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The New Sail model: An innovative approach to educational change

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Abstract

The norms of mass education have dominated public education globally since being developed in Western Europe in the early 19th century; nonetheless, they are dysfunctional and have generated serious problems. Many reform initiatives have failed while others, largely in the Global South, show promise. Based on the successful alternatives, our literature review, critical analysis, and lengthy consultation with key stakeholders, we propose the New Sail model which we have been developing since 2019 as a pedagogical innovation. The purpose of this research is to present this new student-centred model including its conceptual framework with six core components (student, teacher, content, pedagogy, assessment, local community) for the reform of mainstream schooling and alternative education.

Keywords: limitations of mainstream education; educational change; innovative approach; pedagogical model; student-centred education

The New Sail model: An innovative approach to educational change

Limitations and Challenges of Traditional Schooling and Reforms

Globally, the forms of formal elementary and secondary schooling (e.g., age-based grade grouping, age- and grade-based/separated classrooms, pre-set blocks of time, teacher-centred pedagogy, banking models of education) have dominated the world since being created in Western Europe in the early 19th century; nonetheless, they are dysfunctional, have created numerous serious problems, and have shown its significant limitations in meeting the complex demands of modern society (Farrell et al., 2017; Freire, 1970). Traditional schooling is dated with its rigid conformity, one-size-fits-all, shallow learning, and the same learning pace cannot effectively serve individual students' diverse learning needs, leading to widespread issues like student classroom behaviour problems and mental health issues including anxiety (De Wit, et al., 2017; Farrell et al., 2017; Ricci, 2015; Zhao, 2012). Despite numerous reform initiatives, the core problems inherent in this foundational model persist (Fullan, 2021; Tyack & Cuban, 1995), and we rarely question the basic Eurocentric or Western model and its forms of formal schooling (Farrell et al., 2017; Fullan & Watson, 1999). Also, these reforms often focus on specific elements of the education process, leaving the core structure largely unaltered (Elmore, 2004; Robinson, 2002; Zhao, 2012). As a result, many such initiatives yield minimal advancements, and very few reach their intended outcomes (Farrell et al., 2017).

Lessons from Alternative Educational Models and Their Successes

In contrast, there are radical alternatives demonstrating remarkable success on a large scale, particularly the Escuela Nueva in Colombia started in 1975 (Colbert & Arboleda, 2016; Fundación Escuela Nueva, 2017), the Learning Community Project (LCP) in Mexico developed in 2003 (Meixi, 2019; Rincón-Gallardo, 2016), and the Non-Formal Primary Education program

of the Bangladesh Rural Advancement Committee (BRAC) created in 1985 (McLorg, 2019; Numan & Islam, 2021). These emerging models are primarily from rural areas in the Global South and have displayed outstanding accomplishment in domestic and international academic tests conducted in underserved socio-economically marginalized rural areas. These initiatives have out-performed their counterparts in urban areas. Further, each of these three alternatives is unique and has its own particular strengths. Regardless of the variations among these three approaches, they are all student-centred, self-paced, learning-focused, pedagogically active, flexibly structured, multi-graded, and locally involved (Farrell et al., 2017). Despite the lack of useful practical and theoretical language to explain their achievement, such transformative models have been successfully promoted for comprehensive system reforms in many nations in the Global South. The success of these alternatives jointly indicates that traditional schooling can be positively changed on a large scale. These alternatives teach the Global North a lesson for learning to initiate proven solutions to improve the quality of education not only in the Global South but also in the Global North (Exley, 2014). Although many of the ideas of the three alternatives are not new in education, not many models or approaches (unlike the three successful alternatives) truly or fully implement their ideas well in terms of practicality, functionality, efficacy, replicability, affordability, and sustainability (Farrell et al., 2017; Kierstead, 1980; Noddings, 2010). The New Sail (NS) model has been developed based on the common strengths to make the new model applicable in various settings around the world (e.g., Global South, Global North).

The New Sail model: A Student-Centred Approach to Transforming Traditional Education

Based on these radical alternatives, literature review, critical analysis of the dominant formal schooling, consultation with key stakeholders (e.g., teachers, students, parents or

guardians, school administrators, policy-makers, teacher educators, scholars, community members in Canada and internationally), and the authors' personal and professional experiences, the NS model has been progressively developed by Lu, Li, Lu, and Rong (2022) since 2019. As a new pedagogical approach, it has been implemented in some formal schools in China since 2020. Anecdotal evidence indicates its success (e.g., academic performance in tests and deep learning, student well-being) from the perspectives of students, teachers, school administrators, families, and local communities relevant to the formal school system. The implementation and testing of the model have also helped adjust and refine the current model (see Figure 1). It should be noted that China has consistently been ranked number one in the most influential Programme for International Student Assessment (PISA) test since it joined the international assessment in 2009. The schools that have adopted the NS model are among the top ones in China. Thus, the NS model appears to be versatile or applicable to cover the whole spectrum from its service for "the hardest to reach" and "the hardest to teach" students in the alternatives from the Global South to the top school students in the world.

Further, the model has been studied in-depth and promoted in specific subjects such as mathematics, health and physical education. Lu's research conducted a comparative study between the three aforementioned radical alternatives from the Global South and three initiatives in Canadian mathematics education. The findings in this study provide insights into contrasting innovative approaches to the enhancement of mathematics education for both the Global South and the Global North (Lu, 2022). Another study, examines the NS model's application in health and physical education including implementation strategies and solutions to potential challenges (Lu et al., 2022).

Thus, the NS model appears to be practical and promising to help educational change and school improvement on a large scale by anchoring itself in these adaptable frameworks for formal and non-formal education. Also, this student-centred model is intended to balance and meet the needs of individual students (e.g., academic, well-being) and society (e.g., curriculum, accountability). The purpose of this conceptual paper is to introduce and discuss this new model, including its conceptual framework with core components (student, teacher, content, pedagogy, assessment, the local community).

The significance of the study is that this theoretical study helps fill the gap in the literature on the major successful alternatives developed, implemented, and studied in the context of the Global South because the present study addresses a new model based on these alternatives for the enhancement of school education in *both Global South and Global North*. In addition, this study makes some important contributions to the field of alternative education, student-centred education, and educational change or reform in mainstream or traditional schooling as the NS model offers new approaches.

