

Three Navigational Metaphors for Addressing Learning and Teaching

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ABSTRACT

Purpose: Metaphors can offer effective tools for understanding complex processes like teaching and learning.

Design: Based on Lakoff and Johnson's "life is a journey" metaphor, this paper presents three navigational devices (i.e., models) that are used by travelers (learners and teachers) along their journey: a map, a compass, and a global positioning system (GPS).

Findings: These metaphors help characterize relationships between the learners and the teacher, the communication that enhances (or hinders) their shared discourse, and the environment where their learning takes place.

Value: This novel article presents the uniqueness of three educational models through familiar and comprehensible metaphors while comparing their strengths and weaknesses. Teachers can combine the three teaching modes to provide a more engaging learning environment.

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1. INTRODUCTION

Figurative language, such as analogies, metaphors, and similes, is prevalent in everyday communication. These are not merely decorative linguistic alternatives but rather serve as instruments of conceptual creation that enrich the quality of the discourse (Prandi & Rossi, 2022). According to Lakoff and Johnson's (1980) cognitive theory, metaphors help develop and reflect thought patterns. They allow participants to portray complex issues through succinct explanations, communicate efficiently, and influence others. Researchers address metaphors for examining various fields of communication (Thibodeau *et al.*, 2019), including education, as seen in Cameron (2003), who explored metaphors that are used by teachers. Ben-Peretz and Schonmann (2000) also asked schoolteachers to provide similes that describe their teachers' lounge. In another study, Chinese participants who were studying to become English teachers were asked to complete the following sentence: "The English teacher is _____ because _____" (Wan *et al.*, 2011).

2. METAPHORS: EXPRESSIONS THAT ELICIT INSIGHTS

Numerous studies have used metaphors to describe children or pupils. A classic simile from "Emil" (Rousseau, 1979) depicts the learner as a *flower*. According to the book's author, a rich environment provides essential conditions for growing flowers and raising children. Foshay (1980) describes the unequal relationship between adults and children, explaining that children are *slaves*, the property of their parents, with no rights to express their own voices and needs; children must simply do as they are told. In a similar metaphor, the author also portrays the child as a *machine* that can be manipulated by educators. The goal of programming children's conduct and learning is central to the use of certain teaching strategies and tactics as a means for achieving the desired educational outcomes. The analogy of the *machine* is consistent with the common view of school as an educational *factory* (Holt, 1964).

In addition to addressing students, metaphors are also used in relation to the teacher, such as a *bridge* that exposes children to cross-cultural values and enriches their world (Wan *et al.*, 2011). A third type of metaphor may focus on the essence of actual learning. For example, Sfard (2012) uses two metaphors to distinguish between learning as *acquisition*, where knowledge can be transferred, acquired, used, and even measured, and learning as *participation*,



where a process occurs based on discourse between individuals. A fourth kind of metaphor refers to methodologies in educational research. For example, McDonald *et al.* (2016) use the term *sandbox* as a concrete analogy for the procedure through which the personal stories of four teachers are conveyed. Interestingly, a sandbox is also a common therapeutic tool that helps people express their repressed personal experiences and conflicts. The current study advances the literature on educational metaphors. Unlike earlier studies that discuss only one or two analogies, in this paper, I present a comprehensive framework that depicts and analyzes three metaphors.

3. METAPHORS THAT ILLUSTRATE TEACHING AND LEARNING

A number of years ago, while attempting to build a theoretical model of teaching and learning, I was searching for related analogies. One metaphor that provided rich insights was Lakoff and Johnson's (1980) "life is a journey," where the abstract entity of *life* is translated into the concrete common experience of a *trip*. As with life, a journey has a beginning and an end. It passes through a certain route, where the travelers know their current location and their desired future destination. A journey may occur along a familiar route, with the travelers being escorted by an experienced guide. When everything is under control, the travelers (i.e., the learners) may feel confident that they will reach their destination with comfort and ease. Yet some roads are more difficult to traverse. When the pace of the journey (i.e., the learning) decreases, greater assistance and support are required of the teacher. Complex projects may require a more extensive and in-depth search for materials when navigating through unfamiliar terrain. Without clear and detailed guidance in such cases, the students could get lost along the way. During our lifetime, we embark on numerous journeys, including one-time events, daily occurrences, and ongoing journeys that may even last a lifetime—replete with adventure, with no clear-cut destination or the exact time of arrival.

