

Article

# Muay Thai, Psychological Well-Being, and Cultivation of Combat-Relevant Affordances

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**Abstract:** Some philosophers argue that martial arts training is maladaptive, contributes to psychological illness, and provides a social harm, whereas others argue that martial arts training is adaptive, contributes to psychological wellness, and provides a social benefit. This debate is important to scholars and the general public since beliefs about martial arts training can have a real impact on how we evaluate martial artists for job opportunities and career advancement, and in general, how we treat martial artists from different cultures in our communities. This debate is also important for children and adults that have considered enrolling in martial arts training programs but remain uncertain about potential outcomes of training due to the lack of research in this area. This article therefore contributes to the literature on martial arts by (1) outlining a framework that characterizes psychological well-being in terms of five elements, (2) discussing how results from empirical research support the hypothesis that Muay Thai training can contribute to psychological well-being by contributing to all five component elements, (3) discussing the psychological benefits of martial arts training from the perspective of an Everlast Master Instructor, and (4) discussing how martial arts training involves the cultivation of combat-relevant affordances.

**Keywords:** Muay Thai; martial arts; psychological well-being; philosophy of mind; affordances; flow experience; social activities; sportsmanship; health and fitness; self-cultivation



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## 1. Introduction

Philosophers have recently developed a strong interest in the martial arts, as evidenced by the growing body of published monographs and edited volumes on martial arts over the last 15 years [1–8]. One area of lively debate in the literature is whether martial arts practice is adaptive, contributes to psychological wellness, and provides a social benefit, or whether it is maladaptive, contributes to psychological illness, and provides a social harm. Consider for example the work of Gillian Russell [9,10] and Nicholas Dixon [11]. In *Practicing Evil: Training and Psychological Barriers in the Martial Arts*, Gillian Russell [9] claims that the aim of martial arts training is “dehumanization of the target—training provides a social environment where targets are spoken of with contempt and as deserving of harm [ . . . ] some martial arts groups have a social environment in which certain groups deemed likely to be attackers, such as the mentally ill or poor, are spoken of with contempt” (p. 40). In *Epistemic Viciousness in the Martial Arts*, Russell [10] further claims that “The culture of training in many martial arts actually promotes epistemic vice, including both closed-mindedness and gullibility, but also unwarranted epistemic deference to seniors and historical sources, lack of curiosity about important related disciplines, and lack of intellectual independence. This makes them unreliable when it comes to forming beliefs” (p. 130). Finally, in *A Moral Critique of Mixed Martial Arts*, Nicholas Dixon [11] writes that “The critique of MMA [Mixed Martial Arts] presented here is that fighters treat each other as violable and that, as is also the case with a wide range of other inherently demeaning actions, their consent is insufficient to reconcile this attitude with respecting each other” (p. 373). Because of extremely negative views of this kind about the martial arts, some have called for a complete ban on these sports [12]. For example, one critic of martial arts from

the British Medical Association stated that “There is no place in contemporary society for a youth sport which has, as its primary goal, the infliction of acute brain damage on an opponent” (quoted in [12]).

However, several important questions remain here. Is it really the case, as critics of martial arts have argued, that causing others brain damage is the “primary goal” of martial arts practice? Is practicing martial arts “inherently demeaning”, as Dixon [11] has argued? And does practicing martial arts promote “epistemic vice” and “dehumanization” of others, as Russell [9,10] suggests? If Dixon [11] and Russell [9,10] are right about the martial arts, then it appears that Olympic sports such as boxing, kickboxing, Karate, Taekwondo, Judo, wrestling, Sambo, and Muay Thai are all highly immoral activities, and further, that the individuals that participate in these activities are also highly immoral. If Dixon [11] and Russell [9,10] are right about the martial arts, then it appears that there may be good reason to ban martial arts events, prevent our children from participating in martial arts programs, and even exclude martial artists from prestigious job opportunities and career advancement. The consequences of society accepting such an extremely negative view about the martial arts and martial artists are serious, so what kind of evidence have Russell [9,10] and Dixon [11] actually presented in support of their claims?

