The Development of the Blended Learning Model Using Rotating Stations (BLRS) in the Case of a Small Elementary School

Phatthananorn Yonchai[1], Paisarn Worakham[2]*, Piyatida Panya[3]

ARTICLE INFO	ABSTRACT

In the age of digital technology, students must adapt to numerous learning modes. Students should utilize multiple learning strategies and adapt to the digital age. Numerous institutions have acquired technology for classroom application. Although this is the case for smaller elementary schools with limited technological apparatus, a blended learning model must be implemented effectively. This research aimed to develop a blended learning model with rotating stations (BLRS) for a small elementary school. The researcher combined research and development techniques with a formative approach to producing a model suitable for a small elementary school. The objective of this study is to 1) develop a blended learning paradigm for small elementary schools based on learning station rotations. 2) Employ and enhance the BLRS model. The research was divided into two phases: Phase 1, the development of the model through the study of approaches by interrogating seven key informants, and the model's design. In phase two, the formative research methodology is utilized and enhanced to prepare a learning management plan and evaluate the model's feasibility and suitability by twelve experts. The sample comprised fifteen fifth- and sixth-grade students from Thailand's Kaminpatanawit School. The findings indicate that the BLRS model comprises four phases. 1) instructional leadership, 2) integrated approaches, 3) conclusions, and 4) relaxation. Individual learning stations, where students work individually, and group learning stations, where students receive assignments in groups, are the three learning stations in blended learning. Suitability (mean = 4.14, SD = 0.484), feasibility (mean = 3.97, SD = 0.556), and utility (mean = 4.40, SD = 0.516) were the outcomes of the BLRS model evaluation. The majority of students had strong problem-solving skills.

[1] Ph.D. student ,Program in Educational Research and Evaluation , Rajabhat Mahasarakham University, Thailand, E-mail : phat.yonchai@gmail.com, Orcid: https://orcid.org/0009-0000-7512-5287
[2] Faculty of Education, Rajabhat Mahasarakham University, Thailand.
[3] Faculty of Education, Rajabhat Mahasarakham University, Thailand, E-mail: dr.piyatida@gmail.com
*Corresponding author: PaisarnWorakham, E-mail: paisarn.wo@rmu.ac.th

1. Introduction

Alterations in the global social setting The digital revolution has influenced learning in the digital era. The increased use of digital technology in classrooms has replaced traditional learning. It is essential to understand and utilize digital technology to one's advantage. The subject must be accessible to students. The Ministry of Education's Development Plan for 2017–2036 describes strategies for developing courses of study at different levels that can improve 21st-century skills, primarily English, science, and digital skills (Office of the Permanent Secretary Ministry of Education, 2020). Therefore, instructors are essential resources for designing educational activities that maximize the ability-based potential of each student. Through learning, which is a personalized experience, people can expand their knowledge, perspective, skills, and comprehension. Consequently, individualized learning models can facilitate fulfilling particular requirements and objectives (Shemshack & Spector, 2020). Numerous learning management types correspond to personalized learning concepts, such as integrated learning. Blended learning incorporates online and conventional methods of instruction (Fulbeck et al., 2020). Blended learning is a formal education program in which students study, at least in part, both online and at a supervised location away from home. Integrated learning occurs when the modalities along each student's learning path within a course or subject are connected (Powell et al., 2015).

Educators have proposed the following blended learning model: There are four principal types of integrated learning in elementary schools:1) Rotation model, 2) Flex Model, 3) Self-blend Model, 4) Enriched virtual representation
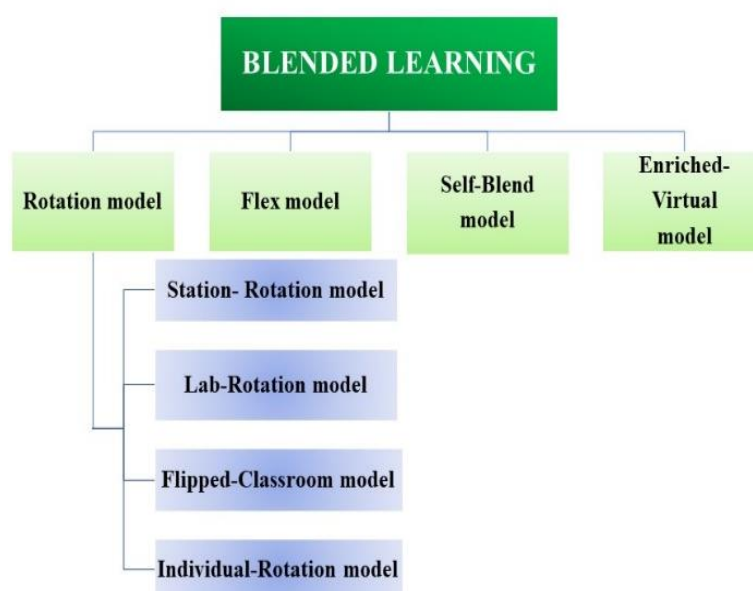
Figure 1. *Blended learning model. Adapted from Blended learning success in school districts. (p.2) by Staker and Horn (2012)*

From Figure 1, the Rotation model is a form of study within a given course or subject. Students rotate along the course's learning path at the teacher's discretion. During the learning rotating, online learning is also used. This includes activities such as small group or full-class instruction. Individual teaching and assignments, etc. The rotational form can be divided into 4 sub-forms as follows:1) Station Rotation Model, 2) Lab Rotation Model, 3) Flipped Classroom Model, and 4) Individual Rotation Model Details are as follows:

Station Rotation It is a form of rotation of learning stations within a given course or subject content, in which students must rotate to attend learning stations within the classroom. Staker and Horn (2012) and there is at least one online learning station. In addition, other learning stations may be designated as activities such as small group teaching. The pedagogical approach involves a combination of group projects, individual exercises, and assignments. Students must rotate between various learning stations for each activity and are expected to manage their learning within a designated timeframe independently. The station rotation model is the most popular and fastest-growing mixed-learning model (Horn & Fisher, 2017). This model works well with traditional classrooms and ideas for classrooms with technological limitations. This format has been studied as an effective way for students to learn more personally and learning small groups (Herold, 2016). Teachers can design lessons with one or more online stations depending on access to technology. Educators reported that the results of blended learning are as follows: Students are more motivated to study (Clark & Barbour, 2015; Kazu & Demirkol, 2014; Tucker, 2018). They have increased interaction between teachers and fellow students. Horn and Staker (2011); Maxwell and White (2017), have higher academic achievement (Horn & Staker, 2014; Maxwell & White, 2017), and have increased access to technology (Clark & Barbour, 2015; Horn & Staker, 2014).
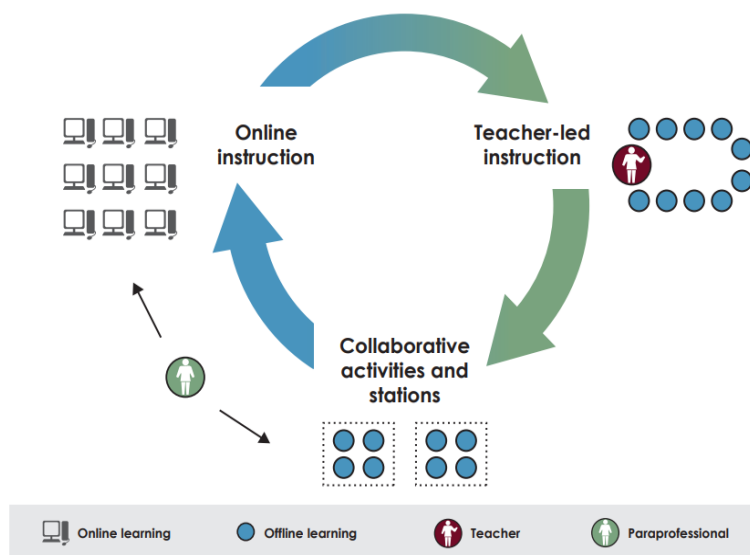
Figure 2. *Station Rotation model. from Blended learning success in school districts. (p.2) by Staker and Horn (2012)*

From Figure 2, Staker and Horn's (2012) blended learning paradigm, There are three stations for learning: 1) Teacher-led instruction, 2) Stations and cooperative activities, and 3) online instruction. This model states that the instructor is in charge of educating a small group of pupils sequentially in the teacher-led instruction station within the classroom of the rotation of learning stations. A paraprofessional, the person in charge of the activity during collaborative activities and stations, and one teacher are also present in the classroom. This approach can be employed in classes or schools if there are enough teachers for each class. Its utilization is restricted, particularly in multi-classroom settings or classes in small elementary schools in rural Thailand with a small student body and insufficient teachers.