What is the NS model?

The *name* of the New Sail model was inspired by an ancient Indian proverb, “We cannot change the direction of the wind, but we can adjust our sails to reach the destination.” Such name also implies the hope and new idea to adjust or transform our traditional schooling for educational changes. *The NS model* can be defined as a pedagogical model characterized by student-centred (e.g., self-planned, self-paced, self-regulated), collaborative (e.g., peer learning, peer tutoring, mixed-grouping), unit- or module-based, teacher-facilitated, school-family-local community (locally-sourced) holistically associated innovation for formal and non-formal education.

The theoretical frameworks of the NS model include 1) constructivism, 2) Eastern thoughts, and 3) Indigenous ways of knowing and learning. First, this model is founded on constructivism that views learners as actively constructing their own knowledge through engagement and interaction (Bruner, 1960). Constructivism underscores learners' active role in knowledge acquisition, where they are not passive recipients of knowledge but instead engage in constructing their own understandings (Piaget, 1964; Vygotsky, 1978). For constructivist theorists, learners construct or integrate their new understandings based on previous understandings and socially organized activities (Piaget, 1977; Vygotsky, 1978, 1987). Thus, the constructivist learning theory emphasizes student-centred approaches that foster critical thinking and self-directed learning (Dewey, 1938/2015). Further, social constructivists believe that learners rely on developing their knowledge embedded in social contexts. This involves interactions with a larger community of learners. The teacher is encouraged to co-create meaning with students, allowing them to formulate and take ownership of their understandings through inner speech/dialogue (Vygotsky, 1987). The NS model has been developed based on exemplars of constructivism which characterize the three successful alternatives (described above) that have transformed long-established educational theories about student-centred learning into practical, workable, effective, replicable, affordable, and sustainable models. It is a small idea for a big change (Exley, 2014; Farrell et al., 2017).

Secondly, the NS model is rooted in Eastern philosophies including Buddhism, Confucianism, and Daoism. Traditional Eastern education applies and promotes holism, interdependency, harmony, and balance among body-mind, human-human, human-society, human-nature, and human-universe (Guo, 2016; Miller et al., 2022). 天人合一 *Nature-human unity* and the holistic worldview are core characteristics of Eastern philosophical thoughts (Ji,

2008) and this world-view informs the NS model (e.g., school-home-community organic relationship). Further, 顺其自然 "*Let nature take its course*" is fundamental to the Daoist philosophy which means to follow natural growth and tendencies in learning. This aligns with the Confucian warning against 拔苗助长 "*Pull up seedlings to help them grow*" which means not to force growth or rush results, but rather to follow the natural progression and intrinsic characteristics of things (Mencius - Gongsun Chou I; Van Norden, 2019). Also, Buddhism emphasizes 师父领进门，修行在个人 that "the teacher provides you with the direction, the rest is yours" (Xiandao Classroom, 2015). These Eastern philosophies or wisdom have guided the development of the NS model (e.g., adapting to each learner's individual pace and unique developmental path rather than imposing a one-size-fits-all standard). For Daoism, everything in the universe (e.g., humans, animals, plants, rocks) has its uniqueness and individuality that should be appreciated and followed in life and education (Ding, 1987; Wu, 2016).

Thirdly, Indigenous ways of knowing and learning provide additional theoretical frameworks that support the research on the NS model. Similar to Eastern thoughts (e.g., Daoism) and African wisdom (e.g., *it takes a village to raise a child*), Indigenous wisdom also focuses on holistic worldviews and approaches to education (Madjidi & Restoule, 2017). Further, the Indigenous medicine wheel is in line with the Eastern (e.g., Chinese) Five Elements theory that values the interdependent and interconnected relationships between all things (e.g., universe, nature, human), and the importance of contextual local, land-based knowledge (Davis et al., 2023). This supports the school-home-community organic relationship featured in the NS model (e.g., locally sourced learning materials, *community schools* or *community education*). In addition, the self as the ultimate teacher in Indigenous ways of knowing and learning and the value of personal authority and ability in search for knowledge (Ermine, 2007; Madjidi &

Restoule, 2017) well supports self-guided and self-paced learning in the NS model against the dominant one-size-fits-all pedagogy.

These non-Western theoretical frameworks (e.g., Eastern, Indigenous) as other ways of knowing are not just exotic, novel, or different; rather, they are particularly essential not only for the NS model, but also for general educational change in the current era summarized as Equity, Diversity, Inclusion, and Decolonization (EDID). Moreover, all these three theoretical frameworks provide a coherent foundation to guide and support the study of the NS model.

The Structural Framework of the NS Model

There are six core components of the NS model: 1) student, 2) teacher, 3) content, 4) pedagogy, 5) assessment, and 6) the local community (see Figure 1). There are many essential differences between the NS model and the traditional education model. Compared with the traditional education model (see Figure 2), the NS model moves *students* to be the primary focus since they are the most important component in the model. Within this framework, the *teacher* is placed under students at the bottom of the framework, which means the teacher's role switches from being mainly a leader to a supporter of student learning as suggested by Freire (1970) and other critical observers (see more details in the section of *teacher* below).