The purpose of this article is to argue that the critical views of Russell [9,10] and Dixon [11] remain unsupported and are based on a flawed understanding of martial arts practice and practitioners. Other scholars such as Weimer [13], Channon [14], and Veit and Browning [15] have also recently challenged the work of Russell [9,10] and Dixon [11], but whereas their work focused primarily on the *ethics* of martial arts (whether martial arts is moral or immoral), the primary focus of this work is on the *psychology* of martial arts (whether martial arts contributes to psychological wellness or psychological illness). The purpose of this article, therefore, is to join Weimer [13], Channon [14], and Veit and Browning [15] in challenging the work of Dixon [11] and Russell [9,10] but with a unique emphasis on the psychology of martial arts rather than the ethics of martial arts. Clarifying this point at the outset will help make clear how this article offers a unique contribution to the philosophical literature on martial arts. My approach in this article is as follows. First, I outline a theoretical framework that characterizes psychological well-being in terms of five elements, including positive emotions, engagement, relationships, meaning, and accomplishment [16]. This is important since philosophical work on martial arts and psychological well-being currently lacks a rigorous and empirically adequate model of psychological well-being to ground the discussion. Next, I argue that the results from empirical research support the hypothesis that martial arts training can contribute to psychological well-being by contributing to the five elements of psychological well-being, including positive emotions, engagement, relationships, meaning, and accomplishment. I focus especially on Muay Thai or “The Art of Eight Limbs” in this article since I want to demonstrate that practicing a *particular* martial art can contribute to all five components of psychological well-being. Without focusing the article on a specific martial art in this way, it remains an open possibility that some martial arts contribute to some components of psychological well-being (such as components P, E, and R) whereas other martial arts contribute to other components of psychological well-being (such as components M and A) but that no single martial art contributes to all five components of psychological well-being. Since I am interested in exploring the possibility of whether a single martial art can contribute to all five elements of psychological well-being in this article, I focus on Muay Thai here. My larger view is that many martial arts can contribute to psychological well-being, so my larger approach across distinct articles is to focus on each martial art in turn, and then after this, provide a more general assessment of martial arts and psychological well-being that is grounded upon these more specific contributions. Methodologically, I believe that this is a more rigorous approach than simply beginning with generalities about the martial arts at the outset. After discussing how the results from empirical research support the hypothesis that Muay Thai training can contribute to psychological well-being, I further substantiate this point by discussing the psychological benefits of

Muay Thai training from the perspective of an Everlast Master Instructor. In addition to connecting research on martial arts to research on psychological well-being, this article further contributes to the literature by connecting research on martial arts to research in ecological psychology by discussing how Muay Thai training involves the *cultivation of combat-relevant affordances*. Finally, this article draws the conclusion that criticisms of martial arts in the philosophical literature are based on a poor understanding of the actual rules of martial arts and the practices of real martial artists, that the argument for banning martial arts and viewing martial artists negatively remains unsupported, and that a growing body of empirical evidence supports the case that practicing a martial art can in fact be adaptive, contribute to psychological wellness, and provide a social benefit.

## 2. Muay Thai and Psychological Well-Being

In order to understand if martial arts can contribute to psychological well-being, we must first have a clear idea of what psychological well-being consists of. So, what is psychological well-being? Martin Seligman, the Director of the Positive Psychology Center at the University of Pennsylvania and the former President of the American Psychological Association, proposed a theoretical framework for psychological well-being that has been incredibly influential in the field and that has been empirically validated in numerous studies [16]. As Seligman [16] explains in *Flourishing: Positive Psychology and Positive Interventions*, “What I have done so far is define the field of positive psychology. Positive psychology is about the concept of well-being. The elements of well-being are PERMA: positive emotion, engagement, relationships, meaning, and accomplishment” (p. 236). Although possession of any single individual element may not be fully sufficient for psychological well-being (e.g., hedonia or positive affect alone may be insufficient for complete psychological well-being or human flourishing), possession of the combination of all five elements is typically considered highly characteristic of psychological well-being [17]. Psychological research has also demonstrated that conceptions of “happiness” and “psychological well-being” differ across cultures and change over time [18], making it useful for the purposes of scientific investigation to identify more specific elements of “happiness” or “psychological well-being” rather than treating “happiness” or “psychological well-being” as a singular, invariant, and holistic property [16]. The PERMA framework that Seligman [16] proposed has been incredibly influential in contemporary research on psychological well-being and has been validated and applied in psychological studies of well-being in participants across cultures and in different countries including Australia [19], Brunei [20], Canada [21], China [22], Germany [23], Greece [24], Hong Kong [25], India [26], Italy [27], Japan [28], Qatar [29], Romania [20], South Korea [30], Turkey [31], and the United Arab Emirates [32].

The first element to consider from the PERMA framework for psychological well-being is P for positive emotions. Previous research in the psychological literature suggests that positive affect or pleasure (hedonia) is an important component of overall psychological well-being [33] (p. 57). For example, Busseri, Choma, and Sadava [34] investigated the relationship between (positive and negative) affect and life satisfaction in undergraduate students ( $n = 438$ ) and found that higher levels of positive affect were associated with higher ratings of life satisfaction. Cohn et al. [35] also investigated the relationship between positive emotions and life satisfaction in college students ( $n = 86$ ) and found that positive emotions were associated with increased resilience and life satisfaction. Peterson, Park, and Seligman [36] looked into the relationship between positive emotion and life satisfaction in adults ( $n = 845$ ) and found that positive emotion was positively associated with life satisfaction. In other research by Schmiedeberg et al. [37] that examined the relationship between sexual satisfaction and frequency with overall life satisfaction in adults ( $n = 5582$ ), it was found that naturally occurring increases in sexual satisfaction and frequency were associated with corresponding increases in life satisfaction. In a literature review on subjective well-being and health outcomes conducted by Diener and Chan [38], it was reported that the absence of negative emotions and the presence of positive emotions