As with a journey, learning is a continuous experience, an ongoing process. While both children and adults can learn in formal educational settings such as schools, they more frequently acquire knowledge through *informal* occurrences. As with traveling on public transportation, teachers need to plan their lessons in advance so that their students can acquire the desired content. Both teachers and students pass through stations along the way (i.e., lessons) until they reach their destination (i.e., sit exams or complete the year). Various signs along the way can help them determine their current location (e.g., a failing grade) and assess the best way to successfully continue their journey (e.g., repeating the class or requesting further clarifications and explanations).

To refine the *journey* metaphor, I first focused on the large range of navigational devices that provide travelers with essential information, such as traffic lights, road signs, and lighthouses—which are just some of the tools that help people find their way. The condition here is that one party asks a question ("Where should I go?") while another party (or tool) provides the relevant answer. Following

the methodology that Jensen *et al.* (2021) used in their study on metaphors that depict feedback, I first developed criteria for analyzing the different types of knowledge that are conveyed through each tool (e.g., directions or hazard warnings). I also examined the manner in which each tool defines the relationship between the learner and the teacher (e.g., power relations and patterns of communications), surveyed the environment in which the journey takes place (e.g., a classroom lesson or learning from home), defined the extent of each party's areas of responsibility, and assessed the factors that motivate the learner and the quality of the learning.

After examining the various navigational devices, I selected three tools that provide the richest snapshot: a map, a compass, and a global positioning system (GPS), with the latter originally being a cookbook. Both individually and combined, these three tools exemplify interesting aspects of learning, relationships, and communications between the learner and the teacher. According to Bruner (1990), such conceptualization takes place within a cultural context and certainly oversimplifies a very complex phenomenon. After all, neither teachers nor learners are mere objects; rather, they have numerous human qualities that are beyond the scope of this article.

Maps, compasses, and GPS are well-known navigational tools that comprise certain features that are relevant to the context of this paper. The *map* provides users with the geographic and topographic information that they require for their journey. Prior to setting out, users must choose their starting point and their destination and plan their route from point A to point B. During their journey, they need to monitor their progress while ensuring that they have not strayed from the path that they set out to traverse. The *compass* only provides directional information (north), making for a more adventurous route than when using a *map* as a sole or complementary tool. Finally, the *GPS* is based on a satellite system that supplies users (such as drivers and pilots) with their exact location and helps them reach their destination. While more advanced systems supply a variety of additional information (including detailed maps), the focus of this paper is on the basic unenhanced navigational version. The following sections move beyond the physical use of these tools to explore their meanings as metaphors within the educational context.

4. MAP: GUIDED LEARNING TO ACCOMPLISHING PERSONAL PROJECTS

A map depicts a geographic region (or content), including all directions from which a certain destination can be approached. In doing so, the map organizes the information so as to enable learners to select certain targets (objectives) that they wish to explore. The travelers (i.e., learners) decide which journey they wish to embark on, including where to begin and where they aspire to end. Users also have to *orient* themselves within the territory while becoming familiar with the conditions of the journey. The map enables users to freely select what they perceive as the optimal route, yet also allows them to alter their plan whenever necessary. The freedom to find diverse and creative paths and explain why one route is better than

another reflects the learner's understanding. Moreover, the user's comprehension of certain content means putting it into practice in new and additional situations, as explained by Harpaz (2008):

"The concept of understanding is not entirely clear. It can be defined as orientation. An individuals' understanding of a certain subject, field, an idea, a concept, a principle, a process—when he or she feels comfortable with it, when they can work with it, manoeuvring freely around it. Being able to function freely in fields of thought and knowledge involves the ability to think about the subject, to explain it in a creative and direct way, to place it in various contexts, to utilize the knowledge in a variety of circumstances, to reveal its foundations, to understand its contradictions, to criticize it, and to create new ideas based on it." (Harpaz, 2008, p. 66)

Just as orientation depends on utilizing and organizing knowledge through a variety of means, achieving a comprehensive understanding of a certain subject entails a long, gradual, and complex process of training and learning. The student, together with the teacher, gathers information (the structure of cells) and connects it to other areas of knowledge (the structure of tissue). Students then learn how to relate this knowledge to new contexts (the pathological development of cells and tissues) and reach new conclusions about that subject (intense exposure to the sun increases damage to cells and risk of cancer). This in-depth understanding is also manifested in the student's behavior (taking precautions against exposure to radiation). Unlike *surface learning*, i.e., searching for answers to specific questions, deep learning reflects the learner's desire to fully understand the bigger picture and the main concepts (Biggs & Tang, 2011).

