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Empowered Learners: How Martial Arts Foster Self-Regulated Learning

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ABSTRACT: Learning and academic success are often characterized by intellectual proficiency. However, they are increasingly being recognized as a multifaceted endeavour that requires a holistic approach, encompassing the social, emotional, and physical domains. The cultivation of “soft skills” such as self-regulation, critical thinking, and effective communication skills are essential for one’s success in the classroom and beyond. Such competencies, influenced by familial, community, and cultural environments, are increasingly being addressed in schools and educational settings through social-emotional learning (SEL) and self-regulated learning (SRL) methodologies. This paper explores the unique opportunity that martial arts-based interventions, characterized by their approach to psychoeducation, mindfulness, and interpersonal kinesthetic learning, provide in empowering learners. Based on existing literature, this paper illustrates the potential of martial arts-based interventions for fostering self-regulated, socially, and emotionally competent learners, enhancing their educational experiences and empowering them beyond the school environment.

KEYWORDS: *Martial arts-based interventions; self-regulated learning; social-emotional learning; social and emotional competencies; academic outcomes; student well-being; physical and health education; empowered learners;*

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Introduction

“If we want the best academic outcomes, the most efficient and cost-effective route to achieve that is, counterintuitively, not to narrowly focus on academics, but to also address children’s social, emotional, and physical development. Similarly, the best and most efficient route to physical health is through also addressing emotional, social, and cognitive wellness. Emotional wellness, similarly, depends critically on social, cognitive, and physical wellness.”

- (Diamond, 2010).

Education is far more complex than the mere transfer of academic knowledge from educator to student. It is a holistic process that encompasses not only intellectual growth but also the social, emotional, and physical development of learners. Emphasizing these areas is crucial as they form the foundation for essential skills such as self-regulation, critical and creative thinking, problem-solving, and effective communication and play a significant role in shaping students' academic success, future career prospects, relationships, and overall well-being. However, the value of these abstract concepts varies widely among cultures, communities, schools, families, and individuals, making it difficult to determine where responsibility for imbuing them lies. In recent years, an increasing number of schools have taken it upon themselves to introduce practices and curricula that address the development of these competencies. A step away from the traditional academic rigour that once held schools accountable for high grades and perfectionistic standards, these approaches emphasize the importance of social and emotional competence in students’ learning experiences and learning outcomes (Black, 2021; Tantillo Philibert, 2021). Social and emotional competencies are defined as a set of intrapersonal, interpersonal, and cognitive skills and dispositions that enable individuals to “be better prepared for life’s opportunities, responsibilities and challenges” (Black, 2021, p3). For many children, school serves as the initial setting where they learn and practice social and emotional skills with individuals beyond their family circle. This learning process, rooted in one's unique cultural context, is guided and shaped by social interactions and the motivation to 'fit in' (Trach, et al. 2020). Successfully meeting the environmental expectations and demands of the classroom or community necessitates the development of self-awareness, social awareness, and effective management strategies. Therefore, self-regulation, or the ability to manage oneself, is a key component of social and emotional competence, giving individuals a sense of control over their lives and in the learning context, control over their own learning. This appears in the form of self-regulated learning (SRL), a process whereby students actively manage their thoughts, feelings, and behaviour in order to achieve their goals or learning objectives (Zimmerman, 2002).

When it comes to developing students’ academic engagement and outcomes, martial arts may not be the first thing that comes to mind, but as a discipline that places a strong emphasis on mental, emotional, and physical self-regulation, there are many skills developed within that are primed to transfer to other domains of life. This idea makes it an appealing approach for schools seeking to empower their students in becoming resilient, lifelong learners. This paper explores the ways in which martial arts-based interventions align with SRL practices to provide an experiential and integrated learning opportunity for students in which they are supported, equipped, and empowered in their learning. I will first provide definitions of martial arts-based interventions and self-regulated learning (SRL), and then delve somewhat briefly into the ways they interconnect with four SRL-promoting principles identified by Butler et al. (2017). These principles are 1) creating safe and supportive learning environments, 2) designing complex activities, 3) integrating supports for SRL into activities, and 4) implementing SRL-promoting assessment and feedback practices. Through this exploration, the aim is to illustrate the potential of martial arts-based interventions as a

means of fostering self-regulated, socially, and emotionally competent, and empowered learners in all their educational contexts and in their lives beyond the school setting.