were associated with improved health and increased longevity. Finally, in a literature review on positive affect and health outcomes, Steptoe, Dockray, and Wardle [39] reported that positive affect was found to benefit health by reducing cortisol, heart rate, blood pressure, and inflammatory markers such as interleukin-6, so that “Positive affect may be part of a broader profile of psychosocial resilience that reduces risk of adverse physical health outcomes” (p. 1747). Empirical results of this kind from the psychological literature therefore suggest that positive emotions (P) are indeed an important element of overall psychological well-being.

Positive emotions are an important element of overall psychological well-being, so my suggestion is that Muay Thai training can contribute to overall psychological well-being by contributing to positive emotions. Muay Thai or “The Art of Eight Limbs” is the national sport of Thailand and is a martial art that utilizes punches, kicks, elbow strikes, and knee strikes, as well as clinch work (a form of standup wrestling). Whereas boxing focuses on punches (striking with two limbs) and kickboxing focuses punches and kicks (striking with four limbs), Muay Thai makes use of a comparatively wider repertoire of strikes by utilizing punches, kicks, elbow strikes, and knee strikes (striking with eight limbs). Interestingly enough, recent research from scholarly dissertations and professional publications in education and sociology suggest that Muay Thai training can in fact contribute to positive emotions. For example, Dimson et al. [40] studied young Muay Thai athletes (n = 10, age range 16–23) and found that Muay Thai training helped to improve their self-esteem and emotional regulation. In another empirical study, Phipps [41] conducted interviews with female Muay Thai athletes (n = 14) and found that most of them experienced pleasurable excitement while training and competing. One Nak Muay (a term used to identify a Muay Thai practitioner) in the study named Holly explained that:

It [Muay Thai] really does help and recently I split up with my boyfriend, and everyone was just like go out and drink and party but I don't think that helps, all I want to do is go to the gym and hit things, because you get it out and you're not carrying around all that anger and upset, you can train it out and you feel a lot better for it, and it's a positive way of doing things rather than just drinking and making yourself feel even more worse about it [ . . . ] I feel better after leaving and it's different 'cause it's contact, like kicking things, and it's just like everyone thinks automatically that Thai boxing is going to be violent, it's not always, like obviously the fights are but training is just like a really good vent and I think that's why people get hooked to it. (pp. 52–53)

In another study adopting a semi-structured interview approach, Davies and Deckert [42] interviewed female Muay Thai athletes based in Thailand (n = 17). One Nak Muay in the study named Leila explained that “It's [Muay Thai] taught me that I can endure, persevere, [and] feel confident. You can be tough, you can take it, earn their [the coach's] respect. In that fight, I realised how tough I can be” (p. 338). Finally, empirical research by Ustun and Tasgin [43] that investigated the relationship between Muay Thai experience and anger in university students in Turkey (n = 125) found that individuals with 9 or more years of Muay Thai experience showed significantly lower scores for introverted and suppressed anger than those with only 1–2 years, 3–4 years, and 5–6 years of Muay Thai experience. Ustun and Tasgin [43] also found that individuals with 9 or more years of Muay Thai experience showed significantly higher scores for anger control than those with only 1–2 years, 3–4 years, and 7–8 years of Muay Thai experience. Contrary to unsupported speculation in the philosophical literature that martial arts training leads to mental instability and the promotion of violence in individuals [9–11], results of several empirical studies suggest that Muay Thai training may actually help to *reduce* anger and *improve* anger control. Given the fact that existing research on Muay Thai training has shown that it can produce pleasurable excitement and remove negative emotions [41], reduce anger and improve anger control [43], improve self-esteem and emotional regulation [40], and improve confidence and self-knowledge [42], there is some empirical evidence suggesting

that Muay Thai training can contribute to positive emotions, which is an important element of overall psychological well-being.