Thailand's schools with adequate funding can offer resources to students. Access to information technology is available to students. However, many modest primary schools require additional funding and equipment. A small school is one with fewer than 120 pupils enrolled overall. The primary cause is the lack of teachers in all classes or teachers in all classes but unable to have teachers in the majors due to the demand for more teachers. Smaller schools received fewer staff members. Multiple learning classes must therefore be managed by one teacher (The Office of the Basic Education Commission, 2019). To address this issue, the Basic Education Commission has been working. DLTV, a Satellite Distance Education Foundation-run program, is available to small elementary schools (Frick & Reigeluth, 1999). Distance learning via DLTV satellite can provide educational opportunities for students who live in rural locations. Students studying on television screens cannot converse with their professors since satellite remote learning is one-way interactive.

Additionally, smaller schools lack the necessary technological infrastructure and experience a teacher shortage as technology is used increasingly in digital learning. To allow kids to study differently, criteria for developing the most basic technologies should exist. Based on the research mentioned above issues, the researchers sought to create a blended learning model suitable for a small elementary school setting.

Furthermore, this study uses a formative research methodology to experiment with and enhance the model, focusing on theoretical investigations. Research with a formative methodology focuses on creating sustainable models based on a particular situation (Murphy et al., 2020). A formative research approach has the advantage that it may be used and refined simultaneously, and the improvement of patterns guarantees that they are suited to the context and change at the theoretical level.

2. Purpose

1. To develop a blended learning model using rotating stations in the case of a small elementary school.
2. To use and improve the blended learning model using rotating stations in the case of a small elementary school by applying formative research methodology.

3. Literature Review

The digital transformation of education raises the possibility that a singular approach to learning may not suffice. The current educational paradigm is distinguished by increased learner autonomy and a more comprehensive range of options. The theoretical framework underpinning this study has been utilized to bolster the advancement of

various learning styles, including personalized learning concepts, blended learning, constructivism, connectivism, and formative research.

A. Personalization learning

Personalized learning pertains to the interactions between educators, pupils, and their respective households. Employing diverse instructional modalities to provide scaffolding for individual students' learning, augment their motivation to learn, and cultivate metacognitive, social, and emotional competencies to promote self-directed learning and attain mastery of knowledge and skills. The phenomenon of personalization is rooted in the interactions between educators and pupils, as well as the teacher's coordination, frequently in collaboration with learners, of various strategies to augment all facets of each student's educational and personal growth. The concept of personalized learning involves tailoring the time, location, and speed of learning to suit the individual needs of each student. This approach also involves engaging students in creating their learning paths and utilizing technology to facilitate the management and documentation of the learning process and provide access to a wealth of information resources (Alamri et al., 2020). Personalized learning (PL) is an educational approach that offers students a range of learning opportunities. The adaptive learning system customizes educational content according to individual students' requirements, preferences, and prior knowledge, enhancing their cognitive and practical competencies while fostering self-driven motivation and fulfilling psychological needs (Apoki et al., 2022). Personalized Learning (PL) is an educational methodology that prioritizes the needs of individual students, with a focus on promoting their personal growth. The concept of adaptive learning pertains to the utilization of technology to enhance learning scenarios. This involves tracking individual learners' progress and dynamic modification of teaching material to promote engagement and improve learning performance (Cevikbas & Kaiser, 2022). Utilizing personalized learning strategies can enhance motivation, engagement, respect for individual differences, and personal relevance in learning (Moon et al., 2020). Providing customized instruction that caters to individual students' unique progress requires support (Diao et al., 2022; Patrick, Kennedy, & Powell, 2013). The concept of personalized learning involves the customization of educational experiences to cater to individual students' unique strengths, needs, and interests. Providing flexibility and support to ensure attaining the highest standards is facilitated by granting students autonomy over what, how, when, and where they learn (Pane et al., 2017). Furthermore, utilizing blended learning station rotation represents a method for individualizing the learning experience. Station rotation classrooms involve students in various learning modalities, including computer-based instruction, group projects, individual tutoring, and paper and pencil assignments (Fulbeck et al., 2020; Watson, 2008).

B. Blended learning

Blended learning is a pedagogical approach that integrates online and in-person instructional components to enhance practical operations, as stated in Vernadakis et al. (2012). A hybrid approach in instructional methodology has been acknowledged as a prevailing trend, offering students various benefits from integrating online and face-to-face activities (Bliuc, Goodyear, & Ellis, 2007). Furthermore, blended learning facilitates effective communication between educators and learners. Incorporating supplementary

educational activities can potentially augment student engagement and facilitate their attainment of elevated and consequential benchmarks (Graham, 2006). Blended learning, alternatively referred to as hybrid or mixed-mode education, is a recognized instructional approach. The pedagogical approach referred to as blended learning, involves the integration of one or multiple non-conventional educational methods alongside the conventional classroom instruction model (Lee, Lim, & Kim, 2017; Talan & Gulsecen, 2019; Thai, De Wever, & Valcke, 2017). The hybrid education methods facilitate collaborative and individual learning (Hasanah & Malik, 2020). Furthermore, they offer a distinctive environment for evaluating the degree of student engagement (Baragash & Al-Samarraie, 2018). To effectively engage with the online components of the course, students must acquire proficiency in the diverse instructional modes and enhance their level of motivation (Zeqiri & Alserhan, 2021). Blended learning has been identified as a notable contributor to student contentment (Means et al., 2013) and academic success (Bervell, Nyagorme, & Arkorful, 2020). Enhancing self-motivation (Kazu & Demirkol, 2014; Staker & Horn, 2012) and fostering teacher-student interaction (Driscoll, 2002; Maxwell & White, 2017). Blended learning refers to the integration of instructional technology with hands-on activities. There exist four primary concepts. Integrating online technology with conventional classroom instruction is utilized to attain educational management objectives. Differentiating instructional approaches to optimize educational outcomes may or may not be implemented in pedagogical technologies. It integrates various forms of instructional technology with conventional classroom pedagogy and facilitates interactions between students and educators. The integration of instructional technology with practical work (Christensen et al., 2013). The present study integrated online learning with traditional face-to-face classroom activities. Blended learning is an instructional approach involving online learning and traditional classroom instruction, where students can engage in self-directed and self-regulated learning. According to research, students acquire knowledge through classroom and extracurricular sources while drawing upon prior experiences to construct their understanding (Adistana & Dwiyogo, 2016).

The various blended learning models implemented in educational institutions are as follows: The four models being discussed are rotational, flexible flex models, self-blending models, and complete virtual models. Rotation models refer to the various class formats employed within a specific course or subject category. The students traverse the course's learning trajectory under the instructor's guidance. Online learning and other instructional methods, such as small-group or full-class instruction, individualized teaching, and assignments, are commonly employed throughout the educational journey. The format of the rotation model can be classified into four distinct sub-forms. The Station Rotation Model is a pedagogical approach that involves dividing students into small groups and rotating them through a series of learning stations. The Lab Rotation Model is a pedagogical approach that involves students rotating between different learning stations, including a laboratory setting, to engage in various activities and exercises. The flipped classroom and individual rotation models have been identified as educational models in literature (Maxwell & White, 2017). The present investigation was grounded on the utilization of a Station Rotation Model. The sub-model was derived from the BLRS model and underwent optimization for implementation in a small elementary school in Thailand. The optimization process was conducted through formative research methodology to enhance its suitability for student use.