Defining Martial Arts-Based Interventions

Martial arts are systems of practices and traditions that involve the use of physical and mental discipline to develop and improve one's physical and mental capabilities (Moore et al., 2018; Prime Partnership, 2018). These practices can include a wide range of activities such as self-protective techniques, physical conditioning, and combat sparring. Traditionally, they emphasize the importance of respect and self-discipline, with a focus on how one maintains control of oneself, whether this be mentally, emotionally, or physically, in the face of conflict, threats, or trials. Though martial arts originated from Eastern philosophies that traditionally embody these values, not all modern approaches have developed the same intent. As Tremlow et al. (2008) emphasize in their work, “*traditional martial arts* instruction emphasizes psychological, spiritual and non-aggressive aspects of the art and *modern martial arts*, . . . tends to underemphasize these aspects and focuses instead on competition and aggression” (p. 948). This issue is important to note in connection to martial arts-based interventions to avoid the misconception that they are just about “learning to fight.” Martial arts-based interventions may use various martial art styles or techniques, such as Karate, Taekwondo, Judo, or Brazilian Jiu-Jitsu, but they also incorporate elements such as mindfulness, meditation, and psychoeducational instruction with equal value. The psychoeducational and mindfulness components of these approaches draw parallel to social-emotional learning (SEL) which is a field of education that focuses on the development of core social and emotional competencies in students (Black, 2021). The pairing of these components in this interpersonal kinesthetic experience of learning martial arts techniques is a unique opportunity for individuals to learn new skills, put them into practice and embody the information they are learning; moving one’s learning “from the head to the heart” so to speak.

For the purpose of this paper, martial arts-based interventions refer to purposefully designed programs that incorporate psychoeducation and mindfulness (or SEL) alongside physical martial arts-based self-protective techniques to address specific goals. The focus of this type of intervention may include anti-bullying initiatives, learning disabilities, emotional and behavioural issues, self-regulatory abilities, and mental health (as can be found in several studies by Lakes & Hoyt, 2004; Marusak et al., 2022; Moore et al., 2018; Milligan et al., 2015; Twemlow et al., 2008 and others). Educators responsible for facilitating these interventions would require experience in the domains of (psycho)education or special education and martial arts instruction, though there is an opportunity to develop and provide resources for teachers to implement martial art techniques without extensive experience.

Understanding Self-Regulated Learning

Self-regulated learning (SRL) is an intricate and collaborative process with cognitive, motivational, emotional, behavioural, and social components; it is an essential part of the educational journey, from the earliest formative years to adult life. From the learner's perspective, it is the process of taking an active and intentional approach to one's own learning, and for educators, it is the process of guiding and supporting their learners to meet this same end (Butler et al., 2017). It can be beneficial for educators to explore theories and practices related to SRL when they consider the complexity of their students' needs, emotions, prior experiences, abilities, motivations, interests, etc., and how they influence their ability to learn. Commonalities among SRL theories largely consist of the following three components: (meta)cognition, motivation, and emotion, and