Figure 1

The New Sail Model

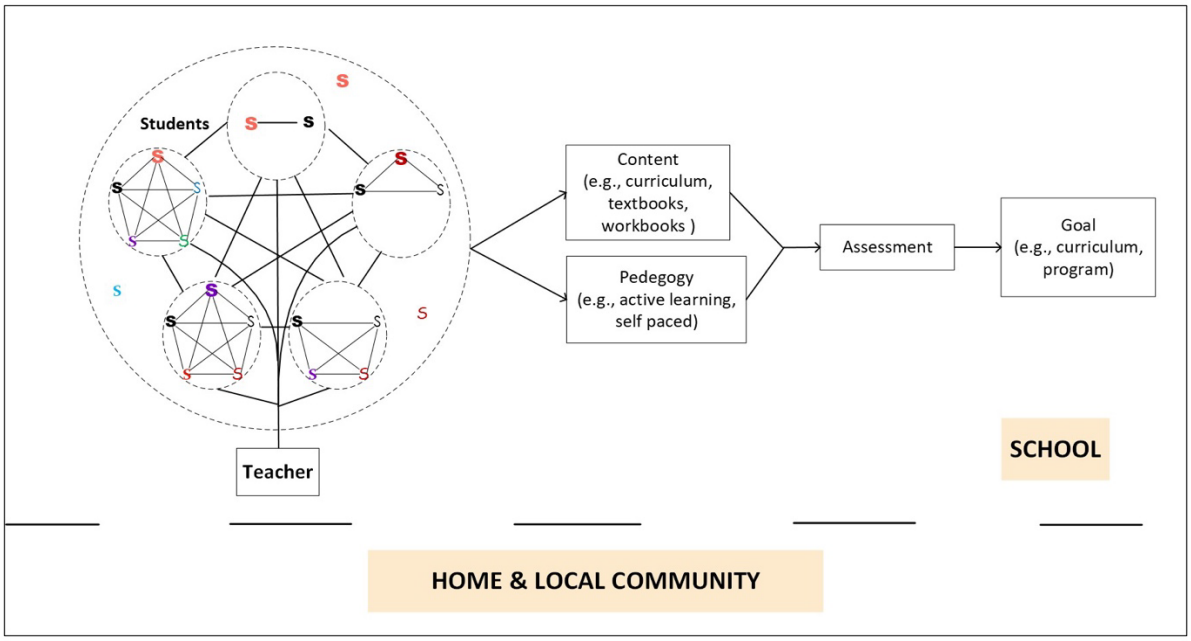
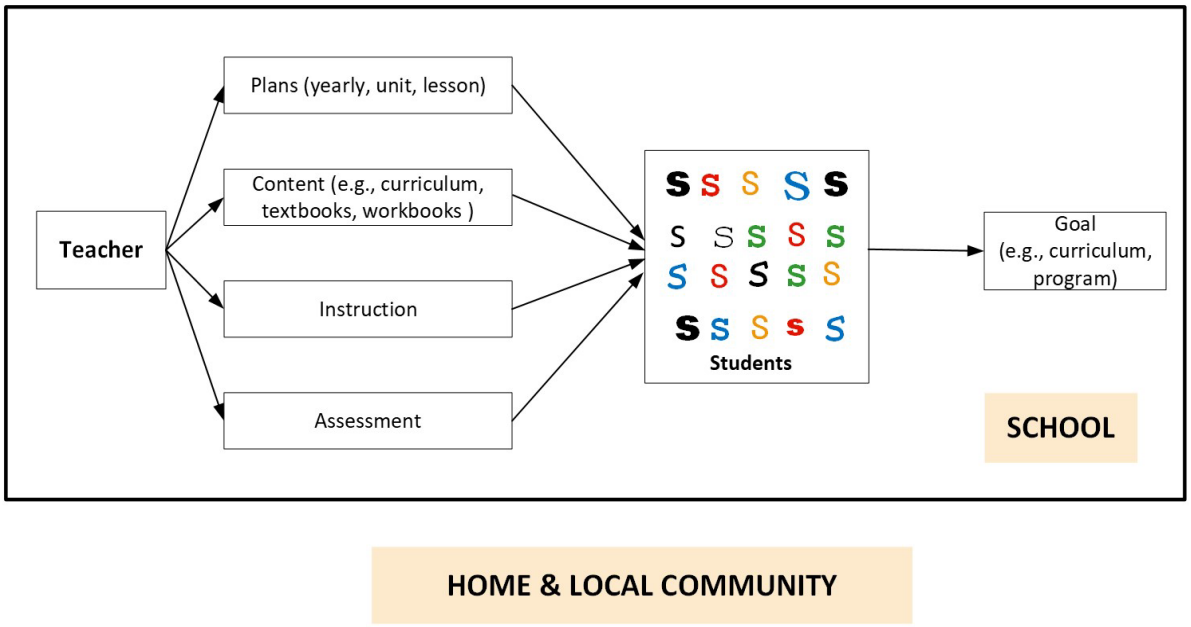


Figure 2

The Traditional Education Model



The switch of the roles of the teacher and students defines the NS model as an approach to *student-centred pedagogy* (student-oriented pedagogy, active pedagogy) or places such pedagogy at the heart of the NS model. Certainly, student-centred pedagogy may have different meanings to different people. It sometimes has a bad reputation because it may imply a set of particular approaches (e.g., group work, practical work or discovery learning) or a lack of discipline and low expectations (Shah, 2019; The Open University, n.d.). However, student-centred pedagogy in the NS model has a whole set of profound meanings and practices (see sections of *student* and *teacher* below) for both student academic performance and well-being (Lu & Lu, 2022). Further, the NS model encourages experiential learning (e.g., service-learning projects, schoolyard gardening), allowing students to learn by doing, immersing themselves in real-world applications of their studies.

In addition, there are no *instructional* or *teaching plans* (e.g., yearly, unit, lesson) in the NS model because students become the driver of their own learning (e.g., self-planned and self-paced learning; working on their own workbooks (e.g., exercise books); working individually or collectively); and all learning at different paces (self-paced). Thus, it is inappropriate, impossible, and unnecessary for teachers to make plans for students (e.g., whole class, groups, individual students). This is why there is limited teacher *instruction* to the whole class in the NS model. Thus, *instructional time* used in traditional schooling is a misnomer and may be replaced by *classroom learning time* in the NS model. Although teachers are not the drivers of student learning, they are the drivers of educational change (e.g., the implementation of the NS model) for the enhancement of student learning and well-being.

Moreover, the concept of *homework* becomes non-existent because students are able to do their work (e.g., working on their workbook, watching instructional video clips) at the time

and place of their choice including the classroom, home, during schooltime, afterschool, weekends, holidays, school breaks, summer break. The time and place are based on student willingness, motivation, and other factors (e.g., health, emotion, time). In fact, it may be preferable for students to work on their workbooks during traditional *instructional time* in school because peers and their teachers are available to give instant help when needed. Also, the *assessment* portion is conducted based on students' self-paced study progress with assessment time differing among students in the same class, grade, school, or school board. Further, the NS model emphasizes the idea or concept of *community schools* using locally relevant resources and strong family/community involvement, intentionally integrating education into students' cultural contexts and daily lives. This is why broken lines (open boundaries) are used in Figure 1 illustrating the seamless integration and collaboration of the school-home-community entity. To contrasting the two models, Table 1 outlines the key features of the NS model compared with the traditional education model.