The second element to consider from the PERMA framework for psychological well-being is E for engagement or flow experience. Grant Rich [44] writes in “Finding Flow” that “a good life is one characterized by complete absorption in what one does [ . . . ] A life worth living then, seems to involve flow” (p. 43). In “Play and Intrinsic Rewards,” the leading scholar on flow research Mihaly Csikszentmihalyi [45] explains that “Flow denotes the wholistic sensation present when we act with total involvement [ . . . ] It is the state in which action follows upon action according to an internal logic which seems to need no conscious intervention on our part. We experience it as a unified flowing from one moment to the next, in which we feel in control of our actions, and in which there is little distinction between self and environment; between stimulus and response; or between past, present, and future” (p. 43). Csikszentmihalyi [45] proposed that the elements of flow experience consist of (1) the experience of merging action and awareness (e.g., “A tennis player pays undivided attention to the ball and the opponent,” p. 45), (2) the centering of attention (e.g., “there are play activities that rely on physical danger to produce centering of attention, and hence flow,” p. 48), (3) the loss of ego (e.g., “When an activity involves the person completely with its demands for action, “self-ish” considerations become irrelevant [ . . . ] What is usually lost in flow is not the awareness of one’s body or of one’s functions, but only the *self-construct*, the intermediary which one learns to interpose between stimulus and response,” p. 49), (4) control of action and environment (e.g., “Flow experiences occur in activities where one can cope, at least theoretically, with all the demands for action [ . . . ] The feeling of control and the resulting absence of worry are present even in flow situations where “objectively” the dangers to the actor seem very real,” p. 52), (5) clear demands for action and clear feedback (e.g., “Another quality of the experience [of flow] is that it usually contains coherent, noncontradictory demands for action, and provides clear unambiguous feedback to a person’s actions,” p. 52), and (6) autotelicity (e.g., “it appears to need no goals or rewards external to itself,” p. 53).

In “Neurocognitive Mechanisms Underlying the Experience of Flow,” Arne Dietrich [46] distinguished between (a) information processing involving implicit cognitive systems, and (b) information processing involving explicit cognitive systems, and writes that information processing involving “the implicit system is associated with the skill-based knowledge supported primarily by the basal ganglia and has the advantage of being more efficient” whereas “the explicit system is associated with the higher cognitive functions of the frontal lobe and medial temporal lobe structures and has evolved to increase cognitive flexibility” (p. 746). Dietrich [46] proposed that flow experiences involve “a state of transient hypofrontality that enables the temporary suppression of the analytical and meta-conscious capacities of the explicit system” (p. 746). Dietrich [46] therefore outlines the neural and cognitive mechanisms that underlie flow experience and the corresponding loss of ego and metaconscious analysis that this typically involves [45]. In empirical research by Peterson, Park, and Seligman [36] that investigated the relationship between flow experience and life satisfaction in adults (n = 845), it was found that flow experience was positively associated with life satisfaction. In other empirical work conducted by Asakawa [47] that investigated the relationship between flow experience and measures of well-being in Japanese college students (n = 315), it was found that students who experienced flow more frequently were more likely to show higher self-esteem and lower anxiety than students who experienced flow less frequently. Finally, Olčar, Rijavec, and Ljubin Golub [48] examined the relationship between flow experience at work and life satisfaction in primary school teachers (n = 480) and reported that “the results confirmed the positive effect of flow at work on life satisfaction” (p. 326). Empirical results of this kind from the psychological literature therefore suggest that engagement (E) or flow experience is indeed an important element of overall psychological well-being.

Engagement or flow experience is an important element of overall psychological well-being, so my suggestion is that Muay Thai training can contribute to overall psychological

well-being by contributing to engagement or flow experience. Research from several scholarly dissertations in fact suggests that Muay Thai training can contribute to engagement or flow experience. For example, Holthuysen [49] interviewed mixed martial artists (n = 55) that practice Muay Thai and other martial arts at Desert Combat Gym in Phoenix, Arizona, and found that many of these martial artists reported being in flow states while training and competing (p. 80). In response to the interview question “How do you feel when you train? What’s your mindset like?”, one martial artist named Carlos responded, “It’s almost like my mind goes blank and I’m just flowing with everything. I’m very focused on what’s happening here when I’m not stressed out at all [ . . . ] I think that relaxing and focusing and being there—nothing else matters. No matter what else is going on in your life, when you’re there, you’re just there” [49] (p. 66). In an empirical study on boxers and Muay Thai athletes in Italy (n = 20), Bortolotti [50] reported that one of the main reasons that the participants engaged in martial arts training was to experience “the particular psychological condition of the flow state” (p. 1, translated from Italian). A 34-year-old Muay Thai athlete and instructor interviewed by Bortolotti [50] explained that “When you fight it is as if you have a heightened sense of things: you feel everything, you see everything, the senses are much more developed” [50] (p. 109, translated from Italian). Summarizing the interviews on flow experience provided by the boxers and Muay Thai athletes (n = 20), Bortolotti [50] writes that “The moment of the actual fight is dominated by adrenaline and deep concentration: the state of *flow* is at its peak and is not expressed in a leap into a void but in a forced experience of *living-in-the-moment* and *in-the-body* where space and time compress into a single moment of emotional intensity and of deep awareness of oneself and one’s body” (p. 112, translated from Italian). Given the fact that existing empirical research on Muay Thai training has suggested that it can produce engagement or flow experience in participants [49,50], there is some empirical evidence suggesting that Muay Thai training can contribute to engagement or flow experience, which is an important element of overall psychological well-being.