C. Station rotation

The Station Rotation model is a pedagogical approach involving students' systematic movement between various learning modalities within a specific course or subject, either according to a predetermined schedule or at the teacher's discretion. At least one online learning station is available during the rotation. Additional stations encompass activities for small groups or the entire class, collaborative projects, one-on-one tutoring, self-paced online learning, assignments, and autonomous work at students' desks. Moreover, it encompasses explicit guidance from the instructor, instruction delivered to the entire class, written assignments completed with a pencil and paper, and additional tasks. In certain instances, the complete cohort undergoes a rotation of activities, while in other cases, smaller clusters or individuals may partake in the rotation. It has been observed that students participate in all stations irrespective of their timetables (Adistana & Dwiyogo, 2016; Maxwell & White, 2017; Patrick et al., 2013). The utilization of the SR model is demonstrated to enhance students' academic achievement in fundamental disciplines. Using the station rotation strategy within blended learning classrooms is a practical approach that can enhance both teaching and learning outcomes, as evidenced by scholarly sources (Ayob et al., 2020; Glasersfeld, 1995; Truitt, 2016). The present study opted to employ the blended learning approach utilizing rotating stations. It allows students to experiment with computer-based or other online devices and access at least one computer within the classroom. The statement aligns with the circumstances of diminutive primary educational institutions with limited computer systems.

D. Constructivism theory

Blended learning is grounded in a robust theoretical framework, including constructivism, and effectively addresses practical challenges (Thai et al., 2017). The theory of constructivism can be effectively applied in a blended learning environment that prioritizes students' active construction of new knowledge, drawing on their prior experiences and fostering opportunities for student interaction. The philosophy of constructivism posits that individuals generate knowledge through their personal experiences. The characteristics of constructivism are as follows: Individuals across various age groups engage in knowledge construction rather than knowledge discovery. This is achieved through the process of linking novel information with pre-existing knowledge. The acquisition of knowledge necessitates the engagement of both active and passive cognitive processes. Personal experiences often facilitate the process of knowledge acquisition, and exposure to challenges that promote cognitive development can contribute to cognitive maturation (Ahmad & Schreurs, 2012). The constructivist philosophy posits that students are active participants in knowledge construction and generation, individually and collaboratively, through their observations and interpretations. The pivotal and noteworthy function of the instructor is paramount in facilitating knowledge acquisition. As per the constructivist theoretical framework, a teacher's responsibility is to comprehend the students' knowledge interpretation process and facilitate and support them in improving their conceptions and interpretations. Moreover, it entails rectifying misunderstandings among pupils and improving the caliber of acquired knowledge (Mal & Adhya, 2020).

Blended learning exhibits constructivist attributes, which include learning through personal exploration guided by intuition, establishing connections from social experiences, engaging in synchronous face-to-face and online learning environments, and utilizing social interactions from both modalities (Gharacheh et al., 2016).

The role of the learner is centered around the student, wherein the learners are responsible for controlling the learning process and acquiring information. The teacher's responsibilities encompass several vital functions, including serving as a director and facilitator, an observer, an analyst of problem-solving techniques, an organizer of the research environment, and creating a social environment that fosters experiential learning. Moreover, they actively participate in knowledge development and facilitate group discussions and student interactions. They collaborated to resolve pragmatic issues and accomplish associated assignments. In addition, there is a notable emphasis on group-based learning activities instead of the conventional pedagogical approach.

The evaluation process prioritizes self-evaluation and peer assessment. Assessment is an integral aspect of pedagogy that involves appraising and measuring authentic learning achievements. Assessment predicated on elevated levels of cognitive functioning: The study employs qualitative and dynamic evaluations. The assessment of collaborative activities and group work among students is subject to scrutiny (Gharacheh et al., 2016).

Furthermore, the nine primary components of the blended learning model grounded in constructivism are delineated. The topics mentioned above encompass a comprehensive understanding of the learning process, including various learning modes, factors that impact learning, the learner's role and associated activities, the teacher's role and instructional strategies, collaborative learning activities, and assessment methods (Duke, Harper, & Johnston, 2013). Moreover, educators assume a coaching role by modifying the competencies and expertise of students to facilitate cognitive development and broaden their understanding.

E. Connectivism theory

The impact of technology on theoretical perspectives is manifested through the provision of distinct instructional methods and techniques. Each novel piece of knowledge or theory warrants thorough scrutiny for its potential to enhance students' learning outcomes. Connectivism facilitates diversity by leveraging diverse networks, enabling new generations to collaborate and address an expanding array of inquiries (Siemens, 2005). The Connectivism theory incorporates principles that the chaos, network, complexity, and self-organization theories have examined. Knowledge acquisition is a dynamic phenomenon in complex and ever-changing settings and is not solely determined by the learner's volition. The acquisition of actionable knowledge can be internalized within individuals or stored within an organization or database. The primary focus is on establishing links between distinct sets of specialized information, emphasizing the significance of these connections in facilitating further learning rather than the present state of knowledge (Siemens, 2006).

The principles that guide connectivism are as follows: The presence of various perspectives fosters knowledge acquisition and facilitates the learning process. The acquisition of knowledge involves the establishment of links between distinct nodes or sources of information. Knowledge acquisition can occur within inanimate objects. The ability to acquire additional knowledge holds greater significance than the existing knowledge. The process of fostering and sustaining relationships is essential in promoting ongoing education. A fundamental competency is the aptitude to discern interrelationships among disciplines, notions, and principles. The primary objective of connectivism learning

activities is to acquire precise and current knowledge, also known as currency. The process of decision-making involves learning. The dynamic nature of reality influences the selection of a subject of study and the interpretation of new information. The answer to a given question may change over time due to modifications to the information landscape that impact the decision-making process (Siemens, 2006). Within the framework of the connective paradigm, a learning community is conceptualized as a node that invariably constitutes an integral constituent of a broader network. The emergence of nodes occurs through the connection points present in a network. According to Downes (2006), nodes have the potential to encompass a variety of sources of information, including but not limited to libraries, organizations, databases, websites, and journals. The attributes of prosperous networks encompass a range of viewpoints, participant autonomy, openness, mechanisms for incorporating perspectives, and connectivity through node connections (Bates, 2019; Downes, 2012). The cognitive theory posits that knowledge is represented as schema or symbolic mental constructions, and learning is characterized as modifying learners' schemas. In contrast, connectivity theory regards knowledge as sub-symbolic, where meaning is derived from the interplay of connections rather than individual symbolic units (Bates, 2019; Downes, 2012).

F. Formative research

Formative research refers to a type of research that is focused on the development or implementation of strategies aimed at improving design theory, instructional practice, or processes. Formative research is an innovative method of scientific investigation that has facilitated progress. Pursuing operational excellence is a continuous and enduring process that systematically organizes research activities, pre-operational and during operations. This research aims to improve or construct concepts and hypotheses by applying the principles of formative evaluation. This approach aims to enhance the existing knowledge base in instructional design theory (Frick & Reigeluth, 1999). The utilization of this approach has been observed in diverse fields, including the domain of systemic transformation in education (Naugle, 1996), as well as the enhancement of pre-existing pedagogical design frameworks and principles, such as Elaboration Theory (Murphy et al., 2020) and (English & Reigeluth, 1996). Formative or development research is a systematic investigation within the framework of creating or executing an educational product or program that enhances knowledge or comprehension of ethical issues (Bresler, 2021; Clonts, 1993). This endeavor aims to establish and promote the theory of operational design. The theory was subsequently extended to examine the naturally occurring sample case, referred to as "research" that substantiated the theory. The formative research approach has been proven advantageous in identifying and enhancing said theories and models, as evidenced by previous studies (Frick & Reigeluth, 1999).

G. Literature related

Mallory Mattivi, a 7th-grade English language arts (ELA) instructor, has developed a flexible learning station rotation incorporating group and subgroup instruction. The rotation consists of two weeks of instruction that alternate between these two modes of teaching. The system is comprised of a total of three stations. Online instruction, independent reading, and independent writing are common practices in contemporary education. The allotted time for each student at every station is 20-25 minutes before they

proceed to the next one. Mattivi, on the other hand, will not utilize the stations that the teacher is in charge of in her model. Instead, she will be inside the classroom to observe and adjust to the situation. The academic program comprises a bi-weekly schedule encompassing small-group sessions, collaborative projects, whole-group sessions, student-teacher conferencing, and online learning (Maxwell & White, 2017).