(cyclical) strategic action (Butler et al., 2017; Perry et al., 2020). Metacognitive learners are conscious or self-aware of their personal strengths and challenges as individuals and as learners and have an awareness of what is required of them to be successful. Motivated learners are eager to take on new or challenging tasks, they value personal progress and persist in the face of challenges to achieve their learning objectives. Finally, strategic learners have a wide range of learning strategies, they are adaptive and can modify their strategies to suit different tasks and activities through iterative planning, monitoring, evaluating, and adjusting their approaches to learning tasks i.e., strategic action. As learners develop a greater sense of control and awareness of themselves and what they are capable of through these cycles of strategic action, they may also begin to experience an increase in agency, self-efficacy, and growth mindset. Agency refers to one's capacity to exercise control over one's thoughts and actions in any given situation, whereas self-efficacy refers to the belief in one's own ability to succeed (Code, 2020; Zimmerman, 2002). A growth mindset refers to the belief that one's abilities, intelligence, and talents can be developed and improved upon through hard work, persistence, and learning from failure (Sarrasin et al., 2018). These psychological concepts are often associated with increased academic performance and persistence, adaptability, higher motivation and engagement, resilience, and a greater sense of self-worth (Sarrasin et al., 2018; Zimmerman, 2002), all of which are vital to keeping pace with the constant "shifting conditions in workplaces and daily life that demand continual learning and adaptive expertise" (Butler et al. 2017, p187).

An Opportunity to Empower Learners

In the pursuit of fostering self-regulating learners, researchers Butler et al. (2017) identify four core principles for educators to consider when designing and implementing their teaching practices. These principles take into account the learning environment, the learning activities, the supports provided and the assessment and feedback processes that all weave together to create opportunities for self-regulated learning (SRL) and that foster student autonomy. I will now discuss how these principles and practices are intrinsically embedded in martial arts-based interventions, making them an effective approach to empowering learners.

Building a Safe and Supportive Learning Environment. Butler et al. (2017) emphasize the importance of safe and supportive learning environments so that learners may feel valued and comfortable learning together. With this sense of safety or inclusion, the classroom becomes a place for students to take risks, make mistakes, and engage in the process of learning in ways that can open them up to new ideas and challenges. Building an environment like this can be accomplished through such means as positive relationship building, positive messaging and reinforcement, and clear participation structures. Approaches to increase inclusion and reduce stress and anxiety, which can often be barriers to learning and self-regulation, also help foster a sense of trust and respect among the community of learners. This consideration may be especially important for individuals who may have experienced trauma or face daily challenges in their lives that impact their ability to feel safe and supported or present in the classroom (Greenwood, 2019).

Martial arts-based interventions provide a safe and supportive learning environment in a number of ways but primarily through its values-based approach, highly structured design, emphasis on differentiation and inclusion, and its ability to foster connection among participants and instructors. As mentioned previously, traditional martial arts place a high value on safety, respect, and self-discipline, as well as developing a growth mindset. Having a values-based methodology emphasizes "educational outcomes that centre on imparting values, rather than developing fitness, skills, or other typical objectives of sport coaching." (Channon & Matthews, 2018). The emphasis on these values is reflected in the environment established by the educator/instructor; overemphasizing

safety protocols to avoid injuries, stating clear learning objectives so everyone knows what to expect, breaking down complex techniques into simple steps, and understanding the learners' needs and differentiating instruction to meet those needs. Students can watch, experiment, ask questions and embrace challenges with a low risk of being embarrassed or singled out for failing. In fact, mistakes are viewed as an integral part of the learning process and are encouraged as students work toward mastery. Additionally, educators familiar with special education and inclusion practices are also better equipped to differentiate instruction and support those learners with learning differences (Prime Partnership, 2018). A sense of safety is also built by fostering communication and connection among its community of learners. Owing to the physical nature and the close proximity of movements, students engage in a form of intimate, cooperative, social learning that allows them to develop and practice verbal and nonverbal communication skills; one learns to read and interpret the body language and movement cues of others while also expressing themselves and their needs. This interpersonal coordination is associated with greater rapport, feelings of closeness and prosocial behaviour all of which continue to build students' capacity and motivation to engage further in their learning and that transfer well into other contexts where group work is required, and challenges arise (Borowski, 2021). For example, when a student is paired with a partner to learn a certain technique, the success of this exercise is dependent on clear communication between the partners - both verbal and non-verbal. One partner might initiate a movement, subtly shifting their weight or altering their grip, and the other partner must quickly interpret these cues and respond appropriately to maintain balance and control. In this setting, students learn not only the physical techniques of martial arts but also how to communicate effectively, cooperate, and build rapport. These skills are not only essential for a successful self-defense lesson but are also invaluable when applied to academic group projects, when conflict arises, and they must work together to find a solution.