Table 1

Key Features of the traditional model versus the NS model

Aspects	**The traditional model**	**The NS model**
	Students follow the teacher who is the *driver* and leads students' learning.	Students are the *drivers* of their own learning (e.g., student-centred, self-paced, self-guided, self-controlled).
	Students are *passive recipients*, following the teacher's instructions.	Students are *active* participants, making pedagogical decisions based on self needs or interests.

Student	It is a big problem if students *miss classes* due to extracurricular activities, health issues, or family needs.	It does not matter if students *miss* classes for any reasons because everyone has his/her own learning pace.
	Students need to follow the teacher's instruction and work on their *homework* for their learning assigned by the teacher.	Students do not need to work on their *homework* for their learning they can work (study) anywhere (e.g., school, home) and anytime (e.g., schooltime, afterschool) at their will.
	All students in the same grade have to be at the same level required by the curriculum. No one should get ahead or fall behind.	Students in the same grade are at different levels (e.g., stages, grades) because they have different learning paces. Nobody (e.g., teachers, students, parents) should worry about their differences and force them to learn at the same pace and stay at the same level.
	Leader, authority, director, planner; primary knowledge source.	*Facilitator*, supervisor, advisor, counsellor, guide, supporter, helper, assistant, monitor, catalyzer, activator, motivator, recorder, co-learner.
	The teacher makes all *instructional plans* (e.g., yearly,	The teacher does not make any instructional plans for the whole class or course because students learn at different paces or stages.

	course, unit, lesson) for the whole class or course.	
Teacher	The teacher provides *instruction* to the whole class as the primary means in student learning.	The teacher only *occasionally* provides instruction to the whole class when needed (because each student has his/her own learning pace).
	The teacher has to work very hard to make all students in the same class (or same grade) at the *same pace and level*.	The teacher does *not need to* make or worry about all students in the same class (or same grade) at the same pace or level because each student has his/her own learning pace.
Content	Standard textbooks and teacher-made handouts.	Standard or self-developed textbooks, student workbooks, and teachers' guide; learner-centred materials (e.g., self-instructional in print, digital, or video formats).
	Disconnected from the local context.	Locally sourced and culturally relevant
	Developed by scholars or professionals for general school use (irrelevant to local schools).	Developed by teachers, students, and community representatives following required curricula, and student and local community needs.

	Mainly organized by subject topics or themes	Preferably organized by units or modules assisting student self-regulated learning.
	Community involvement is limited in teaching and learning materials development and pedagogy.	Strong community involvement, ensuring curriculum relevance, meaningful learning, promotion of local traditions.
Pedagogy	Students usually are restricted to the classroom setting, often fixed in their positions (e.g., in fixed table and row), mostly in silence, and follow the teacher's instruction.	Students *freely* choose how to study (e.g., sitting, standing, moving around) and where to study (e.g., tables, stations) individually or collectively in self-guided, active, dynamic, interactive learning environments (busy, noisy, nondisruptive).
	Student learning sites are primarily in formal school *classrooms*.	Student learning sites are *anywhere* (e.g., classroom, home, online).
	The most important learning time is formal school *instructional time.*	The most important learning time can be *anytime* depending on students' own preferences.
	Peer learning and *peer tutoring* are limited or do not happen.	*Peer learning* and *peer tutoring* are important for student collaborative, effective, deep, meaningful, and enjoyable learning.

	Differences and diversities among students (e.g., abilities, levels) in the same class are viewed as challenges or difficulties to handle.	*Differences* and diversities among students (e.g., abilities, levels, ages, grades) in the same class are regarded as assets or strengths, which is important for equity, diversity, inclusion (EDI). Mixed grouping is preferred.
	Competitive and *stressful.*	*Collaborative*, cooperative, and *relaxed* and friendly (because of self-placed learning with no comparison or competition).
	Technology mainly supports teacher's instruction, or student learning at the same pace planned and guided by the teacher.	Technology mainly facilitates individual student learning at his/her *own pace*, enabling learning to occur anywhere and anytime, and *blurring* the lines and expanding the boundaries between formal and informal learning settings, (e.g., school, home, online). Additionally, technology helps solve student missing class issues.
	Pre-determined by school and/or teachers' fixed plans, schedule, or calendar.	Each student determines his/her own assessment schedule (when feeling ready, maybe assisted by the teacher).
	All students in the same class or grade as a whole take the same test at the same time.	Students have different tests at different times and levels because they have different learning paces (not as the whole class/grade,

Assessment		not confined to school years). They may also take tests individually or as a group for collaborative work.
	Students may not be allowed, and it is difficult to schedule students to retake tests if they miss or fail tests.	Students are allowed to retake the tests if they fail, and no schedule is needed and no students "miss" tests because students determine when to take tests.
	Students are only allowed to take tests in teacher-planned content that the teachers have taught in the same period of time in the same grade.	Students are allowed to take tests at any content levels at any grade levels they study.
	Test anxiety or stress levels are high because students may not be ready, and all students take the same tests at the same time against each other (competition).	Test anxiety or stress levels are low or minimal because students take tests only when they feel ready, take tests individually, and at their preferred time.
	limited impact on student learning.	Significant impact on student learning.
	limited impact on teaching and learning materials.	Significant impact on teaching and learning materials.
	Largely separate or isolated from the local school.	School as a community hub; regular (e.g., daily) and heavy involvement of local

Local community		community as *community school* or *community education* for student meaningful learning and well-being.
	Family and local community support school.	School, family, and local community support each other.
	Mechanic relationships between school, family, and local community (less holistic approach to the whole child education).	Organic or holistic relationships between school, family, and local community (more holistic approach to the whole child education).

Students

In traditional educational models, teachers normally play a central role with their instruction dominating the practice of teaching and learning. They make all plans (e.g., lesson plans) for student learning, control the student learning progress, lead the class, and determine when and how to conduct assessments. In such a structure, students (denoted as "S" in Figure 2) are normally required to sit in a row, facing and listening to the teachers most of the time and following the teacher's instruction as a primary source of learning. Students are mainly acting as passive recipients with limited or instructed interactions and connections during the learning process in typical school classrooms (Farrell et al., 2017).