Angela Jones and the 4th-grade teaching team at Bella Romero Academy implemented a learning model that involved the rotation of stations utilizing the Zearn online math course. The individual has communicated the necessity to modify the allotted time for each online learning station. This is because the format appears excessively uniform to numerous students. The blended learning approach implemented in the mathematics classroom comprises three distinct learning stations: an online learning station of 40 minutes, a content learning station of 20 minutes, and an independent or collaborative learning station of 20 minutes. The individual presently employs a flexible schedule while stationed, and the instructor provides schooling and responds to inquiries as required. A model utilizing Flex methodology incorporating student playlists generated by educational software has been proposed (Maxwell & White, 2017).

Diane Johnson, a student enrolled in the fifth grade at Orr Elementary School, participates in a curriculum that involves three distinct learning stations. Each station is designed to last for five minutes, following which the group of students rotates to the next station. The first station uses i-Ready online resources, while the second station is dedicated to math games. The third station is an independent learning station. Conduct your activities following the instructions provided in the lesson. Simultaneously, Johnson monitors individual clusters of pupils, signaling for "reinforcement" or supplementary assistance from the instructor. Educators provide additional instructional materials to support students who require extra assistance (Maxwell & White, 2017).

Appricot A. and Truite have conducted a study on implementing a model Blended Learning Station Rotation in Grade 3 classrooms. The model consisted of three learning stations. One potential strategy for enhancing learning outcomes is establishing independent study groups or subgroups to engage in focused practice. Two types of learning stations are utilized in this study: those that are teacher-guided and those that are computer-based and accessed online. The duration of each learning station is set at 20 minutes (Truitt, 2016). Truite has proposed modifying the Learning Station to a group work station. The third station, which was initially a teacher-guided learning station, should be transformed into an independent learning station for individuals, allowing teachers to move beyond the confines of the school station. Educators have a responsibility to oversee the proceedings and offer supplementary support. According to a report by the American Institute for Research, it has been found that: Findings indicate that a significant number of teachers opted for implementing rotational instruction, and the ideal number of learning stations is limited to two or three stations. The three types of learning stations are Teacher Learning Stations, Online Learning Stations, and Group Collaboration Learning Stations. It is recommended that this particular teaching approach be implemented a minimum of three times per week. According to Bonk and Graham (2012), the duration for each learning station ranges from 15 to 30 minutes.

As per the relevant literature, the model delineates the constituents of a learning station introduced in the classroom and attains commendable outcomes. Nevertheless, the format lacks specificity regarding the multi-classroom setting of small elementary schools where a single teacher is responsible for instructing multiple classrooms concurrently. The present study centers on implementing a blended learning approach utilizing rotating stations deemed suitable for the given context. Emphasis is placed on investigating the learning management process and the occurrences within each learning station. According to Reigeluth and Frick, the methodology for conducting formative research of this nature necessitates six distinct steps. 1) Choose the theory of design. A theoretical model has been constructed. 3) Gather and evaluate preliminary data regarding the occurrence. Please provide more context or information about the instance you refer to so I can revise it academically. Step 5 involves repeating the data collection and revision process, while Step 6 entails the provision of preliminary modifications to the theory. Formative research typically employs naturalistic settings to collect comprehensive data from a limited number of participants, utilizing qualitative methodologies such as case study research and formative evaluation to achieve analytical assessment and theory development rather than establishing causality (Frick & Reigeluth, 1999). The aforementioned is a form of research that relies on evaluation (Collective, 2003; Greeno, Collins, & Resnick, 1996). The objective is to ascertain prospective enhancements for a design theory by identifying methods to facilitate a case study executed following said theory (Joseph & Reigeluth, 2005).

4. Research Framework

The conceptual framework for the development of the blended learning model using rotating stations (BLRS) in the case of a small elementary school is shown in Figure 3.
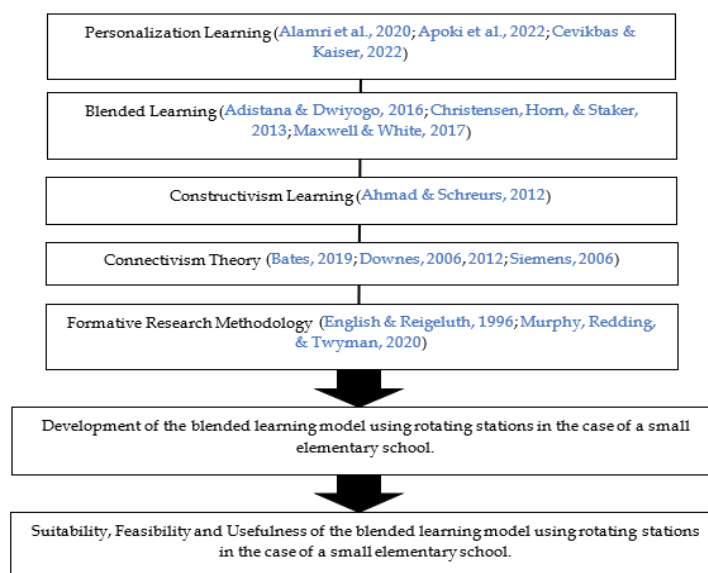
Figure 3. *Conceptual framework of the blended learning model using rotating stations (BLRS) in the case of a small elementary school*

5. Research Methodology

The research methodology consists of two phases: Phase 1 uses R&D processes, and Phase 2 uses applied formative research processes:

A. Phase 1

This phase studies papers and research related to issues that affect the success of a blended-learning model using stations. The following steps must be taken:

Step 1. Synthesizing the problem of blended learning in the case of a small elementary school.
Step 2. Synthesize an approach to developing a learning BLRS model in the case of a small elementary school.
Step 3. Design and draft the BLRS model for a small elementary school, learning plans, and learning management style guide.
Step 4. Find a consensus among 12 experts on the suitability and feasibility of the BLRS model in the case of a small elementary school. Learning management plans and learning management style guide.

B. Phase 2

In this phase, it is used to improve the BLRS model by applying the following formative research methodology:

Step 1. Use and revise the BLRS model, learning plans, and learning-management style guides.
Step 2. A consensus was found among 12 experts on the usefulness of the BLRS model.
Step 3. Use and revise (new) the BLRS model in the case of a small elementary school, learning management plans, and learning management style guides.

6. Result

A. Phase 1

In the case of a small elementary school, the results of the problem study using blended learning with rotating stations were as follows:

1) The synthesis of the problem of blended learning in small elementary schools. These include 1) teacher, 2) teaching method, 3) content, and 4) activity. The researchers then brought these essential issues to developing the blended learning model using rotating stations, as shown in Table I.

2) Synthesize the approach to developing a learning BLRS model in the case of a small elementary school shows that: 1) Teachers, The role of the teacher should be defined such that the teacher must have technological skills, the necessary equipment should be provided in the classroom, a learning management plan should be prepared, perhaps using the original learning management plan or application, and teachers should clearly define their workload for their students, prepare classroom conditions, and design activities for each lesson. 2) Teaching method, content, and activity define the blended learning model using stations that rotate in the case of a small elementary school as follows:

1) Offline learning method, there should be activities that do not require technological equipment, but instead activities conducted by students, individually and in groups, worksheets, activities discussions, small group discussions, and paired learning.

2) Online learning method, teachers focus on online activities that should be done in groups like group work learning stations. Still, students can access websites or online media to study in groups, and worksheets may be online worksheets, as shown in Table II.