The term *orientation* refers to Renaissance-like knowledge and a broad understanding of a certain phenomenon from various perspectives. Reaching such in-depth learning requires teachers to attune themselves to their students' needs and abilities. As the former motivates the latter to seek relevant and interesting knowledge, they must also be careful not to over-flood them with information. At the same time, students must be aware of their own fields of interest, their current level of knowledge, and the goals that they wish to establish as a means for expanding their horizons.

Achieving broad and meaningful orientation occurs when students are given freedom of choice to develop their own maps, learn how to actively seek information, and are able to process it constructively. For this purpose, teachers and schools should adopt instructional methods that encourage students to be independent in their searches, such as project-based learning, problem-solving, and field trips. To this end, teachers need to encourage their students to ask questions, express their opinions, and sound their voices, even regarding issues that are outside the scope of the curriculum. They should accompany these youngsters along their journey, helping them to define the knowledge that they need, locate relevant sources, and reach their destinies and conclusions. Assessing the outcomes of such an experiential and intellectual adventure is not clear. Does every learning map have a clearly defined purpose? Sometimes, the changing circumstances and evolving

needs require keeping an open mind and even altering the goals. This type of teaching and mentoring is rather complex and difficult to acquire and accomplish. It is replete with hesitations and flaws, takes greater time and effort, and is less efficient than more direct, traditional teaching methods. It is even in conflict with the spirit of the modern era, which strives for competitiveness, efficiency, and speed (Hammerness et al., 2005).

5. COMPASS: WISDOM GUIDANCE FOR CENTRAL QUESTIONS

In the *compass model*, not only do teachers provide information and guidance, but they also become a unique source of answers to the learners' most essential questions. Such dialogue begins with the learners' search for a wise, knowledgeable, and trusted person who can respond to their interests and desires. Teachers must also be able to empathetically identify the personal meaning and importance of these questions while providing clear and concise responses that are conveyed in a variety of manners. These may include providing thought-provoking information, offering behavior modelling, directing towards a certain goal or route, and recommending the adoption of a certain ethical position. In a study on key experiences in higher education, Yair (2008) found that challenging circumstances may offer ripe ground for conveying sage advice from teachers to students. Moreover, the researcher found that challenging tasks provide a basis for acquiring moral principles, as when students are engaged in tense and uncertain learning settings, they are receptive to well-aimed words of wisdom that teachers say at critical moments, such as philosophy statements, quotes from the Bible, or talks of traditions.

The compass model imitates the open and versatile nature of psychotherapy. A good illustration of this can be seen in a story that I heard many years ago from a psychotherapist colleague. In their final meeting, she asked her patient what the turning point in their sessions was that brought about change. The patient replied, "You once pointed to the light switch and explained that it doesn't just turn the light on, but it also turns it off (Dr. Rachel Ziv, personal communication). This simple yet meaningful simile showed her that she was in control of her life, with the power to end a problematic relationship that, until that point, seemed to have no apparent solution. Within the context of the classroom, only when students begin to recognize their teacher's integrity, professionalism, and wisdom does that teacher become a role model, a source of identification and inspiration, a figure with whom the students can consult. Moreover, not only does the compass enable teachers to present their personal visions and values, but it also allows them to provide their students with a range of options.

6. GPS: LEARNING THROUGH IMITATION AND PRACTICE

Tools such as a GPS or a cookbook exemplify how students acquire knowledge through imitation, rote learning, and following instructions (e.g., 'turn right' or 'roll out the dough'). Skill acquisition primarily takes place during the