In contrast, the NS model has replaced the teacher with students at the centre stage and repositioned the teacher to the supporting role in the NS framework structure (see Figure 1),

emphasizing students' self-guided, self-directed, self-regulated, self-planned, self-paced, and self-controlled for their own discovery and construction of knowledge in learning (Le, 2017; Schiefelbein, 1992). As the driver of learning, students take charge and make decisions on their own studies. Lines connect some of the students in Figure 1, showing that they are free to connect, interact, and collaborate with peers. Unlike the traditional model, the NS model encourages students to actively make pedagogical decisions, aligning their educational pursuits with personal interests, needs, and responsibility for their work.

Such autonomy may enhance responsibility, motivation, decision-making, initiative, critical thinking, organization, and time management, and cultivate a deep-rooted sense of ownership over students' own learning (Dewey, 1938/2015). The NS model encourages independent work and collaboration, facilitating self-driven learning within diverse classroom environments (Colbert & Arboleda, 2016). As a result, students flourish in autonomy, self-esteem, intrinsic motivation, self-confidence, and ownership over their own education, amplifying their overall engagement in the learning process (Kaput, 2018; Schiefelbein, 1992). In the NS model, students are not passive receivers; they are the active pilots of their educational journey, making informed decisions and progressing at a pace that best suits them. Thus, children can learn in children's ways (not the adult ways); they can learn in their own individual (diverse) ways (not the way their teacher planned for them as a whole class).

In the traditional model, it is very difficult for students to catch up if they miss class as a result of *absence* or *emotional* difficulties (Exley, 2014). In contrast, the NS model help students to keep learning (e.g., finishing the academic unit) according to their own conditions or pace, especially when they *miss school* for various reasons (e.g., health issues, school extracurricular activities, family needs), or when they feel motivated to work or may not want to do much work

in their emotional up and down days. Thus, this model helps resolve many issues happening in traditional schooling (e.g., *absence, tardiness, early departures*) since students work at their own pace in the NS model. This model also helps students' emotional well-being because students may study at their own pace based on their ever-changing emotional feelings (Lu & Lu, 2022).

Further, this model helps diverse students including students with *exceptionalities* (or special needs). In fact, it is wrong to categorize students as having exceptionalities or disabilities because they are compared and expected to align with average students primarily in academic performance. Likewise, *gifted programs* become pointless or useless because all students are respected, appreciated, and supported to learn at their own levels or different levels in the NS model. This view is justified and supported by the three aforementioned theoretical frameworks (e.g., student self-directed study in constructivism; uniqueness of individual natural growth in Eastern philosophies; the self as the ultimate teacher in Indigenous ways of knowing and learning). For these very reasons, the numerous classroom management issues that occur in traditional schooling may be significantly reduced or resolved in the NS model; in turn, a great deal of time for classroom management can be allocated for student personal learning (Lu et al., 2022).

Actually, no matter how well planned, prepared, or taught, no teacher can provide any instruction that perfectly matches all students' learning stages or levels (as students all learn at different paces and levels at any given time in any classroom). This is why teachers usually have to work very hard to oblige all students to learn at the same pace and at the same level (which is an incorrect assumption that is unrealistic and unachievable) in traditional schooling. This generates numerous *instructional and management issues* while students are blamed and wrongly disciplined with many sets of rules, disciplines, and imposed strategies. It is simply not

the students' or teachers' problem; rather, it is the problem of traditional schooling. As we observed in numerous classrooms in many countries around the world, there are usually three categories of students: the top 1/3 who already understand the material and thus feel bored; the middle 1/3 of the class who may follow teachers' instruction well (if the instruction is good); and the remaining 1/3 who cannot follow teachers' instruction well, and, as a result, feel frustrated, anxious, and hopeless. Thus, the majority of students in the class would have many problems continuously. Also, many students would be reluctant to interrupt the teacher's instruction and ask questions or for help, and this is why numerous teachers feel difficulties completing his/her planned lessons while trying to help so many students' constant problems or questions in the classroom. This is also why the traditional schooling model generates numerous (unnecessary) issues that we constantly try to resolve and mitigate (e.g., learning disabilities, behavioural problems, mental health issues.)

Lastly, *student governance* or *organization* (e.g., student council) at all levels is another component that may contribute more to student learning and well-being in the NS model. It should be organized and operated by students for their needs, such as their learning, well-being, and relationships with teachers and school (Exley, 2014; Schiefelbein, 1992).

The NS model fosters a sense of freedom and autonomy, allowing students to pursue their interests within the parameters of the curriculum with genuine engagement and enjoyment. Respecting each student's unique learning journey promotes the positive development of student identity, self-esteem, academic motivation, and engagement, ultimately leading to improved academic performance (Kaput, 2018; Schiefelbein, 1992).

Teacher

In the NS model, the traditional role of the teacher (e.g., authority, director, leader, planner) is fundamentally transformed. Teachers become facilitators, supervisors, advisors, counsellors, guides, supporters, helpers, assistants, monitors, catalyzers, activators, motivators, recorders, co-learners, etc. This shift ensures that teachers do not dictate students' learning and let students remain at the heart of their learning process. Central to this approach is the emphasis on personalized instruction that helps students with more developmentally appropriate teaching, reduces failure, and makes education more satisfying and effective (Schiefelbein, 1992). Nonetheless, while students frequently engage in independent or collaborative group work, teachers may provide individual, small-group, or whole-class instruction when necessary (Schiefelbein, 1992). This strategic flexibility enables teachers to effectively offer targeted support and help meet specific learning needs.

Teachers in the NS model are no longer regarded merely as authority figures (e.g., for knowledge transmission); instead, they become integral facilitators to use their time more efficiently and flexibly in fostering a learning environment conducive to students' growth and exploration in academic learning and general well-being. In responding to the diverse needs of students, teachers undertake various roles. For example, teachers may motivate students to study, guide students on tasks, monitor students' progress, answer questions, troubleshoot problems (e.g., technology), counsel students with problems, provide individual and group advice and feedback if necessary, identify students' unique needs, assist each student's learning pace, and record students' learning progress (Colbert & Arboleda, 2016; Schiefelbein, 1992). They optimize each student's learning experience, ensuring it is as effective and personalized as possible.

