Nanolearning: A New Paradigm Shift in Teaching and Learning

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ABSTRACT

Nanolearning is the process of learning in short pieces of information. The content must be within five minutes, in most cases two minutes or less. Nano learning is effective in modern education, especially Generation Z, since students' attention span has reduced drastically. The students are finding it challenging to focus for a longer duration. Nano learning is bite-size learning in shorter condensed learning capsules. This paper discusses methodologies for applying nanolearning in both classroom and blended learning environments. This paper deliberates nanolearning in the remote learning environment. The paper also discusses applications of nanolearning in different fields. The paper concludes with the future enhancements of nanolearning.

Keywords-- Nanolearning, Education, Blended Learning, Remote Learning

I. INTRODUCTION

The current learning methodologies have significantly changed, thanks to technological advancements. Studentsalso prefer attending online classes. But, due to limited time, learning materials should also be available in short durations and easily manage to allow them to engage in other activities (Bahodir, 2021). Although most microlearning ranges from ten to fifteen minutes, research indicates that an ideal microlearning should last around two to five minutes (Bahodir, 2021). Besides, this idea brings the concept of nanolearning, implying that the learners should not deal with micro bites of information but rather nano bites (Khlaif & Salha, 2021).Therefore, this paper will discuss nanolearningin-depth to comprehend its benefits, applications and blended environments, remote learning, different fields, and the future.

II. BENEFITS OF NANOLEARNING

Nanolearning increases the productivity of the learners. As mentioned above, it involves a shorter time to absorb information, which is essential in improving the learners' productivity. Unlike the traditional learning methods in which the learners have to be in class for hours learning, nanolearning necessitates lesser time

(Aburizaizah & Albaiz, n.d.). As a result, learners are likely to be attentive from the beginning to the end of the lesson. Arguably, thisenhances information reception and retention (Gramming et al., 2019). Besides, learners can break their learning objectives into small groups that are not overwhelming. Therefore, this results inincreased productivity.

Furthermore, nanolearningdecreases the time learners spend on the screen. With the shift to online learning, especially with the emergence of Coronavirus, learners, and teachers are expected to spend more time on the screens. As a result, this means that they have to spend over eight hours glued on their computers, which may adversely affect their health(Railean, 2017). But, with nanolearning,teachers and students spend less time on the screens.

Additionally, nanolearning is appealing to learners. Remarkably, this enhancestheir concentration. Generally, nanolearning entails short content bits ininfographics, illustrations, videos, and animations, among others (Kävrestad & Nohlberg, 2019). Such learning methods are more engaging. Besides,nanolearning uses online platforms common among Generation Z and millennials, such as TikTok and Twitter. As a result, learners are excited and eager to attend their classes with such platforms.

III. APPLICATIONS OF NANOLEARNING IN CLASSROOMS

Although nanolearning has incredible benefits,teachers should first ask the learners what they need. Besides, this involves explaining what nanolearning entails and what they prefer. For instance, some learners may prefer tik tok videos while others prefer the slides. Remarkably, teachers should provide diverse learning materials to cater to each student's needs (Cabrero& Román, 2018). Thus, asking the students what they need helps the teacher align their presentation with their preferences.

The application of nanolearning in the classroom also requires teachersto keep their content short.Derviševič et al. (2019) argued that the traditional learning methods needed the learners to be engaged with the classroom content for several hours. But, with nanolearning, the

teachers are required to break down the two-hour content into two minutes or less. Thus, although they should ensure short lessons, they should also include comprehensive plans.

Despite the above aspects,teachers should explore various platforms to use in the classroom. For example,nanolearning works with learning management systems application software such as blackboard and moodle (Prajapat et al., 2019). The teacher should explore such platforms and media on how they work. Therefore, this may enhance student participation and engagement in every aspect.

IV. APPLICATION OF NANOLEARNING IN BLENDED LEARNING ENVIRONMENT

Blended learning can be defined as a learning setting that integratesonline learning and physical interactions(Quemadabe et al., 2019). In other words, it is hybrid learning. Nanolearning has also become an essential part of the blended learning environments.Besides, this type of environment can be used to create engaging content in the online sessions in which the learners can be easily disrupted (Quemadabe et al., 2019). Again, the teachers can use nanolearning to supplement the blendedlearning (Nikolić et al., n.d). For instance, the teacher can show the learners an infographic and later require them to describe it during the physical meetings.Thus, it can be easily integrated with blended learning to improve student performance and productivity.

V. APPLICATION OF NANOLEARNING IN REMOTE LEARNING

The teacher should be time conscious in remote learning and apply various platforms. Besides, this means that the content should not be more than two minutes. For instance, the teacher can use a tik tok video to show an instruction. After the video, learners should be given a chanceto air their views (Matters, 2019). Another nanolearning technique during remote learning could be vocal notes, perhaps to summarize or introduce a new concept. Vocal notes are engaging but simple ways to transmit the nano information (Mystakidis, 2019). The nanolearning thus allows the presentation of the information in more engaging ways through various methods while supplementing other methods during remote learning.

VI. APPLICATION OF NANOLEARNING IN DIFFERENT FIELDS

Guidance and Counselling
The concept of nanolearning can be applied in guidance and counseling, especially among generation Z. Technology and digital platforms are easily accessible to this generation (Lobanova-Shunina&Shunin, n.d.).One can use tik tok, Twitter, and other platforms. For instance, a counselor can create an infographic showing effects of drug abuse among the youth. Consequently, the infographic is shared with the affected individuals. Though short, the nanolearning technique may deliver the message concisely.

Civic Education
Nanolearning can also be used to promote civic education. According to Burri(2018), nanolearning can enhance civic education by creating a short clip showing how people can engage in civic responsibilities. Though informal, the clip can be seen to many and is easy to understand due to the nature of nanolearning. Hence, it can promote civic education.

VII. FUTURE OF NANOLEARNING

Nanolearning is seen as the future mode of learning. We are currently faced with several competing things for our attention (Content, 2019). Besides, this includes constant notifications and alerts daily. The fragmentation of our concentration and time has become a new normal. As a result, it has affected our ability to process large information amount and concentration (Cabrero& Román, 2018). There is a need to have anengaging learning method short enough, which may help ensure full concentration. The answer lies in nanolearning, nano bits of information quickly.

Nanolearningis significantin education and other sectors.It can be used in remote learning and blended learning environments. It increases productivity andconcentration and reduces the time spent on the screen. Therefore,the future of nano learning seems promising due to its significance and applications.

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