TABLE I: NAVIGATIONAL METAPHORS: ASPECTS OF TEACHING AND LEARNING

	GPS	Map	Compass
Type of instruction essential for the learner	Providing direction and boundaries	Helping to choose and achieve goals	Offering guidance when the learner faces a significant crossroads
Sources of the learner's motivation	Satisfaction with their academic achievements; fear of being punished for disobedience or failure	Curiosity; adventure; ambition	The search for essential information and finding meaning in life
Focus of learning	External instruction	External instruction and inner curiosity	Internal instruction (from within the individual)
What the metaphorical tool teaches the learner	Skills, following instructions	Planning and executing projects; understanding and orientation	Asking questions; finding direction toward a desired and significant goal
Nature of learning	Surface rote learning, based mainly on imitation and drilling	Combines surface learning and deep learning; employing various thinking strategies; comparing, reaching conclusions, and resolving problems.	Deep learning; identifying essential principles and information; reflection
Common styles of learning	Passively listening to the teacher	Developing research projects, conducting experiments, resolving problems	Discussing moral issues; identifying and resolving personal dilemmas
Uncertainties embedded in the learning processes	Very limited; only arises in cases of problems or errors	Varies, depending on unexpected obstacles along the way	Changes from a sense of uncertainty to developing inner direction, even as the learner confronts major obstacles
Indicators that learning has occurred	The learner carefully follows directions until reaching the desired goal	The learner selects the route and studies the environment; ongoing assessments of the "location" as per the planned route; final evaluation of the outcomes	The learner develops personal criteria to assess goals along the way

early years of life, both informally (e.g., speech acquisition) and formally (e.g., learning to read and write). Yet, such acquisition also occurs later in life (e.g., learning to operate a new device). At its best, the acquisition of skills requires brief and focused explanations, demonstrations, practice, and feedback. The teacher must offer clear and precise instructions while observing and correcting the learners' mistakes as soon as they occur (as with a GPS). This approach enables learners to achieve control of the skill, from the simplest acts of brushing their teeth to the most complex ones of flying a plane or performing surgery. Within such a unidirectional process, the teacher's role is to decide what to teach (i.e., the curriculum), how to teach, and how to assess the students' acquisition of the relevant content. Students' role is to internalize knowledge and master the taught skills. Evaluating such proficiency is not difficult, as seen through the widespread use of written and oral examinations.

Direct instruction, on the other hand, takes place within a teacher-centered milieu and as an asymmetrical relationship, where students remain powerless, and the Ministry of Education determines what students should learn and know, where the quality and outcome of the learning depends on the clarity of the teacher's explanations; and where the learners' needs, capabilities, and mutual relationships with the teacher are secondary. Table I presents a summary of the three navigational metaphors in relation to teaching and learning.

Unlike a GPS, which is based on behaviorist principles, *map-like* teaching echoes Vygotsky's (1978) concepts, whereby learning is a social process within which the

teacher provides learners with scaffolding to help them reach the zone of proximal development (ZPD). Teachers employ numerous didactic and pedagogical methods that enable students to acquire knowledge, reflect on the taught material, and develop their own tools. Teachers may also attempt to balance between rote learning and creativity, individuality and sociability, and the learning process and its end-products. Writing a doctoral thesis exemplifies both map and compass-oriented learning.

Instruction that fosters active learning should match the learners' intellectual capabilities and developmental stage. To this end, teachers must adapt their goals to the difficulty of the material and to the learner's former knowledge and motivation. As teachers transition from their active knowledge-conveying role to their new guiding role, students' learning autonomy and responsibility increase. A good match is possible if the learner's curiosity and self-confidence grow and the teacher is willing to relinquish some control over the learning process. However, a mismatch may occur if the students continue to be dependent on the teacher and struggle with their studies. They may ask for increased guidance while the teacher is interested in decreasing her active role. When such a gap in expectations occurs, students may feel alone and abandoned even, yet the teacher may feel that the student is too needy or lazy. A mismatch may also occur when students are curious and seek greater autonomy, yet their teacher is unwilling to relinquish control.