Designing Complex Activities. According to Butler et al. (2017), to provide rich opportunities for learning, activities should be complex in design. This means that they extend over time and include depth and variety. They say this is not to be misunderstood as complicated or confusing, but rather as activities that afford students the opportunity to think creatively and critically, to make meaning, to exercise choice and agency, and to persevere over time. When activities have multiple goals, focus on big concepts, give choice, and integrate across content areas, students have more opportunities to engage deeply with big ideas from multiple perspectives. This can increase their adaptive expertise, or their ability to use knowledge and skills flexibly, which will benefit them when faced with future challenges in other contexts.

Martial arts alone are inherently complex systems of movements and techniques, add to that the complexity of social and emotional skills and one has a unique learning opportunity that extends beyond a typical physical education class or social-emotional learning lesson. The ability to learn physical techniques requires a variety of cognitive strategies; one needs to repeatedly observe, analyze, synthesize, and practice in order to execute the techniques and movements correctly and build muscle memory. One may not simply watch a technique and expect to replicate or even remember it without engaging in a form of strategic action and physical engagement. In fact, it will require a lot of trial, error, and effort for students to master the techniques, which can sometimes be extremely challenging and un motivating but yields a tremendous intrinsic reward when mastered. Instruction may be broken down into sequences of smaller parts, practiced individually, and then layered back together to form a smooth, fluid movement. This process of breaking down the steps can be implemented explicitly by educators, but it is also an implicit process learners engage in as they *interpret* the instructions or expectations, *plan* how to proceed, *implement* their plan, *monitor* how their plan is going and make *adjustments* if needed (Butler & Schnellert, 2020). This process of strategic action is central to SRL as it provides a framework for how learners can go about engaging

in their learning. Each time a learner successfully cycles through this process, their sense of accomplishment and competence grows. So too may their self-efficacy, which in turn motivates them to take more risks, persevere through more challenges and experiment further because they know they are capable of doing hard things.

In addition to the cognitive processes relevant to martial arts-based interventions, it is important to recognize how the body, movement and experiential learning play a role in developing embodied cognition. Embodied cognition is a neuroscientific concept that holds the understanding that how we think, learn, and understand is influenced by the physical processes involved in the interactions, perceptions, and emotions of the body. In other words, people learn and understand through their bodies, movements, sensations, and interactions with others (Borowski, 2021; Hrach, 2021). Embodied cognition aligns with Indigenous ways of knowing that view “culture as holistically inclusive of the interrelated aspects of spirit, emotion, physicality, and mind” (Tanaka, 2016. p.59) and learning as “holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place)” (First Nations Education Steering Committee, 2007). For example, as students grapple with the abstract concepts of consent, boundaries and healthy relationships, role-play (i.e., the self-defense scenarios) can provide opportunities for students to explore different roles and emotions related to conflicts such as bullying or boundary setting. Through practice, students learn the skills to navigate different situations and make informed decisions, however, they also begin to develop an awareness of the emotional and physical responses needed to do the right thing when needed. As Salmivalli (1999) argues, “most students probably already know that taking action against bullying would be the right thing to do. However, actually doing this is another matter” (p.456). Young students, like many people, need help connecting their cognitive understanding of “I know what I *should* do” to an embodied knowledge that comes from one’s own inner conviction, confidence, and competence, which then spurs them into action. This combination of experiential learning and targeted social-emotional learning sets students up for success as they play, experiment, and reflect on emotions and behaviours that arise in the scenarios and in real-time, supporting them to integrate their new learnings, understanding, and awareness leading to greater intuition, know-how, responsibility, and action (Salmivalli, 1999). In the context of martial arts training, a learner not only understands a move intellectually, but they also physically practice and feel it. This intimate connection between physical action and understanding contributes to a more holistic learning experience. As the learner becomes more aware of their body, movements, and the impact of these movements, they can monitor and adjust their actions to better achieve their learning goals. This process resonates with the principles of self-regulated learning, whereby students are using metacognitive strategies to respond and manage the challenges they face, rather than responding emotionally or impulsively without consideration of potential consequences or alternate strategies.

