced but at the san1e tin1e for slow bloon1ers in the classes are finding difficulty to follow the online classes. The synchronous online session replaces the actual class time for engaging activities and instructor-guided problen1-solving exercises in the flipped classroon1 n1ode. We are using used social n1edia platforms such as Google Meet, Telegram, Zoom, and En1ail for teaching

2.3 Necessity is the Mother of Invention

Online classes are challenging platform to the teachers and it's time to think OUT OF THE BOX to make the best of a bad situation. The strategies teachers need to navigate them with confidence to n1aintain the classroom alive and keep things personable in a digital environn1ent. During this pandemic, as hard as online teaching might be for us, it's likely even harder for the students. Now they've gone from classrooms they have only limited source of learning certain concept like videos, presentations and flipped classroon1s. For teachers it's no longer chalk and talk method, it's a time consuming process to create n1aterials, recording the instruction and posting it online (as with a flipped classroom) is one way of avoiding the hassle, although be aware that the technical din1ensions of this take tin1e as well. The drawback of social n1edia in education is students may exchange ideas among then1selves and thus n1ake the learning process n1ore interesting, which is not possible in e-learning n1ediun1. Especially for the chen1istry subject though the availability of virtual lab stimulations they can't have a hands-on experience on practical. Due to the abrupt transition from F2F to onhne teaching, there was insufficient tin1e to forn1ally obtain students' feedback on the strategies that were employed to achieve engagement during online teaching.

2.4 Challenge the Challenges

Here, another factor that affect the online classes. If a teacher and student perspective based on assess of internet whether the students have reliable access to technology. There will be a load of disturbance during online classes that most of the teachers would've familiar with this - 'ma'am, your voice is not audible' 'Network error' 'Data over' 'No charge, etc.' Not every home will always have a reliable internet connection or readily available device for students to use. When it can1e to exams, the instructions were made very sin1ple for all to understand. The assessments took place in the form of 'take-home exams'. During exams, teacher has a task. make the students to complete the exam and the answer scripts to be uploaded on tin1e. Then it comes to tackling unfamiliar software (i.e. converting in1age to PDF) or using it in a responsible manner. The main challenge for the students was maintaining the same levels of discipline and writing the exam honestly being at home. It's no surprise that more than a few will be tempted to opt out. It is fairly easy to get distracted being stuck at home with the entire family.

It is observed that the characteristics and behavioral outlook in the classroon1 studies were not attained even after finding all other alternatives for carrying out effective knowledge construction during the panden1ic. This proves that school based (face-to-face) education is still better than learning procedures in a con1pletely new environment.

2.5 Parents Expectations

Now, let's think about the parent's view, due to this panden1ic they are financially and n1entally low. They are paying huge fees amount to the school and doesn't have any idea about how teachers are teaching in the school and what the trend they are following. This online classis gave a clear idea about the potential and efforts of teachers and feeling satisfied that their children in a good platforn1. Tough it's an online classes, they are spending lots of money to buy a new gadgets like extra mobile, internet charges, web camera, earphones, anti-screen specs etc., it cost n1ore than the fees an1ount. They really want the schools to re-open soon.

III. CONCLUSION

Naturally, new experiences come with their own challenges and adjustn1ents. The influence of social media on teaching and learning environn1ent is growing every year and we observed the in1plication of social media to the education process and found out about the nun1erous ways, benefits and Joss. Every challenge has helped us to spot where to in1prove and think about how to make in good platform. This pandemic situation was something unpredicted; however, if better steps are taken, then educational losses will be curbed and the construction of knowledge can become more

appreciable and efficient. Well, it is in1portant for the institutions to adopt the blended learning approach where they can include the traditional learning along with the online mode of teaching.

ACKNOWLEDGMENT

REFERENCES

[1]. Bala, M. (2018). Use of ICT in higher education. Multidisciplinary Higher Education, Research, Dynamics & Concepts: Opportunities & Challenges For Sustainable Developn1ent (ISBN 978-93-87662-12-4), 1(1), 368-376.