Table I

The Synthesis of the Problem of a Blended Learning in the Case of Small School

Problem	Detail
teacher	Blended learning skills, materials, and technology—learning management uses multiple teaching methods for each school hour; therefore, teachers must be trained to manage integrated learning by rotating learning stations.
teaching method	Teachers should be prepared to work in various areas. Preparing learning activities for students to use online devices will affect the management of blended education to achieve results.
content	Choose content or subjects for a blended learning model that uses rotating stations. As a result, teachers should consider selecting appropriate online learning resources for the content so that students can understand the purpose of their learning.
activity	The blended learning model using rotating stations can confuse assignments where these restrictions may or may not be visible when applied to certain schools, specifically to local and provincial students. This is a challenge for the teachers. However, the challenges discussed can be managed by having the teacher plan the lessons. The management plan was also well learned

Table II

The Synthesis of the Approach to Developing the BLRS Model

Issue	Approach
teacher	The teacher's role should be defined as follows: The teacher must have technological skills, prepare a learning plan, and clearly define student tasks. Furthermore, it involves preparing the classroom, designing activities at each learning station, observing student behavior, being a coach, and rehearsing how to move around the learning stations.
teaching method and content and activity.	Defining an integrated learning management process by rotating the learning stations. The teacher introduces them into the lesson to prepare the students and then integrates the methods, perhaps with various blended learning methods, as follows:1) Offline learning method. There should be activities that do not require technological equipment. However, for activities conducted by students, both individually and in groups, worksheets, activity discussions, small group discussions, paired learning, and working in groups, teachers must group students by a mix of abilities. It focuses on group processes and allows all students to participate, think, and collaborate in group work. 2) Online learning method: Teachers focus on activities that should be done in groups, such as group work learning stations, but students can study in groups by accessing websites or online media, and worksheets can be online worksheets.

Figure 2 illustrates the constituent elements of the BLRS model (preliminary version) as applied to a small primary school, including the learning plans and the learning management style guide. There exist four distinct components. The four critical components under consideration are the principles of blended learning, personalized learning, constructivism, and connectivism, followed by the objective, learning management, and evaluation. The process of managing learning comprises four distinct steps: The initial step involves providing instruction through effective pedagogy. The subsequent step entails utilizing a blended approach comprising three distinct learning stations. The third step involves concluding, while the fourth step pertains to relaxation. The blended learning model employs a rotating station approach in its learning management process, consisting of three distinct learning stations, namely, an individual, group, and online learning station. Each station operated autonomously without any interdependence on the other stations. Learners have the flexibility to commence their academic pursuits at any given station. It is recommended to allocate a time frame of 15 minutes for each station and subsequently proceed to rotate to the remaining learning stations until all stations have been completed, as illustrated in Figure 4.

1. The principle
1) Blended learning
2) Personalized learning
3) Constructivism
4) Connectivism

2. Objectives
- To enable learners to learn and achieve the learning objectives of the subject matter, under multi-class classroom conditions in small elementary schools, teachers are not enough or Teachers who don't teach exactly are majors.

4. Evaluation
- Observation of BLSR model learning behaviors
- Query with student opinions
- Usefulness of applying to learning management

3. Learning management process
Step 1) Leading teaching
Step 2) Blended method
Individual learning station
 - Students separated and individual work
Group learning station
- Divide the group into different abilities
- Divide the duties into groups
- Student set a goal and responsibility.
- Jointly think and make decisions.
- Collaborate on group work
Online learning station
- Search for information from the learning resource website
- Interact with each other in communication.
- Create independently
- Use technology to build a learning community
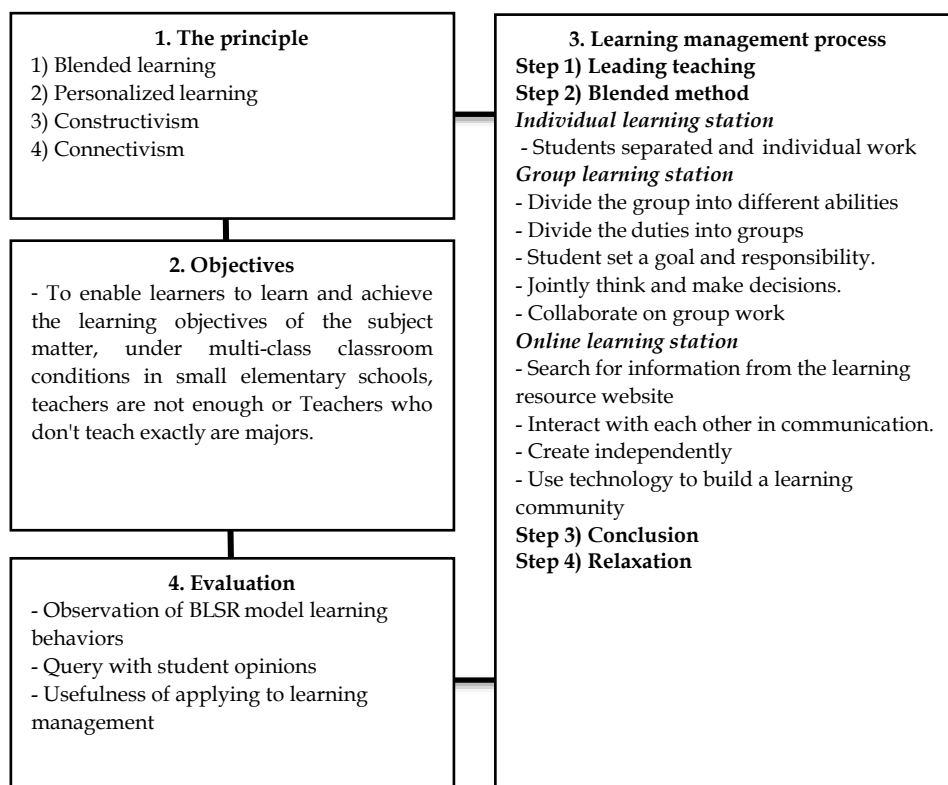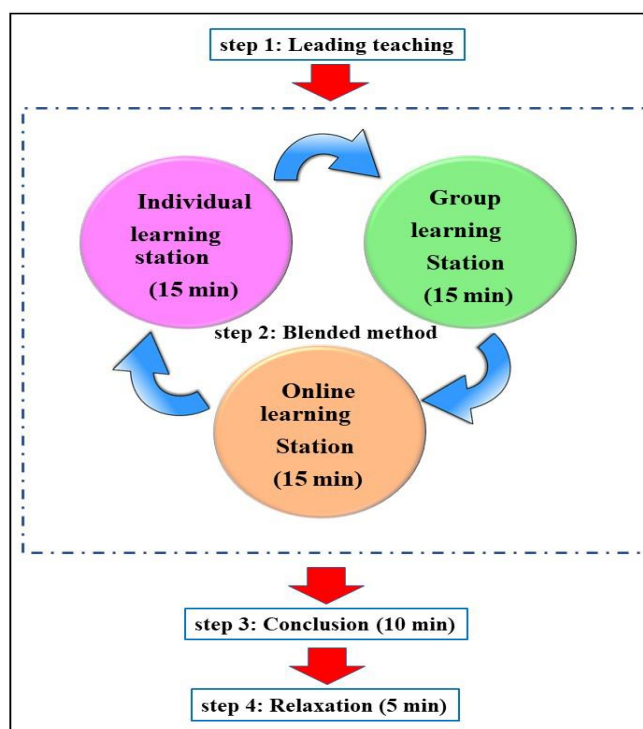**Step 3) Conclusion**
Step 4) Relaxation

Figure 4. *Composition of (draft version) of the BLRS model in the case of a small elementary school*

Figure 5. *The learning management process of the BLRS model in the case of a small elementary school*

4) The consensus among the 12 experts on the suitability and feasibility of the BLRS model in the case of a small elementary school, the learning management plans, and a learning management style guide are shown in Tables III and IV.