The third element to consider from the PERMA framework for psychological well-being is R for (positive) social relationships. As Aristotle [51] writes in *Nicomachean Ethics*, “For without friends no one would choose to live, though he had all other goods [ . . . ] it is not only necessary but also noble; for we praise those who love their friends, and it is thought to be a fine thing to have many friends; and again we think it is the same people that are good men and are friends” (VIII.1–30). In empirical research by Young [52] that investigated the relationship between social relationships and life satisfaction in adults with mental illness living in Hong Kong (n = 146), it was found that social support from friends and rehabilitation staff contributed to life satisfaction. Barger, Donoho, and Wayment [53] looked into the relationship between social relationships, socioeconomic status, and health outcomes with life satisfaction in adults living in the United States (n = 33,326) and found that social relationships were the strongest contributor (over socioeconomic status and health outcomes) to life satisfaction. In other work, Powdthavee [54] examined the relationship between social relationships and life satisfaction in adults living in the United Kingdom (n = 5007) and found that social relationships contributed to life satisfaction, and interestingly enough, that “an increase in the level of social interaction with friends and relatives is estimated to be worth up to an extra £85,000 a year” (p. 1474). In research by Trepte, Dienlin, and Reinecke [55] investigating the relationship between social support in online and offline contexts and satisfaction with life in participants (n = 327), it was found that offline (rather than online) social support contributed to overall life satisfaction. Finally, Lau and Bradshaw [56] examined the relationship between social relationships and life satisfaction in children living in Hong Kong (n = 793) and found that the absence of bullying at school and the presence of positive relationships with family members and teachers positively contributed to their life satisfaction. Empirical results of this kind from the psychological literature therefore suggest that social relationships (R) are indeed an important element of overall psychological well-being.

Relationships are an important element of overall psychological well-being, so my suggestion is that Muay Thai training can contribute to overall psychological well-being by contributing to relationships. Research from scholarly dissertations and professional publications in health and exercise science in fact suggests that Muay Thai training can contribute to positive social relationships. Although Muay Thai is often considered a violent sport and so not the most intuitive way of forming friendships, Muay Thai training is actually an excellent way to connect with others and build a community of friends with common goals. As the Muay Thai instructor in the study by Green [57] pointed out, “when you train hard you build friendships that are different than any others” (p. 391). In empirical research by Bortolotti [50] on boxers and Muay Thai athletes in Italy (n = 20), a 23-year-old Nak Muay explained that “This sport unleashes you both mentally and physically. And then it also builds a community: you find new friends and it’s fun” (p. 132, translated from Italian). In other empirical research by Phipps [41] that included interviews of female Muay Thai athletes (n = 14), one of the Nak Muays named Emily explained that “I’ve always thought about it [Muay Thai] more technically, so more like jab, cross, hook, kick kind of thing. I’ve always kind of planned what my technique is going to be rather than thinking about my opponent. I’m not sure I’d be comfortable with thinking about trying to hurt somebody” (p. 50). Here we see that martial artists like Emily consider Muay Thai as a *technical sport* rather than a mode of *brute violence*, and further, they have internalized the rules of the sport so that their aim is to win according to those rules rather than through brute violence. A person of brute violence is not regulated by a respect for rules, regulations, and fair play among participants, whereas a true sportsman and martial artist is appropriately regulated in these ways. In other empirical research, Ong and Ruzmin [58] investigated the reasons people had for participating in Muay Thai training in Thailand (n = 120) and found that “relatedness” (a kind of social relationship) was the second most important reason females gave for Muay Thai training (“existence” was the first-ranked, “growth” was the third-ranked, and “sports characteristics” was the fourth-ranked reason females gave for Muay Thai training in Thailand) (p. 128). Finally, research by dos Santos and Canzonieri [59] examined a patient diagnosed with multiple sclerosis (n = 1) that engaged in Muay Thai training for six months and found that the Muay Thai training resulted in improved social skills, nonverbal intelligence, visual memory, and selective attention. Given the fact that existing empirical research on Muay Thai training has shown that it can help improve social skills [59] and promote positive relationships with others [41,57,58], there is some empirical evidence suggesting that Muay Thai training can contribute to relationships, which is an important element of overall psychological well-being.