TABLE II: NAVIGATIONAL METAPHORS: ENVIRONMENT, COMMUNICATIONS, AND POWER RELATIONS

	GPS	Map	Compass
Responsibility to learn	The teacher	The teacher and the learners	The learners, with the teacher's assistance
Level of learner autonomy	Very limited	Wide, yet within certain boundaries	Very broad, in line with existing social norms and cultural values
What is required from the learner	Repeating and memorizing the learned material	Integrating the learned details into a broader scheme; updating the teacher and asking for advice; making decisions	Agreeing to involve the teacher in difficulties and uncertainties
What is required from the teacher	Providing precise instructions; ensuring that the learners are working as instructed; helping learners correct their errors	Providing the learners with opportunities to experience and experiment; providing instructions that meet their needs; following up on learning outcomes	Being attentive to the learner's needs and aspirations; providing concise and precise answers that address the learner's specific needs
Nature of communications	Mostly unilateral, with the teacher conveying instructions, and the learners only participating when required by the teacher	Ad-hoc dialogue, with the learner reporting and asking for advice, and the teacher offering advice	Open dialogue between the teacher and the learners on topics that are of interest to the learners; the teacher serves as an advisor
Type of communications	One-sided, from the teacher to the learners	Two-directional	Two-directional
Nature of the teachers' authority	The teacher is perceived as the ultimate source of knowledge, whose instructions must be followed in full	The teacher is perceived as an expert-partner who supervises and offers direction	The teacher emerges as a knowledgeable companion who is willing to enrich the learners and help them attain their goals in life
Learning environment	Structured; clearly defined; limited stimuli	Broad; clearly defined; rich experiences and stimuli	Very broad, even limitless at times; offers endless experiences and stimuli

7. RELATIONSHIPS, THE ENVIRONMENT, AND LEARNING

Primarily involuntary, teacher-student relationships usually exist within the formal school setting and with predetermined boundaries and roles. With this learning environment in mind, the following section presents an analysis of the nature of student-teacher communications.

7.1. Characteristics of Communications

According to the conduit metaphor (Reddy, 1979), communications that are based on *the GPS tool* are direct, one-directional, and hierarchical, with the transmitted information simultaneously reaching large audiences. With the GPS model, the teachers are the sole source of knowledge and authority, and the students must follow their conveyed directions. In such asymmetrical power relations, students remain dependent and passive. Even in higher education, students continue to be anxious as they make great efforts to follow their lecturers' every word (Almog & Almog, 2016). During the lesson, students may only talk or ask questions with the teacher's permission. Those who speak out of turn may be reprimanded. In fact, from their first day at school, students are socialized to abide by and internalize these rules (Lewis et al., 2005).

With *the map discourse*, the teacher guides individuals and small groups of students, assisting them as they carry out their learning and assignments. Such mentoring is based on consultations and information sharing (the students update the teacher). This type of intensive dialogue helps both parties clarify their needs and understand one another. These more egalitarian relationships are based

on respect, trust, and open communication. Finally, with *the compass approach*, the students perceive the teacher with admiration as a moral and professional role model. Based on emotions that stem from a sincere and open relationship, the students identify with and respect their teacher's values and wisdom.

7.2. Experiential Environment

In addition to the teacher-student relationship, the journey's metaphor also addresses the hidden "curriculum" of the learning environment (Moore, 2004). The operating system in the GPS model limits the learning to follow instructions within a given situation and location (the classroom) and within a defined timeframe (minutes or hours). The map metaphor, on the other hand, offers a more open environment, one that extends beyond the classroom to additional places inside the school (the library) and beyond (school trips and field days). Such varied scenery and scenarios may broaden the students' experiences and could take place over a more extended period (days and even weeks). The example of the compass is more closely connected to the endless number of places and times that people pass through, their impact lasting months and even years.

In some cases, the environment offers planned formal learning, where learners acquire predefined information; in others, information and insights are acquired through unplanned experiences, as in the compass metaphor. While explicitly taught knowledge is conveyed through specific teaching protocols, implicitly learned insights may be acquired through navigational obstacles and even errors

TABLE III: THE ESSENCE OF LEARNING AND TEACHING BY METAPHOR

	GPS	Map	Compass
Learners	Asks informative questions, usually only when the teacher's explanations and instructions are unclear. For example, "What do you mean by ...?"	Asks informative questions and consults the teacher throughout the project. For example, "Where can I find ...?" or "What do you suggest?"	Consults on personally significant issues. For example, "I'm not sure about ... What do you suggest?"
Teacher	Asks very few questions, mainly to ensure that the instructions have been understood. For example, "Is it clear?"	Asks a few questions to understand the learners' status and needs. For example, "How are you progressing?" or "What do you need?"	Asks questions to better understand the learners' motives. For example, "What do you want to achieve?" or "Where do you want to go from here?"

and might remain hidden from the teacher unless the students choose to share their experience with their teacher (Kolb, 2014). In a more complex and diverse learning environment, unexpected changes may occur, and the chance of learning something unplanned increases—as does the chance of making a mistake. In such cases, the teacher's role is to alleviate the learners' anxiety while assisting them with emerging difficulties.