Further, professional learning communities (even professional learning networks) are important for the application of the NS model as they are one of the major approaches to educational innovation or school improvement (Anderson & Sivasubramaniam, 2017). As actors of change, teachers should work as a collective group to share and help each other deal with the issues that appear in the implementation of the new pedagogical approach. Also, mentors such as experienced teachers, supervisors, or consultants (not as enforcers or administrators) may be provided or assigned to teacher groups. Opportunities for collaborative exchanges and mentoring may be offered through regular meetings and micro-centres in professional learning communities or networks (physical or online), which ensure to continuously help the development of teachers' *practical professional knowledge* (Clandinin & Connelly, 1998; Haiplik, 2004).

Content

The learning content in the NS model can be standard or self-developed. Preferably, it is learner-centred, including self-instructional textbooks, student workbooks, and teachers' guide in the formats of print, digital, or video, connecting the local community for culturally relevant curriculum and pedagogy. Learning materials (e.g., textbooks, workbooks) are structured into short units or modules for students to learn progressively and logically at their own pace. This approach supports students' effective learning and caters to their diverse needs and various paces. The materials may be developed by or with teachers, students, and community representatives following required curricula, local students, and local community needs.

Since teachers who follow the NS model do not normally provide instruction (e.g., directions), students explore and develop their ways to learn the subject matter guided by the learning materials, which may significantly help improve their creativity. The teaching and learning materials also promote autonomy and allow for a formative assessment process where

students assess their work against appropriate benchmarks or complete tests at the end of each unit. Such feedback mechanisms have been demonstrated to enhance academic achievement, particularly among primary school students (Colbert & Arboleda, 2016).

As an important characteristic of the NS model, teaching and learning materials are locally sourced to ensure that the curriculum is relevant and aligned with the cultural contexts and practices of the local community. This strategy cultivates strong relationships between schools and their communities, enabling students' meaningful and engaged learning, and involvement of community members in the educational process (Rincón-Gallardo & Elmore, 2012). Incorporating locally sourced learning resources created by various cultural groups brings diverse perspectives and traditions into the classroom. Through this approach, the community's insights, needs, and resources are reflected in the curriculum and teaching and learning materials. As a result, it nurtures a sense of ownership, pride, motivation, and organic connection between the school and the community (McLorg, 2019). Further, this approach enriches student learning experiences and helps preserve local traditions within the teaching and learning materials (Numan & Islam, 2021).

Pedagogy

Students in the traditional schooling models are restricted to the classroom setting, often fixed in their positions, mostly in silence, and follow the teacher's instruction as a primary source of learning. In contrast, learning sites within the NS model context are innovative environments designed to enhance and transform the traditional learning experience. These sites may include physical and virtual spaces supporting student learning anywhere and anytime, and encompass various activities and methods that collectively contribute to a more dynamic, interactive, and

student-centred learning process (Colbert & Arboleda, 2016; McLorg, 2019; Rincón-Gallardo, 2019).

The classroom in the NS model is a busy place, noisy but not disruptive to allow students to *freely* choose how to study (e.g., sitting, standing, moving around) and where to study (e.g., tables, stations) in active, dynamic, interactive learning environments (Farrell et al., 2017). Students may spontaneously explore resources and work independently or collaboratively in mixed groups (e.g., abilities) at learning stations, centres, or corners. More specifically, learning areas or activity stations may be organized in basic curricular areas in classrooms (physical and/or virtual) such as mathematics, natural sciences, social studies, languages, and arts enabling students to learn from displays and structure learning experiences. Also, having chalkboards/whiteboards on the classroom walls allows the teacher to work efficiently with different levels or stages of groups in the same classroom. The walls are used to display students' work, suitable learning materials, or creative artwork (Schiefelbein, 1992).

Peer learning and peer tutoring. In the NS model, as depicted in Figure 1, the connecting lines between the letters 'S' symbolize interactions, indicating that learning may occur through interactions between peers. This active learning community encourages *peer learning* (e.g., reciprocal learning, learning partnership, study groups) and *peer tutoring* (e.g., peer instruction, peer coaching, peer mentoring) (Schiefelbein, 1992). If a student or a group encounters a problem, they always first ask peers; then, ask the teacher only when no peers can help (Farrell et al., 2017), which is an important strategy in the NS model. Promoting peer-to-peer interactions may help foster a sense of freedom, autonomy, confidence, pride, altruism, and communication skills, allowing students to pursue their learning interests with genuine engagement and enjoyment. Within this active pedagogy, students may nurture rich, deep,

meaningful, and enjoyable learning through dialogue and collaboration. In addition, students are likely to experience academic growth and a boost in their interpersonal and collaborative skills. Further, the use of students' age-appropriate language and strategies to help each other with their learning and socio-emotional well-being is likely to be more effective than the teachers' (adults') instruction (Meixi, 2019).

Mixed groups. In Figures 1 and 2, varying colours and sizes of the 'S' letters are employed to reflect the diverse students (e.g., background, ability). Traditional schooling often views students' differences as a challenge or an obstacle, attempting to bridge gaps through differentiated instruction. However, these attempts often fail to benefit every student. In contrast, the NS model embraces and capitalizes on these inherent differences, recognizing them as assets to be used to train and help all students in such EDI (equity, diversity, inclusion) learning environments. In addition, the NS model blends diverse group compositions, intertwining different abilities, ages, and grades, which cherishes and leverages the inherent diversity among students. By utilizing and celebrating these variations, the NS model promotes an inclusive environment that values each student's unique abilities and learning pace. The mixed grouping fosters mutual support among students of varying abilities, learning stages or levels, and well-being, which has helped improve student performance and received positive feedback from educators when contrasted with traditional teaching methods (Hammler, 2017; Psacharopoulos et al., 1993).