The fourth element to consider from the PERMA framework for psychological well-being is M for meaning or purpose in life. De Muijnck [60] writes that “experiencing life as meaningful seems to be a major component of human well-being, and a major source of motivation for human action” (p. 1291). In research by Chamberlain and Zika [61] that looked into the relationship between religiosity and life satisfaction in female adults (n = 188) it was found that “the relationship between life satisfaction and religiosity may well be mediated by meaningfulness” (p. 415). Byron and Miller-Perrin [62] further investigated the relationship between religious faith, purpose in life, and perceived wellness in college students (n = 103) and found that “life purpose completely mediated the relationship between faith and well-being [ . . . ] the impact of faith on well-being can be explained by life purpose” (p. 68). Research from Chamberlain and Zika [61] and Byron and Miller-Perrin [62] therefore suggests that religious involvement may contribute to psychological well-being because religious involvement contributes to meaning or purpose in life, and meaning or purpose in life contributes to psychological well-being. Peterson, Park, and Seligman [36] examined the relationship between meaning in life and life satisfaction in adults (n = 845) and found that meaning in life predicted life satisfaction, and more recent research by Steger, Oishi, and Kashdan [63] that investigated the relationship between meaning in life and life satisfaction in a sample of participants from the internet (n = 8756)

further found that “the more meaning in life people reported, the greater well-being they experienced, at all life stages” (p. 48). In other research by Wang et al. [64] that investigated the relationship between reasons for living and purpose in life with suicidal behaviors in college students (n = 416) it was reported that “purpose in life and reasons for living were found to be important predictors of suicide and may reduce the likelihood of suicidal thoughts and behaviors” (p. 202). Finally, research by Bronk et al. [65] that investigated the relationship between purpose in life and life satisfaction in participants of different ages (n = 806; adolescents = 153, emerging adults = 237, and adults = 416) found that “having identified a purpose in life is associated with greater life satisfaction in adolescence, emerging adulthood, and adulthood” (p. 506). Empirical results of this kind from the psychological literature therefore suggest that meaning (M) or purpose in life is indeed an important element of overall psychological well-being.

Meaning or purpose in life is an important element of overall psychological well-being, so my suggestion is that Muay Thai training can contribute to overall psychological well-being by contributing to meaning or purpose in life. Research from scholarly dissertations and professional publications in sociology in fact suggests that Muay Thai training can contribute to meaning or purpose in life. For example, Ramoutar [66] focused on interviewing female Muay Thai athletes (n = 10) and found that Muay Thai training had a positive impact on their sense of meaning or purpose in life. Ramoutar [66] reported from this study that “Some specific examples of purpose for these participants included enjoyment of playing the game, comparable to chess; the idea of constant growth; attraction to the culture and artistry; pride; recognition among peers and self-satisfaction; and the ability to live intensely, using Muay Thai as a form of self-expression” (pp. 53). In other research by Davies and Deckert [42] that also focused on interviewing female Muay Thai athletes (n = 17), one of the Nak Muays named Stacey explained that “We don’t do this because we want to look traditional, feminine, beautiful. We do this because we want to, and then we go for the body that’s functional for this sport. That’s beautiful to us and I don’t care if someone else who doesn’t do Muay Thai thinks that I don’t look like a girl, I just don’t care” (p. 335). Notice that a positive aspect of Muay Thai training is that it provides individuals like Stacey with opportunities and social support to exercise their agency by creating an identity and lifestyle that is most meaningful to them. In other empirical work that focused on interviewing mixed martial artists (n = 55) that practice Muay Thai and other martial arts at Desert Combat Gym in Phoenix, Arizona, Holthuysen [49] reported that “Participants spent enormous amounts of time here, and this site proved crucial to developing notions of their self-identity” (p. 80). Since there are a rich variety of movement patterns and techniques to practice in Muay Thai and MMA, and since many martial artists thoroughly enjoy training, many of the participants in the study by Holthuysen [49] reported training multiple times per day for 5 to 7 days per week (pp. 62–63). Spending several hours per day, 5 to 7 days per week, wearing martial arts equipment and engaging in martial arts training in a martial arts facility with other martial artists clearly contributes to the sense of self-identity (e.g., “I am a martial artist”) and meaning or purpose in life (e.g., “I am a part of a larger martial arts community and can make contributions to this community as a training partner, instructor, or champion”). Given the fact that existing empirical research on Muay Thai training has shown that it can contribute to meaning or purpose in life [42,49,66], there is some empirical evidence suggesting that Muay Thai training can contribute to this important element of overall psychological well-being.