[2]. Beyoglu, D., Hursen, C., & Nasiboglu, A. (2020). Use of mixed reality applications in teaching of science. Education and Inforn1ation Technologies, 25(5), 4271-4286.

[3]. Boelens, R., Van Laer, S., De Wever, B., & Elen, J. (2015). Blended learning in adulteducation: towards a definition of blended learning.

[4]. Donnelly, D., McGarr, 0., & O'Reilly, J. (2011). A fran1ework for teachers' integration of JCT into their classroon1 practice. Con1puters & Education, 57(2), 1469-1483.

[5]. G6n1ez-Galan, J. (2020). Media education in the ICT era: Theoretical structure for innovative teaching styles. Information, 11(5), 276.

[6]. Hussain, I. & Suleman, Q., 2017. Effects of Information and Communication Technology (ICT) on Students' Acaden1ic Achievement and Retention in Chenustry at Secondary Level. Journal of Education and Educational Development, 4(1), pp.73-93.

[7]. Kaur, M. (2013). Blended learning-its challenges and future. Procedia-social and behavioral sciences, 93, 612-617.

[8]. Krause, M., Pietzner, V., Dori, Y.J. & Eilks, I., (2017). Differences and developn1ents in attitudes and self-efficacy of prospective chen1istry teachers concerning the use of ICT in education. Eurasia Journal ofMathen1atics,Science and Technology Education, 13(8), pp.4405-4417.

[9]. Ojha, L. K. (2016). Using ICT in chen1istry education. International Journal of Innovation,Creativity and Change, 2(4), 156-64.

[10]. Pemaa, J., & Aksela, M. (2009). Chemistry teachers' and students' perceptions of practical work through different JCT learning environn1ents. Problems of Education in the 21st Century.

[11]. Rana, K., & Rana, K. (2020). ICT Integration in Teaching and Learning Activities in Higher Education: A Case Study of Nepal's Teacher Education. Malaysian Online Journal of Educational Technology, 8(1), 36-47.

[12]. Rusek, M., Starkova, D., Chytry, V., & Bilek, M. (2017). Adoption of JCT innovations by secondary school teachers and pre-service teachers within chenustry education. Journal of Baltic Science Education, 16(4), 510.

[13]. Savec, V. F. (2020). The opportunities and challenges for ICT in science educat.ion. Teknologia ken1ian opetuksessa, 1(1),

[14]. Savec, V. F. (2020).The opportunities and challenges for ICT in science education. Teknologia kemian opetuksessa, 1(1), 1-1.Tigaa, R. A., & Sonawane, S. L. (2020).

[15]. An International Perspective: Teaching Chen1istry and Engaging Students During the COVID-19 Panden1ic. Journal of Chenucal Education, 97(9), 3318-3321.

[16]. Torres-Madrofiero, E. M., Torres-Madrofiero, M. C., & Ru.iz Botero, L. D. (2020). Challenges and Possibilities of ICT-Mediated Assessn1ent in Virtual Teaching and Learning Processes. Future Internet, 12(12), 232.

[17]. Valtonen, T., Kukkonen, J., Kontkanen, S., Sorn1unen, K., Dillon, P., & Sointu, E. (2015). The impact of authentic learning experiences with ICT on pre-service teachers' intentions to use ICT for teaching and learning. Computers & Education, 81, 49-58.

[18]. Yaylak, E. (2019). The attitudes and opinions of prospective teachers towards the use of technology in education. International Journal of Education Technology and Scientific Researches, 4(9), 149-175.

[19]. Yen, S. C., Lo, Y., Lee, A., & Enriquez, J. (2018). Learning online, offline, and in-between:comparing student academic outcon1es and course satisfaction in face-to-face, online, and blended teaching n1odalities. Education and Inforn1ation Technologies, 23(5), 2141- 2153.

[20]. Zhou, Q., Hu, J., & Gao, S. (2010). Chemistry teachers' attitude towards ICT in Xi'an. Procedia-Social and Behavioral Sciences, 2(2), 4629-4637.

[21]. Giri, S., & Dutta, P. (2020). Identifying Challenges and Opportunities in Teaching Chemistry Online in India anud COVID-19. Journal of Chemical Education, 98(2), 694-699.