Collaboration vs Competition. Unlike traditional schooling models that usually generate competition among students because they learn at the same pace and are assessed at the same time, the NS model supports each student to learn at his/her own pace and stage that has not much to do with others (no comparison or competition). Further, the NS model stresses

collaboration as a fundamental aspect of skills for the 21st-century (Liljedahl et al., 2021; McLorg, 2019). This model fosters an environment where students are encouraged to work together, share knowledge and resources, and help each other through peer learning and peer tutoring, which bolsters student confidence and engagement in learning (Zumbrunn et al., 2011). This collaborative focus also helps ease the possible competitive pressure. Instead of worrying about being *left behind or unable to keep up* often observed in traditional schooling models, students at different stages or levels in the NS model are respected and nurtured in a supportive and cooperative environment where learning is a collective endeavour and self-regulated business. Thus, the shift from competition to collaboration may significantly help reduce stress and anxiety, promoting a more relaxed, enjoyable, and friendly atmosphere for effective or deep learning (e.g., true understanding of subject matter vs the focus on marks against each other) and socio-emotional well-being (Huang & Lajoie, 2023).

Technology for the NS model. The NS model does not necessarily rely on technology, but it may use technology to enhance its efficacy or effectiveness by promoting flexible, collaborative, and individualized learning opportunities. Modern technological platforms help students to learn at their own pace and according to their own plans and physical-mental well-being (e.g., energy levels, willingness, motivation, emotions), allowing for greater personalization and individualization of the educational experience. For example, students individually or in groups may study lessons (e.g., reading, watching videos, practicing, completing assignments) in unit/module-based learning materials (e.g., print or digital textbooks, series of instructional video clips) largely prepared or recommended by teachers. By facilitating student learning at any time and any place, technology expands educational possibilities beyond the traditional boundaries of school hours and classroom settings (Farrell et al., 2017;

Schiefelbein, 1992). More specifically, technology in the NS model facilitates students' learning at their own paces, enabling learning to occur anywhere and anytime, thereby blurring the lines and expanding the boundaries between formal and informal learning settings (e.g., school vs home). Further, the NS model blurs the line and bridges the gap between formal and non-formal schooling or education, benefits both or various types of schooling or education, and supports students seamlessly to go to formal schooling after alternative schooling if needed. Moreover, technology may enhance the NS model's emphasis on peer learning and peer tutoring by facilitating student communication and collaboration. Digital platforms can serve as virtual classrooms where students under the teacher's supervision can exchange ideas, provide feedback, and assist each other in their learning journeys. Additionally, technology can help resolve student absence, tardiness, and early departure issues. It provides a medium for students to catch up on missed classes, supplement their learning, and remain engaged even when they cannot physically be present in schools. This aspect is particularly crucial for remote learners or when physical attendance is disrupted or challenged (e.g., illness, pandemic, rural education, distance education). Nonetheless, technology should be used with caution because it may reduce students' interactions (Exley, 2014).

Assessment

Unlike traditional methods in which assessments align with set schedules in school years, the NS approach is student-centred and individualized. Assessment occurs when each student feels ready, rather than adhering to the fixed graded school schedule for all students at the same times (Numan & Islam, 2021). It is normal that students in the NS model learn the content at varied grade levels (higher or lower) from their age-related grade. For example, some of them at the Grade 3 age level may learn math at Grade 6 level because they learn at their own pace and

pass relevant tests. Formative assessment plays a major role because students take tests at the end of each unit/module in this new model. The assessment happens naturally when students feel ready, meaning students in the same class may take tests at different times. Thus, learning is tailored or resonates with individual interests and paces, prompting students to opt for assessments only when they feel sufficiently prepared, as Montessori (1914) suggested. Also, student test anxiety or stress levels are low or minimal because students take tests only when they feel ready, take tests individually or in groups (for group work), and at their preferred time. Students are allowed to retake the tests if they fail. No schedule is needed and no students "miss" tests because students determine when to take tests.

Yet, teachers still play a crucial role in evaluating students' performance and help determine when a student is ready to advance to the next learning stage, level, or grade (e.g., helping students' decisions on readiness to take tests, ensuring quality test environments and confidentiality, professionally recording of test results, helping students' emotional responses to unexpected test results). In addition, the teacher may sometimes conduct assessment when students feel stressed or cannot take tests for any reasons because the teacher knows each student's progress and has comprehensive understandings of each student's learning quality and level. Also, the teacher validates and approves students' tests at the end of each unit or grade level, and provides necessary feedback on student content learning and learning strategies or skills. In addition, the teacher should provide students with flexible and diverse assessment options for students to choose including self, peer, and/or teacher assessment; individual or group (for group work); written or verbal (assessed by the teacher); paper or digital assessment (Farrell et al., 2017; Lu et al., 2022).

The shift from strict grade-level rules paves a more adaptable and personalized way of helping students progress naturally and comfortably. Certainly, such a shift may require corresponding policy adjustment, change, and support.

The Local Community

Since the influence of school inputs on student achievement is only 9%-14% in developing countries and 25% in developed countries (Reynolds et al., 2000), family and community are essential for student academic performance and well-being. Thus, the NS model's emphasis on the involvement of the local community (including family) creates a symbiotic relationship between schools and their surrounding communities. In the traditional schooling model, the school is surrounded by a closed line, as illustrated in Figure 2, representing its separation and isolation from the local community. Contrastingly, the school boundary in the NS model comprises dotted lines in Figure 1, emphasizing the fluid interchange between formal schooling and real-world experiences from both home and the community. This organic connection is a foundation for creating meaningful educational experiences beyond classroom walls. Within the NS model, schools may act as community hubs, actively involving local stakeholders (e.g., school council members, parents/guardians, community members). This community school integration enriches curriculum implementation and students' meaningful learning, fosters a sense of belonging, and ensures education to honour and integrate local traditions, histories, and daily practices (Rincón-Gallardo & Elmore, 2012).

In addition, the NS model seamlessly blends learning tasks into students' daily lives (e.g., student family trees, local geographical map making, local history and arts), motivating students to practice what they learn within their families and communities. The NS model imparts a sense of purpose and relevance to their learning and stimulates their intrinsic motivation to learn. By

designing learning that students can take home and share with their families, or by inviting students to bring personal or family questions and experiences into the classroom (something new every day), learning becomes immediately relevant. This approach drives intrinsic motivation and fosters a shared, community-centered experience. This dynamic interaction between school learning and home/community application enriches the educational experience and strengthens the bond between school, family, and community (Exley, 2014; Rincón-Gallardo, 2019; Saito, n.d.).