The final element to consider from the PERMA framework for psychological well-being is A for accomplishment. Seligman [16] considers accomplishment an important element of psychological well-being since “many people are motivated to achieve, to have mastery, to have competence, even if it brings no positive emotion, no engagement, no relationships, and no meaning” (p. 234). In research by Yang et al. [67] that investigated the relationship between academic achievement and ratings of subjective well-being in Chinese elementary school students (n = 807) it was found that academic achievement positively predicted ratings of subjective well-being. Another empirical study by Messersmith and



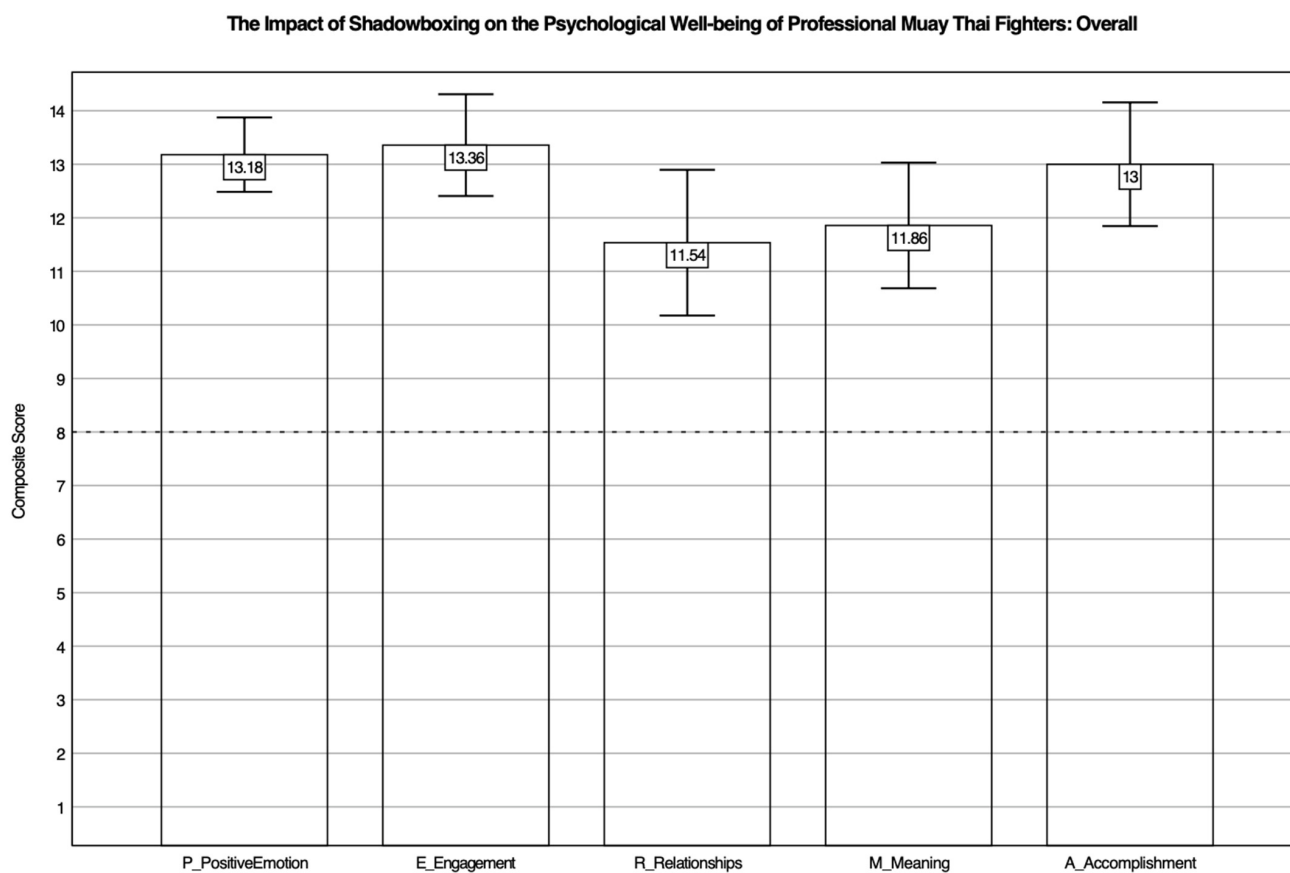
Schulenberg [68] that investigated the relationship between goal achievement and overall life satisfaction in adolescents in the United States ( $n = 5693$ ) found that accomplishing an important life goal (including education and marital goals) corresponded with greater overall life satisfaction during emerging adulthood. Firdous et al. [69] further examined the relationship between academic achievement and overall life satisfaction among medical students in Pakistan ( $n = 200$ ) and found a significant positive relationship between academic achievement and overall life satisfaction. In another empirical study investigating life satisfaction in African American adults ( $n = 1081$ ), Armstrong et al. [70] found that those who reported having achieved “The American Dream” reported having higher life satisfaction than those who reported not having achieved “The American Dream”. In other words, achieving their vision of “The American Dream” was strongly associated with their overall satisfaction with life. In another study by Stevanovic and Rupert [71] that investigated predictors of overall life satisfaction in professional psychologists ( $n = 485$ ) it was found that personal accomplishment was associated with increased family enhancers, greater family support, and more satisfaction with life. Finally, Shim et al. [72] examined the relationship between (objective and subjective measures of) financial well-being (including low debt and high satisfaction with financial status, respectively) with overall life satisfaction in adults living in the United States ( $n = 781$ ) and found that achieving financial well-being was significantly associated with overall life satisfaction. Empirical results of this kind from the psychological literature therefore suggest that accomplishment (A) is indeed an important element of overall psychological well-being.

