What is the topic of your article? (Potential Title)

Effects on Differentiated Instruction in a Smart Learning Environment Through Blended Learning in a Station Rotation Model at the High School Level.

Effects on Self-paced Learning Using a Blended Learning Station Rotation Model at the High School Level.

Effects on Learning Gaps Through Blended Learning in a Station Rotation Model at the High School Level.

Abstract

To be determined at a later date according to journal submission requirements

Keywords

To be determined at a later date according to journal submission requirements

Diagrams/Charts

To be determined at a later date according to journal submission requirements

Where do you plan to submit (consider 2-3 options)

Educational Technology Society
Research in Learning Technology
ISTE: Journal of Research on Technology in Education

What is the connection to your innovation plan or initiative?

My innovation plan has students create a personalized learning plan where learning will be self-paced. This gives students choice in the method they wish to learn by incorporating the use of blended learning in a station rotation setting that is focused on guiding the students to master their personalized learning objectives at their own pace. Additionally, reflectiveness is built in to achieve overall learning objectives.

To ensure clarity for the purpose of this paper the following terms shall be defined as:

Smart Learning Environment (SLE): is defined as a hybrid learning system that provides learners with a learning process (Rosmansyah et al., 2022), that emphasizes learning flexibility, effectiveness, efficiency, engagement, adaptively, and reflectiveness

(Spector, 2014), where both formal learning and informal learning are integrated (Gros, 2016) with the purpose of achieving learning outcomes.

Blended Learning (BL): is any formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace where the student also learns at least in part in a supervised brick-and-mortar location away from home (Horn et al., 2017).

Differentiated Instruction (DI): is an approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximize the learning opportunity for each student in a classroom (Tomlinson, 2001).

Station Rotation (SR): contains the following aspects: (a) the class must be split into groups that are data driven (b) each student must visit stations twice a week, (c) each student must spend at least 10 minutes at the station (d) while visiting a minimum of two stations in a single class period, and (e) the same teacher implements the instruction in a single classroom (Fulbeck et al., 2020).

How can this information help others?

This information can determine if implementation of the blended learning model through station rotation can be a useful process at the high school level to allow for students to work at their own pace. This model also allows for the teacher to have direct contact with each student every day. This small group instruction allows for guidance and clarification personalized to each student.

Lessons learned or hoped to learn?

What I hope to learn: In what ways does blended learning help a student fill their educational gaps?

Mechanisms are in place to find students that are in need of support (Hung, et al., 2017). While this may be wonderful at highlighting who may be at risk of not completing school, the system is not valuable when these mechanisms do not inspire educators to act on the students' individual needs. Instructional gaps are clearly evident, as students' withdrawal from class is typically seen in middle school, but can begin even earlier (Long, 2017). Many of these students come from lower income and/or struggling families and are often persons of color with high levels of learning challenges. Once the students feel academically abandoned, they give up on education. Once they have given up, without educators to pick them back up, they stay lost.

What digital resources will be included in your article? Briefly describe.

PhET: University of Colorado supported interactive STEM simulation that creates a digital lab for concepts in earth sciences, physics, chemistry, biology, and math.

Gizmos: aligned with teaching standards, this interactive STEM simulation has many subjects including Astronomy specific lessons.

Educaplay: allows for a teacher to create a digital assignment that gives students the ability to practice their understanding of labeling images and reviewing definitions.

Quizizz: allows for a teacher to create an interactive classroom game that students use to compete with each other on their ability to correctly answer questions over learning objectives.

NASA website: a digital resource that describes the various celestial objects for students.

Google Classroom: a learning management software to house all digital content.

Think of your audience, digital presence, and the message you hope to communicate.

In today's society, technology is inextricably intertwined within our daily lives. This obviously extends into the classroom as the use of technology accompanies students throughout their day. During the last few years, many education systems have attempted to implement technology in the classroom to enhance learning or to fill learning gaps with varying success. However, because new technologies emerge on a near daily basis, vetting useful technology from not, as well as integrating that useful technology, is a monumental task. Implementing technology is critical in reaching modern students and fulfilling their educational needs. This paper will analyze differentiated learning through the needs, processes, and drawbacks of implementing a Smart Learning Environment. Using blended learning to create a classroom setting to incorporate differentiation of instruction with the goal of meeting the needs of all students in the heterogeneous educational setting is the goal. Through this analysis, a teacher should be able to answer how blended learning helps a student fill their personal educational gaps. This paper will draw from educational research across the globe, without excluding relevant information from countries outside of America. This paper will analyze what differentiated learning actually entails while highlighting the various methods for implementation, as well as those methods' effectiveness and feasibility. This paper will also define blended learning and methods for applying this teaching strategy in the classroom. This paper will highlight the importance of using station rotation to facilitate the implementation of both blended learning and differentiated instruction (DI), while analyzing the benefits and drawbacks of a

heterogeneous classroom. Notably, this paper will concentrate on the traditional rotation model with a digital component while excluding other rotation models.

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