Increasing interest can be seen in the impact of the *educational environment* on the students' quality of learning and on the teachers' professional development. For example, in a study on the pedagogical climate in nursing education programs, Johansson *et al.* (2010) found that when the relationships in the department are egalitarian and open, nursing students and interns tend to consult more with the senior staff. A weaker instructional environment, however, neither challenges nor contributes to the students' practical knowledge in areas that are critical to their job performance. Gal (2006) found that pedagogical mentors and mentor teachers prefer to maintain a more "sterile" environment for their teaching students; when disruptions occurred during class, they reacted quickly to resolve the issue, reprimanding those students who interrupted the class rather than allowing their future teachers to gain necessary experience in coping with such disruptions through a range of means and manners. Table II summarizes the environment, communications, and power relations in each metaphor.

8. DISCUSSION

Metaphors can offer a novel means for observing, analyzing, and addressing various fields and aspects (Sfard, 2012), including teaching and learning and other educational phenomena. Some scholars focus their attention on a single analogy, such as Holt (2002), who was impressed by the "slow food" movement that began as a counter-reaction to the global proliferation of the McDonald's fast-food chain. In educational terms, the "hamburger" approach emphasizes uniformity, predictability, and measurability of both processes and results, unlike the alternative "slow learning" approach. In other cases, the metaphor is binary, such as light and darkness. Stock (2021) draws on the ideas of Derrida (1981) regarding the

signification of positive values such as truth, goodness, and knowledge as a means for subordinating oppositional concepts of darkness. Finally, several metaphors may be used to describe one single phenomenon. For example, in Japanese, learning is 'a journey'; learning is 'imitating a model'; the teacher is 'a father'; and education is 'a war' (Hiraga & Berendt, 2008).

The three navigational devices presented in this study—the map, compass, and GPS—can help us understand unique aspects of both learning and teaching and how they shape the roles and practices of both learners and teachers. By setting a range of criteria, we can identify different types of instruction, the learning focus, and the content and skills that learners acquire in each metaphorical paradigm. Each metaphor elicits different characteristics for each criterion. This analytical framework, which comprises six cells (2 [learner/teacher] × 3 [map/compass/GPS]), can be applied to any instructional goal and practice, such as asking questions. Table III presents a summary and example of the learners' and teachers' roles in each type of metaphor.

This concise and somewhat simplistic analysis exemplifies how the goals and type of instruction of the lesson may shape the nature of the questions and answers. For example, in the GPS model, the learners' questions are brief and focused, as are the teachers' informative answers. With the compass model, on the other hand, the teacher and students may prefer a more laid-back reflective conversation. One common issue occurs when teachers mismatch between the questions that they use and their teaching style. For example, teachers who wish to encourage their pupils to think more deeply handle a fast, competitive questions and answers lesson. With this rationale in mind, teachers can use the three metaphors to explain their instructional goals and style to their learners. For example, "I'll first begin with the GPS style as I teach you the basic facts. Next, I'll draw a map with instructions for the assignment. But don't worry, I'll be here to guide you throughout the journey like a compass." Such an explanation could encourage the learners to be more autonomous in following their teacher's leadership while decreasing their tendency to be obedient with a "slave-like" mentality (Foshay, 1980) that is common in the one-directional GPS teaching style.

9. THEORETICAL AND PRACTICAL IMPLICATIONS

The three metaphors presented in this study raise several practical and theoretical questions. For example, what is the role of orientation in learning? What is the optimal combination of direct teaching and independent guided inquiry? Under which circumstances may teachers become a “compass” to their pupils (Yair, 2008)? How can elements related to *maps* and *conscience* lead to meaningful learning in schools? And finally, how should student teachers be taught to apply such conceptualization?

Certainly, additional efforts are needed for developing and using didactic measures in each model. Such recommendations may sound plausible yet may not necessarily be adopted in classrooms. Fullan and Langworthy (2014), for example, found that 80% of the participating teachers did not encourage students to think deeply about the materials addressed during class. Moreover, Hu and Yeo (2020) found that the use of a deep learning strategy (map-like) decreases emotional exhaustion, while a surface learning strategy (GPS-like) increases such negative outcomes. Moreover, the deep learning strategy was found to be positively related to self-efficacy, unlike the surface learning strategy. As such, teachers should be aware that different types of instruction impact learners’ experiences differently.

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CONFLICT OF INTEREST

The author declares that they do not have any conflict of interest.

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