Table III

Suitability of BLRS Model the Learning Management Plans and a Learning Management Style Guide

Item	Suitability		
	Mean	**SD.**	**Meaning**
1) The principle of the model			
1) Blended learning	4.75	0.452	Strongly Agree
2) Personalized learning	4.25	0.452	Agree
3) Constructivism	4.33	0.492	Agree
4) Connectivism	4.25	0.452	Agree
2) Objectives	4.50	0.522	Strongly Agree
3) Learning management process			
Step 1) Leading teaching	4.58	0.515	Strongly Agree
Step 2) Blended method	4.08	0.289	Agree
Individual learning station			
- Students separated and individual work	4.42	0.515	Agree

Group learning station			
- Divide the group into different abilities	4.58	0.515	Strongly Agree
- Divide the duties into groups	4.50	0.522	Strongly Agree
- Students set a goal and responsibilities.	4.25	0.452	Agree
- Jointly think and make decisions.	4.50	0.522	Strongly Agree
- Collaborate on group work	4.58	0.515	Strongly Agree
Online learning station			
- Search for information from the learning resource website	4.42	0.515	Agree
- Interact with each other in communication.	4.33	0.492	Agree
- Create independently	3.83	0.389	Neutral
- Use technology to create a learning community	4.33	0.492	Agree
Step 3) Conclusion	4.25	0.452	Agree
Step 4) Relaxation	4.08	0.289	Agree
4) Evaluation			
- Observation of blended learning behaviors by rotating learning stations	4.42	0.515	Agree
- Query with student opinions	4.20	0.447	Agree
- Usefulness of applying to learning management	4.25	0.452	Agree
Total	**4.40**	**0.516**	Agree

Table IV

Feasibility of the BLRS Model, the Learning Management Plans, and a Learning Management Style Guide

Item	Feasibility		
	Mean	**SD.**	**Meaning**
1) The principle of the model			
1) Blended learning	4.58	0.515	Strongly Agree
2) Personalized learning	4.42	0.515	Agree
3) Constructivism	4.42	0.515	Agree
4) Connectivism	4.25	0.452	Agree
2) Objectives	4.33	0.492	Agree
3) Learning management process			
Step 1) Leading teaching	4.42	0.515	Agree
Step 2) Blended method	4.17	0.718	Agree
Individual learning station			
- Students separated and individual work	4.58	0.515	Strongly Agree
Group learning station			
- Divide the group into different abilities	4.33	0.492	Agree
- Divide the duties into groups	4.42	0.515	Agree
- Students set a goal and responsibilities.	4.33	0.492	Agree
- Jointly think and make decisions.	4.50	0.522	Strongly Agree
- Collaborate on group work	3.92	0.669	Neutral
Online learning station			
- Search for information from the learning resource website	4.17	0.577	Agree
- Interact with each other in communication.	4.08	0.669	Agree
- Create independently	4.08	0.515	Agree

- Use technology to create a learning community	4.17	0.718	Agree
Step 3) Conclusion	4.00	0.603	Agree
Step 4) Relaxation	4.00	0.739	Agree
4) Evaluation			
- Observation of blended learning behaviors by rotating learning stations	4.42	0.515	Agree
- Query with student opinions	4.42	0.515	Agree
- Usefulness of applying to learning management	4.42	0.515	Agree
Total	**4.29**	**0.574**	**Agree**

Table III strongly agreed upon the suitability of the BLRS model, the learning management plans, and the learning management style guide (Mean=4.40, S.D.=0.516). Table IV strongly agreed with the feasibility of the BLRS model, the learning management plans, and the learning management style guide (Mean=4.29, S.D.=0.574).

B. Phase 2

In phase 2, the researcher used an applied formative research methodology, and the results were as follows:

1) Using and revising the BLRS model, learning plans, and learning management style guides. According to the criteria, students have developmental scores in the problem-solving skills subject (Kanjanawasee, 2001), as shown in Table V.

Table V

Achievement Score and Developmental Level After Using the BLRS Model

No.	Pre-test	Post-test	Relative development score	Developmental level
1	16	23	50.0	Intermediate
2	13	21	47.1	Intermediate
3	19	25	54.5	High
4	17	23	46.2	Intermediate
5	16	21	35.7	Intermediate
6	16	22	42.9	Intermediate
7	15	21	40.0	Intermediate
8	17	22	38.5	Intermediate
9	18	24	50.0	Intermediate
10	18	26	66.7	High
11	20	26	60.0	High
12	18	24	50.0	Intermediate
13	21	24	33.3	Intermediate
14	19	27	72.7	Very high
15	17	27	76.9	Very high
$\overline{X}$	17.33	23.73	50.96	Intermediate

From Table V, the results of the pre-test and post-test achievement scores on problem-solving skills showed that the overall score was at the intermediate development level, with a relative development score of 50.96
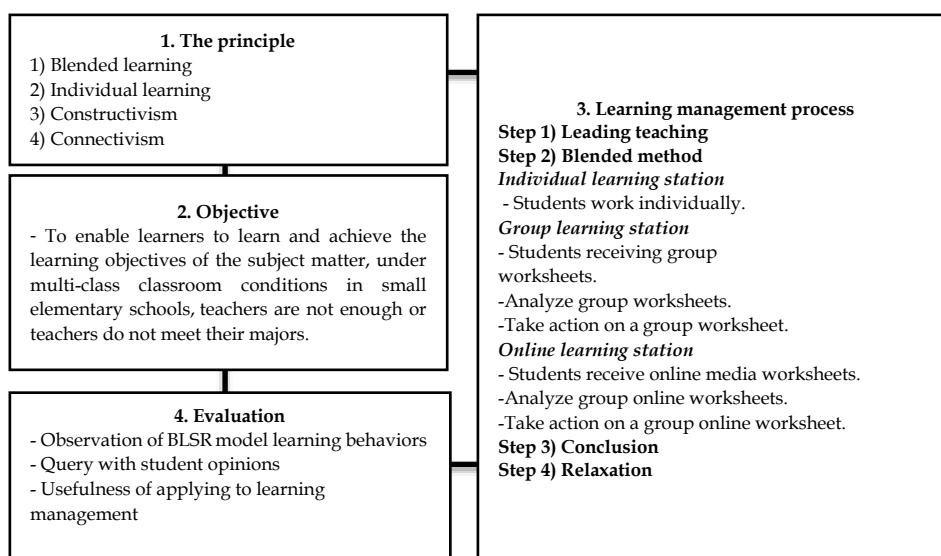
Table VI

The Percentage of Students With Achievement Scores at Each Developmental Level After Using the BLRS Model

Relative development score criteria	Developmental level	student	percentage
76-100	Very high	2	13.33
51-75	High	4	26.67
26-50	Intermediate	9	60.00
Total		**15**	**100.00**

Table VI displays the percentages of students who have attained achievement scores in problem-solving skills across various developmental levels. The assessment results indicate that a minority of students, precisely 13.33%, demonstrated a very high level of development. A slightly more significant proportion of students, 12.67%, exhibited a high level of development. The majority of students, 60.00%, demonstrated an intermediate level of development.

The findings obtained from the formative research process, which involved the observation of learning behaviors, revealed that teachers could efficiently execute activities. The data collected was qualitative. Students' responses during the learning process are contingent upon their abilities. The expansion of the teacher's role is proposed as follows: Two potential strategies for improving student outcomes include emphasizing the role of teachers as mentors who guide students toward problem-solving rather than simply providing solutions and incentivizing students to complete tasks promptly by offering additional points for early completion. Modifying English listening and reading skills worksheets to accommodate time constraints can enhance students' incentive to read longer passages or sentences.

Furthermore, scholars have proposed enhancements by simplifying the processes to render them more comprehensible and feasible. The blended learning model has been revised by researchers, as depicted in Figure 6.

1. The principle
1) Blended learning
2) Individual learning
3) Constructivism
4) Connectivism

2. Objective
- To enable learners to learn and achieve the learning objectives of the subject matter, under multi-class classroom conditions in small elementary schools, teachers are not enough or teachers do not meet their majors.