Integrating supports for SRL into activities. When it comes to built-in supports that foster self-regulated learning (SRL), Butler et al. (2017) ask, “how do I help learners *learn how to engage* in this activity in the future, when I’m not here to guide them?” (p. 108). The goal is to build students’ capacity to take control of their own learning by first providing the support they need to do so. Academic self-regulatory processes include time management, paying attention to instructions, strategizing how to organize, rehearsing, and storing information, creating an efficient work environment, and utilizing social resources wisely. Learning how to do these can be done through *modelling*, which refers to demonstrating and teaching a particular set of skills or strategies, typically through the use of a concrete example, and *scaffolding*, which refers to the way a teacher instructs and guides their students through particular activities, increasing responsibility over time as deemed necessary (Schunk & Zimmerman, 1997). For students to take responsibility for their own learning,

they must know how to attend to and interpret the instructions and then how to meet those expectations or requirements. In practice, examples of this could be co-creating expectations with students, explicitly teaching learning strategies such as asking questions, and incorporating self-reflective moments into activities so that students better understand what they need to do and how to do it.

In the martial arts context, instructors provide clear scaffolded instruction and ample practice time. Mastering a new motor skill can be a challenging and demanding process that requires perseverance and hard work. From a social cognitive perspective, learners acquire new skills through four sequential levels: observation, emulation, self-control, and self-regulation (Zimmerman, 2000 as cited in Kolovelonis & Goudas, 2010). In both physical education instruction and martial arts, these four levels can be intentionally employed to enhance the support offered to learners. As Kolovelonis and Goudas (2010) explain, during the observation level, students watch their instructor demonstrate a technique and listen to the key elements needed to perform the new skill or technique. During the emulation level, students begin to practice the new skill by trying to replicate the technique. Social feedback and assistance during practice are important at this level as they help students fix mistakes, ask for and offer help, build fluency, and develop a growth mindset. At the self-control level, students practice their new skills independently and are developing automaticity and reflexivity. They set personal progress goals to guide their practice and use self-monitoring techniques to track their performance. Finally, at the self-regulation level, students have mastered the skill, they can easily adapt and use it in changing conditions, such as in combat or sparring scenarios; they may even have their own unique styles and preference for techniques. Through participation in martial arts-based interventions that support learners through these levels, individuals are scaffolded in their learning. They also gain insight into themselves by constantly circling through cycles of strategic action; interpreting, applying, monitoring, adapting, evaluating, and reflecting on their progress. While martial arts may not be a traditional academic activity, it is an interpersonal kinesthetic experience that naturally supports learners in developing greater self-awareness (i.e., metacognition), self-efficacy (i.e., confidence and motivation), and mastery of skills (i.e., strategic action). To support the transfer of these skills to other domains, educators can work with their students to identify strengths and weaknesses and adapt future lessons to address their needs. In this respect, the educator acts like a guide to support their students with individualized feedback and direction. This process requires active formative assessment and adaptability on the educator's part, which will be discussed next.

Implementing SRL-promoting assessment and feedback practices. SRL-promoting assessment and feedback practices are important considerations for educators and their practice, and for students to understand their learning processes and what to do next. One can regard assessment and feedback from an extrinsic perspective, which considers the teacher-student outcomes i.e., grades and teacher feedback, and an intrinsic perspective, which focuses on the student-learning connection i.e., self and peer assessment (Butler et al. 2017). For educators, assessment is about investigating how their students are progressing and interpreting that information to inform their practice and provide meaningful feedback that supports their students' growth. Effective feedback that is perceived as honest, attributes effort and strategy, and provides students with clear, specific and attainable information, helps students refine their learning approaches and make connections between their current abilities and goals, this metacognitive awareness is fundamental to fostering self-regulating learners (Mouratidis et al., 2008).