An essential element of the NS model is incorporating students' cultural and personal experiences into learning situations, making the learning process more relevant and engaging. This strategy values and respects the diverse backgrounds of students. Feeling valued in this way fosters their self-esteem and, subsequently, may help enhance their academic achievement. The NS model also nurtures a holistic approach to student academic learning and well-being by involving key stakeholders from home (e.g., parents) and community (e.g., cultural leaders, knowledge carriers; Cornelius-White, 2007). This comprehensive approach ensures that students' academic learning and well-being are supported within the school and their broader community (Schiefelbein, 1992). In contrast to traditional schooling, where support typically flows one-way from the family and local community to the school, the NS model promotes mutual support among the school, family, and local community. In fact, such *community schools* or *community-based education* (strong natural school-community linkage), which strengthen the connection between the school and its surroundings, is an important key characteristics or approach to alternative schooling (Farrell et al., 2017). Such mutual support is also vital for holistic education, which focuses on the development of the whole child (Santiago et al., 2012). Further through the *community schools* or *community education*, the NS model fosters an

environment where education is not just academic but also holistic that contributes to the overall well-being and development of the entire community.

Conclusion

The present study discussed the NS model, an innovative pedagogical approach designed to revolutionize traditional education systems that have prevailed since the 19th century. This study examined the inherent limitations of formal schooling methods and indicated the urgency for educational reforms and transformation of the existing models of formal education. Importantly, the NS model has been developed based on and inspired by: 1) the examination (especially the synthesis of common strengths) of three successful alternatives from the Global South; 2) a literature review on educational change and school innovation; 3) consultation with teachers, students, school administrators, families, and community members; 4) feedback received from the schools that adopt the model in the implementation or test; and 5) ongoing discussion among the research team members. It should be noted that some of the features of the NS model may have been used by some schools in some parts of the world, but the NS model as a whole represents the cutting edge of research on educational change. It may offer new perspectives and comprehensive frameworks or approaches that diverge from traditional paradigms. Specifically, it provided a distinctive conceptual framework that included essential components: the student and teacher roles, the learning environment, teaching and learning materials, and the involvement of the local community. This holistic approach was designed to enhance inclusivity and effectiveness within the educational system to meet the diverse needs of students across various contexts.

Implications of Findings

The findings of the present study reveal several implications for theory, practice, and future research.

Theoretical or academic implications: 1) The findings of this project have confirmed the theoretical basis (e.g., constructivism) used in the previous studies on alternative schooling (e.g., Farrell et al., 2017) and extended to Eastern and Indigenous theories. 2) The present study helped explain why the three radical alternatives were successful (see the description of the five core components and their relationships to the NS model in Figure 1). 3) This study may make contributions by providing solutions (e.g., the new promising NS model) and new directions for effective change in formal or non-formal schooling in a variety of settings in Western countries (Global North) and many other parts of the world. 4) It would provide new research directions for formal and non-formal schooling and teacher education (e.g., student-centred pedagogy). 5) This project may help explore and inspire future educational change. 6) Since the NS model was inspired by the three alternatives, it may help stimulate new ideas and demonstrate how to develop new frameworks based on existing successful approaches or new ideas/thoughts. 7) As the NS model was developed based on the successful alternatives from the Global South and they have not been implemented in the Global North (because education advancement has usually flowed from the North to the South), this project is among the first to create the flow of education reform from the South to the North, and help transform the landscape of dominated Eurocentric education in the world. 8) This study helps replace wrong drivers (e.g., control, prescription, mandates, external accountability) with right drivers (e.g., autonomy, internal accountability, intrinsic motivation) in education systems (Fullan, 2021; Rincon-Gallardo, 2020).

Practical or professional implications: 1) The project can directly help enhance student academic performance (e.g., test scores) as it is based on the successful alternatives that have

demonstrated remarkably high assessment results (e.g., PISA). 2) This project would help disadvantaged student populations (e.g., indigenous, minorities, immigrants, disabilities) in consideration of EDI as the model originally is rooted in the alternatives from the Global South that intended to serve "the hardest to reach" and "the hardest to teach" students. 3) This project would help resolve many existing problems in teaching and learning (e.g., anxiety, differentiated instruction, motivation) as the model emphasizes self-paced learning, peer tutoring, culturally relevant content, etc. 4) This research has the potential to help improve preservice and in-service teacher education (e.g., teachers' roles, active pedagogy). 5) The feasible model package (e.g., teacher PD training materials, teachers' guide, student workbooks) developed in this project would provide practical support for effective educational innovation. 6) This student-centred pedagogical model may help not only student academic achievement but also their mental health. 7) The entirely model is student-centred and helps balance and meet the needs of individual students (e.g., academic performance, well-being) and the demands of society (e.g., curriculum, accountability).

Implications for future research directions: 1) Empirical studies on the NS model are necessary; 2) It is useful to study the new model applied in specific subjects (e.g., mathematics, science, language, social studies, arts, health and physical education) and at different school levels (e.g., elementary, secondary); 3) Potential challenges and relevant solutions in the implementation of the new model should also be examined; and 4) Relevant policies should be examined to support the implementation of the new model (e.g., flexible class schedule, multi grades in the same classroom).

Final remarks

The mainstream formal schooling must change or reform, and *teacher-centred* pedagogy belongs to the past (Farrell et al., 2017; George, 2017; Romero, 2018). The NS model embodies a new paradigm that helps improve student-centred education, alternative education, and educational change in mainstream or traditional schooling. Based on the three successful alternatives, the NS model's philosophy and practice can be applied more universally. Additionally, this new model is likely to be widely accepted because it is designed to be financially low-cost or cost-recovery (cost-efficient and cost-effective), while requiring less work from teachers without compromising the quality of education, as demonstrated by the success of the three alternative models (Farrell et al., 2017). It represents a significant shift from the current dominant schooling, promising a future where learning is inclusive, dynamic, and deeply resonant with the needs of diverse student populations. This study contributes to academic discussion and offers practical insights for those at the forefront of educational reform. It is a call to action, inviting educators, policymakers, and researchers alike to explore and test innovative approaches such as the NS model and work collaboratively towards a more equitable and effective educational system worldwide.

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