4. Evaluation
- Observation of BLSR model learning behaviors
- Query with student opinions
- Usefulness of applying to learning management

3. Learning management process
Step 1) Leading teaching
Step 2) Blended method
Individual learning station
- Students work individually.
Group learning station
- Students receiving group worksheets.
-Analyze group worksheets.
-Take action on a group worksheet.
Online learning station
- Students receive online media worksheets.
-Analyze group online worksheets.
-Take action on a group online worksheet.
Step 3) Conclusion
Step 4) Relaxation

Figure 5. *The revised composition of the BLRS model in the case of a small elementary school.*

Figure 4 illustrates that the blended learning model with rotating stations for a small elementary school comprises four distinct components. The four key components under consideration are the principles of blended learning, individual learning, constructivism, and connectivism, followed by the objective, learning management, and evaluation. The process of managing learning is comprised of four distinct steps: The initial step involves the implementation of effective pedagogy, while the subsequent step entails utilizing a hybrid approach, comprising three distinct educational stations. At the individual learning stations, the students engaged in independent work. The group learning station comprises three distinct phases: the distribution of group worksheets to students, the analysis of the group worksheets, and the implementation of the findings derived from the group worksheets. The online learning process comprises three sub-stages: the reception of online media worksheets by students, the analysis of online group worksheets, and the subsequent implementation of online group worksheets. The third step involves concluding, while the fourth step entails relaxation. The assessment comprised three distinct elements: observing BLRS model learning behaviors, engaging in discussions with students, and evaluating its applicability to learning management.

Table VII

Usefulness of the BLRS Model, the Learning Management Plans, and a Learning Management Style Guide

Item	Usefulness		
	Mean	**SD.**	**Meaning**
1) The principle of the model			
1) Blended learning	4.67	0.492	Strongly Agree
2) Personalized learning	4.58	0.515	Strongly Agree
3) Constructivism	4.75	0.452	Strongly Agree
4) Connectivism	4.58	0.515	Strongly Agree
2) Objectives	4.33	0.492	Agree
3) Learning management process			
Step 1) Leading teaching	4.58	0.515	Strongly Agree
Step 2) Blended method	4.50	0.522	Strongly Agree
Individual learning station			
- Students work individually.	4.33	0.492	Agree
Group learning station			
- Students receiving group worksheets	4.42	0.515	Agree
-Analyze group worksheets.	4.42	0.515	Agree
- Take action on a group worksheet.	4.33	0.492	Agree
Online learning station			
- Students receive online media worksheets.	4.42	0.515	Agree
-Analyze group worksheets.	4.50	0.522	Strongly Agree
- Take action on a group worksheet.	4.33	0.492	Neutral
Step 3) Conclusion	4.42	0.515	Agree
Step 4) Relaxation	4.42	0.515	Agree
4) Evaluation			
- Observation of BLRS model learning behaviors	4.25	0.622	Agree
- Query with student opinions	4.17	0.718	Agree
- Usefulness of applying to learning management	4.25	0.452	Agree
Total	**4.40**	**0.516**	Agree

Table VII shows the usefulness of the BLRS model, the learning management plans, and the learning management style guide. The overall level strongly agreed (mean =4.40, S.D.=0.516).

7. Conclusion and Discussion

Conclusion

Based on data gathered from primary sources, specifically through interviews with individuals who hold key positions or possess significant knowledge of the subject matter. This paper addresses the issue of blended learning implementation in small elementary schools. The components encompassed in the development of the BLRS are fourfold: 1) the educator, 2) the pedagogical approach, 3) the subject matter, and 4) the instructional activities. The synthesis of these elements results in the formation of the BLRS. The teacher's role is as follows: Educators must possess technological proficiency, devise a comprehensive curriculum, and unambiguously delineate assignments for their pupils. In addition, the process entails the preparation of the learning environment, developing instructional materials for each station, monitoring student conduct, providing guidance, and practicing movement between stations. The pedagogical approach, curriculum, and instructional strategies employed in education. The proposal is to establish an integrated learning management process by implementing a rotational system for learning stations. The instructor initiates the lesson by acquainting the pupils with the subject matter to prime them for learning. Subsequently, the educator incorporates diverse blended learning techniques to facilitate the learning process. The offline learning method refers to a mode of education that does not require an internet connection or online resources. It is imperative to have non-technological activities available. In student-led activities, such as individual and group tasks, educators must employ a combination of ability-based grouping strategies, including but not limited to worksheets, activity discussions, small group discussions, paired learning, and collaborative group work. The approach emphasizes the dynamics of group interactions and facilitates the engagement, cognitive involvement, and cooperative efforts of all learners in collaborative tasks. The online learning approach prioritizes group-based activities, such as collaborative learning stations, while enabling students to work through online resources and media. Additionally, online worksheets can be utilized to facilitate learning. Consequently, a developmental approach has been formulated for implementing a blended learning model utilizing rotating stations (BLRS) in a small elementary school context. The model comprises four distinct components, namely:1) The principles underlying the model will be discussed. 2) The objective of the model will be examined. 3) The process of managing learning, and 4) evaluating it. The process of managing learning encompasses a series of four distinct steps. 1) The implementation of effective pedagogy, 2) The utilization of a blended learning approach, 3) The summary of findings, and 4) The incorporation of relaxation techniques. The Blended method comprises three distinct learning stations, namely the Individual learning station, where students work independently; the Group learning station, where students receive group worksheets, analyze them and take action accordingly; and the Online learning station, where students receive online media worksheets, analyze them, and take action accordingly. The results indicate a high level of agreement (Mean=4.40, S.D.=0.516) regarding the appropriateness of the BLRS model, learning management plans, and learning management style guide.

Based on the data presented in Table IV, it can be concluded that the BLRS model, learning management plans, and learning management style guide were highly feasible, with an overall mean score of 4.29 and a standard deviation of 0.574.

The present study examines the impact of the BLRS model on achievement scores and developmental levels, utilization and modification of the BLRS model, learning plans, and learning management style guides. Based on the criteria, students exhibit varying developmental scores in problem-solving skills. The study's findings indicate that the pre-test and post-test achievement scores for problem-solving skills yielded an intermediate level of development, with a relative development score of 50.96. Table VI displays the distribution of students' achievement scores in problem-solving skills across various developmental levels. The study revealed that a minority of students, precisely two individuals (13.33%), demonstrated a very high level of development. Additionally, a more significant proportion of students, four individuals (12.67%), exhibited a high level of development. Most students, precisely two individuals (60.00%), demonstrated an intermediate level of development.

The study examined the efficacy of blended learning behavior using rotating stations (BLRS) in a small elementary school. The findings indicate that students could proceed seamlessly when participating in multi-classroom groups during the experiment. The learning response of students is contingent upon their abilities. In the context of the learning process, it is imperative to enhance the existing steps and augment the role of teachers by incorporating observations about learning management. One potential strategy for enhancing the educational experience is to prioritize the involvement of mentors among educators, as opposed to those who primarily provide solutions to students. It is through incorporating customized scoring criteria for proficient students who demonstrate the ability to complete assignments in advance to promote student engagement with their respective learning stations.3) Modifying instructional materials to align with time constraints. 4) Expanding the teacher's responsibility in promoting positive reinforcement.

Discussion

The blended learning model that employs rotating stations (BLRS) has been studied in the context of a small elementary school (Staker & Horn, 2012). The learning management process in this model is comprised of four distinct steps. 1) The implementation of effective pedagogy. 2) The utilization of a hybrid instructional approach. 3) The summative deduction is drawn from the analysis. 4) The incorporation of leisure activities for stress reduction. According to the American Institute for Research (Bonk & Graham, 2012), three distinct learning stations exist: individual, group, and online. According to Truitt's (2016) research, individual learning stations encompass independent study groups, reading, and writing activities. The proposed learning approach involves a bi-weekly cycle comprising various activities such as small-group sessions, collaborative projects, whole-group sessions, student-teacher conferencing, online learning, and a 20-minute independent or collaborative learning station. The Online Learning Station, abbreviated as AIR, has been referenced in Maxwell and White (2017) and Truitt (2016). Furthermore, it should be noted that teachers are not considered members of any learning stations. Educators are positioned outside the learning stations to offer supplementary guidance and oversee the successful rotation of students. They serve as advisors outside the learning stations to

comprehensively observe students' learning habits, assuming a scenario where educators are assigned to learning stations, such as those involving small-group instructional settings. In such an event, the chance to observe students' learning behavior at other stations will be forfeited. According to the suggestion of Truitt (2016), teachers have a significant responsibility in monitoring students' behavior in school.