Through martial arts, students experience both intrinsic and extrinsic forms of assessment and feedback. As students engage in practicing and drilling the techniques, they receive real-time feedback from instructors. Instructors closely observe and provide verbal feedback, they may

demonstrate directly or indirectly with students or co-instructors and make physical adjustments such as moving body parts to the correct position. In addition to this, they may use belt promotions to mark and celebrate one's progression towards mastery, these forms of extrinsic motivation often incentivize students as they work towards achieving certain goals (Winkle & Ozmun, 2003). As students work and practice together, they engage in intrinsic, self-evaluative and peer feedback processes. Students continuously assess their own performance in relation to the instructions and to their partner's performance before they can offer feedback. Peer feedback is much more informal and may sound like telling one's partner "that's right," "use the other hand," or "stop doing that". It will look like partners working together, collaborating, interpreting, practicing, moving, reflecting, challenging, correcting, and encouraging each other. They may observe moments of frustration with a particular technique and employ strategies to self-regulate their emotions and behaviour. The added benefit of this embedded process of self-assessment and feedback in learning martial arts is how they provide learners with the social-emotional competencies necessary to navigate challenges or conflict in other contexts. For example, the constant cycle of practice, self-assessment, and adaptation in martial arts is parallel to the iterative process students undertake in academic problem-solving or project-based learning. As students learn to appreciate the value of honest feedback and see the direct correlation between their efforts and improvement, they may start applying this learning approach to their academic tasks. They may learn to seek feedback actively and integrate it into their learning process rather than seeing it as criticism. This positive attitude towards feedback and self-assessment is crucial in developing their SRL skills as it encourages active engagement in learning, fosters a growth mindset, and nurtures resilience in face of challenges. Moreover, the martial arts practice offers an opportunity for developing interpersonal skills such as effective communication, empathy, and collaboration, all of which can be beneficial in other social contexts. Through peer feedback, students learn how to give and receive constructive feedback in a respectful and supportive manner, a skill that is valuable in collaborative work or team projects. Thus, martial arts serve as an excellent platform for nurturing self-regulated learners who are not only skilled and resilient but also socially competent and collaborative.

Conclusion

Martial arts-based interventions are undoubtedly an unconventional approach to academic learning but looking through a self-regulated learning lens, one can piece together how they support learners in taking ownership of their own learning. They provide a safe and supportive learning environment through their highly structured design, emphasis on personal growth and values, and ability to foster connection among their community of learners. The complex and challenging nature of martial art activities in conjunction with social-emotional learning requires iterative strategic action that promotes the development of cognitive strategies and self-awareness, leading to increased self-regulation, agency, and positive self-perception. Additionally, through built-in support and meaningful assessment and feedback, students can track their progress and receive targeted guidance and support. While there are additional benefits to learning martial arts such as physical fitness and health (Prime Partnership, 2018), the opportunity for learners to move, interact with others and experience for themselves their ability to self-regulate and persevere through challenges is paramount in supporting them in becoming confident, self-regulating learners.

The term Experiential SEL is an emerging concept in social-emotional learning (SEL) but seems appropriate to describe the process of developing social and emotional competencies through interpersonal kinesthetic activities such as martial arts. The key takeaway is that martial arts-based interventions support learners to "develop a sense of control over their bodies, emotions, intellects, and interactions, [which] allows them to monitor their emotions and manage their actions in [all]

contexts” (Borowski, 2021, p. 7), including one’s learning experiences. While there is a need for more research in this area, as Borowski (2021) also highlights, there is an undeniable correlation between social and emotional competencies and better academic and life outcomes and that the most successful programs designed to promote these competencies use active forms of learning based on movement and participation.

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