The formative research process yielded qualitative data indicating that teachers could effectively execute activities, as evidenced by observations of learning behaviors. Students' responses during the learning process are contingent upon their abilities. Expanding the teacher's role is recommended as follows: Two potential strategies for improving student outcomes include prioritizing teacher mentoring over problem-solving and incentivizing students to complete tasks quickly through bonus points.

Furthermore, an investigation into Tamil primary schools has revealed that Malaysian primary schools, particularly those of Tamil origin, have integrated blended learning methodologies into their pedagogical practices. Blended learning is an instructional approach that integrates conventional face-to-face and online learning modalities. Implementing blended learning in educational institutions has been found to alter students' viewpoints and serve as a powerful and valuable tool for academic instruction (Ponniah et al., 2022). The study on implementing a blended learning approach in Islamic Religious (IR) education, which integrates both traditional classroom instruction and online learning, demonstrated a favorable association between physical class participation and virtual learning involvement among students (Adhi, Achmad, & Herminarto, 2022). The findings indicate that simultaneously utilizing both teaching and learning delivery formats may positively impact students' academic achievement if the formats are appropriately structured to enhance the educational process (Li et al., 2021). Furthermore, the study examined the impact of the BLRS model on achievement scores and developmental levels. The utilization and modification of the BLRS framework. According to reports (Horn & Staker, 2014; Maxwell & White, 2017), students demonstrated improved academic performance. Furthermore, the outcomes of the observation of students' learning behaviors and the inquiries into students' opinions have demonstrated that students exhibit a higher level of motivation toward their studies (Clark & Barbour, 2015; Kazu & Demirkol, 2014; Tucker, 2018). Following the principle of personalized learning (Herold, 2016), students engage in worksheet activities that align with their abilities. Additionally, there is an increased availability and utilization of technology resources. (Clark & Barbour, 2015; Horn & Staker, 2014). Based on the critical findings from formative research, it is recommended that teachers assume an additional role in implementing strategies aimed at enhancing learner self-strengthening. The blended learning approach necessitates self-regulated learning across all three learning stations, thereby demanding a heightened level of self-control from learners (Bonk & Graham, 2012). Self-regulated learning enables individuals to employ various self-regulatory strategies, including establishing their working methods. The act of establishing objectives and seeking assistance. Furthermore, the findings indicated a significant improvement in the participants' academic performance as evidenced by their achievement scores post-intervention. Additionally, the development scores of the learners in the sample also demonstrated notable progress. Students who possess the capacity, regulate their conduct. When being provided with positive reinforcement by

educators. Students can adjust their learning behaviors, including self-regulation when adhering to a schedule. At designated intervals, students shall assume responsibility for overseeing group and individual assignments and coordinating group activities. The learning development reached an elevated level after the activity. According to research findings (Azevedo & Hadwin, 2005), students who do not possess the attributes of self-directed learning may encounter difficulties achieving success in online learning. The preceding information indicates that the self-regulation abilities of students constitute a crucial element in achieving effective blended learning administration. The researchers subsequently embraced the proposal to enhance the formative research model. The proposal entailed assigning a crucial role to the instructor, who would guide, encourage, and inspire students in their pursuit of integrated learning through the rotation of learning stations. The proposal further suggests that teachers should employ strategies aimed at bolstering learners' self-directed learning abilities to facilitate the attainment of learning management objectives.

8. Advantages of the model

The blended learning model utilizing rotating stations (BLRS) is an effective solution for small elementary schools facing limited teaching resources and student population challenges. A teacher can conduct simultaneous instruction for multiple students within the same classroom, eliminating the need for relocation. The teacher is responsible for overseeing and offering tailored guidance to students, allowing them to monitor learning patterns meticulously. The BLRS model has been designed as a universal model, allowing users to apply its format to various subject matters. Its application is not restricted to a specific subject area. Individuals create worksheets by selecting the subject content that is required. 3 The BLRS model represents an alternative approach to learning management that prioritizes addressing the constraints of satellite-based remote learning by emphasizing the adoption of two-way communication. The BLRS model was formulated to optimize the utilization of scarce school resources, particularly in rural areas where resource constraints are prevalent. The BLRS model exhibits particular aptness for students in the early to high school age range. This refers to the initial stage of education, where students are introduced to fundamental concepts. It is recommended that students utilize digital technology under the careful monitoring of educators to safeguard both personal well-being and material possessions.

9. Restrictions of the model

Implementing the blended learning model utilizing rotating stations (BLRS) is tailored to the unique needs of small elementary schools with limited classroom capacity, a small student body, and a shortage of teaching personnel. Applying this format in more extensive educational settings may yield diverse outcomes. The BLRS model involves the active participation of educators in devising techniques to enhance and fortify students' self-directedness, thereby facilitating their attainment of favorable outcomes. Students proficient in utilizing the format mentioned above may require fundamental computer competencies. Nevertheless, educators can equip their students with the necessary skills before commencing the formatting process.

10. Recommendations for the implementation

In the context of a small elementary school, educators who are inclined towards implementing the blended learning model through the utilization of rotating stations (BLRS) may enhance its efficacy by tailoring it to specific subjects or desired content while also considering pertinent factors such as the classroom context, number of students, and availability of computer equipment. In educational settings beyond those of small elementary schools, it may be necessary to contextualize the classroom environment to optimize the efficacy of the instructional model. Educators can enhance learning experiences for students by utilizing pre-existing learning management strategies to optimize activities at individual stations, thereby facilitating personalized learning. Acquire knowledge through collaborative group work and online educational resources. The degree of flexibility in applying a particular format to diverse subject content may vary depending on the nature of the subject matter. Personalized learning and the varying abilities and potentials of learners must be considered in this regard. A diverse range of learning options is available to students, and they may exhibit varying responses to distinct learning methodologies. Students acquire knowledge in subjects that interest them and identify areas where they may require additional support.

Educators can utilize this information to facilitate optimal learning outcomes. Exploring and cultivating alternative methods of learning is recommended, facilitating a learning environment that promotes individualized progress at a self-determined rate for students. It is imperative for educators to assume a crucial responsibility in fostering self-regulation among students in their academic pursuits. The educators are situated outside the educational facility. Learning stations are not utilized in this context as teachers can closely monitor students' learning behaviors and provide prompt feedback, rendering the need for stationed learning areas unnecessary. Educators must oversee the conduct of pupils during the activity, provide assistance with tasks, and offer support to those experiencing challenges or obstacles in their learning. Educators must take action in offering prompt assistance to facilitate a seamless learning experience for their students. If a student experiences difficulty achieving successful learning outcomes, it is pertinent to ascertain the specific learning station that may impede their progress. Educators must guide on enhancing their performance in future endeavors. The learning activities implemented in each learning station are designed to provide students with practical experience within the framework of individual capabilities. The act of measurement and evaluation serves as a means of assessing development rather than as a tool for judgment. The aim is to foster a positive attitude among students towards the blended learning model, specifically the use of rotating stations (BLRS), within a small elementary school context. This approach provides students with opportunities to showcase their full potential for self-improvement. The blended learning model utilizing rotating stations (BLRS) is a viable option for small elementary schools. This approach mainly benefits students new to computer usage or online learning. Once students have acquired digital literacy skills, they can effectively engage in this mode of instruction. Educators can enhance the utilization of online resources, such as distributing assignments via electronic mail and facilitating collaborative efforts through online document sharing.

11. Recommendations for the following research

The creation of educational curricula through the implementation of personalized digital learning paths, known as individual learning paths, facilitates the acquisition of knowledge in a manner tailored to each student's unique needs and preferences, thereby fostering self-directed learning. This study aims to create a learning status recording system via the dashboard, empowering students to take charge of their learning by tailoring it to their interests. Additionally, an assessment system will be developed to provide learners with immediate access to their progress scores. Topics such as voting and performance are of interest. The creation of educational initiatives aimed at fostering self-directed learning abilities among learners in both online and offline or blended learning environments is recommended.

Conflict of Interest

The authors declare no conflict of interest in this study.

Author Contributions

Phatthananorn Yonchai conducted the research, analyzed the data, and wrote the paper; Paisarn Worakham and Piyatida Panya did the research consulting; all authors approved the final version.

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