Accomplishment is an important element of overall psychological well-being, so my suggestion is that Muay Thai training can contribute to overall psychological well-being by contributing to accomplishment. Research from scholarly dissertations and professional publications in health and exercise science in fact suggests that Muay Thai training can contribute to accomplishment. For example, physiological research by Rapkiewicz et al. [73] that examined Muay Thai training among women ( $n = 20$ ) found that 13 weeks of Muay Thai training resulted in increased cardiorespiratory fitness, and further, physiological research by Saraiva et al. [74] that examined Muay Thai training among overweight adolescents ( $n = 40$ ) found that 16 weeks of Muay Thai training resulted in decreased total body fat mass and increased total muscle mass. In other words, results from the studies by Rapkiewicz et al. [73] and Saraiva et al. [74] demonstrate that Muay Thai training provides individuals with an opportunity to accomplish generally recommended health and physical fitness goals, such as decreasing body fat mass, increasing total muscle mass, and increasing cardiorespiratory fitness [75]. In other empirical research by Bortolotti [50] on boxers and Muay Thai athletes in Italy ( $n = 20$ ), a 29-year-old Nak Muay explained that “It [Muay Thai] is a complete sport, in which you can measure yourself individually with an opponent. Yes, it can be hard. But you can overcome your limits [ . . . ] I like the fact that the ring allows you to confront your limits. For example, I have some experience in the ring: being in a closed space where you can’t escape, you just have to perform your sport well” (p. 117, translated from Italian). A 19-year-old Muay Thai athlete from this study also reported that “It makes you physically complete (muscle and all) and then gives you that mentality of never going back, never giving up” [50] (p. 126, translated from Italian). Another 34-year-old Nak Muay and instructor expanded on this by explaining that:

There’s just a kind of inner work in combat sports [ . . . ] It is beautiful, it is handsome. There is really an inner growth: you learn to know your fears. One approaches [the sport] out of curiosity, then tries and experiences these sensations which are very strong, and then continues. It becomes [addictive] like a drug. You have these particular feelings of self-consciousness [ . . . ] Each time one always learns something more about himself: his own fears, limits, and how to control yourself [ . . . ] Getting in the ring for me is the best experience there is! Because, I repeat, it makes you face your fears, every time you step into the ring it makes you more capable of controlling yourself, of dominating your fears. [50] (pp. 121, 128, translated from Italian)

Finally, a 23-year-old Nak Muay from this study explained that “It [Muay Thai] also makes you overcome the fears you may have during the challenges of life. By managing to overcome such violent obstacles [in the ring], you may even be able to better overcome other difficulties in life [ . . . ] It [Muay Thai] can give you the spirit to overcome the difficulties of life” [50] (p. 126, translated from Italian). In other relevant work by Phipps [41] that focused on interviewing female Muay Thai athletes ( $n = 14$ ), one Nak Muay named Eva recommended that “I would encourage people just to come along and have some fun and stay fit and take up a new skill that can help them if ever they needed to get away from a bad situation because this is a martial art that you can actually use in the street” (p. 63). Eva added, “it’s a really good feeling to know your ability” [41] (p. 64). Another study conducted by Ong and Ruzmin [58] that investigated the motivations that people had for Muay Thai training in Thailand ( $n = 120$ ) found that accomplishment or growth was the second most important reason males gave for Muay Thai training (“existence” was the first-ranked, “relatedness” was the third-ranked, and “sports characteristics” was the fourth-ranked reason males gave for Muay Thai training in Thailand) (p. 128). Similarly, work by Sudas [76] that investigated the motivations that people had for Muay Thai training ( $n = 14$ ) found that achievement was the most important reason provided, followed by (in descending order) skill mastery, competition, social facilitation, self-esteem, affiliation, self-actualization and stress release (tie), fun and value development (tie), risk taking, physical fitness, and lastly, aggression (p. 24). Given that existing empirical research on Muay Thai training has shown that it can contribute to decreased body fat mass and increased total muscle mass [74], increased cardiorespiratory fitness [73], improved self-defense skills [41], and a greater sense of accomplishment [50,58,73,74,76], there is some empirical evidence suggesting that Muay Thai training can contribute to accomplishment, which is an important element of overall psychological well-being.

Finally, in the first empirical study in psychology that focused on investigating how Muay Thai training influences the five elements of psychological well-being in professional Muay Thai fighters, Croom [77] had professional Muay Thai fighters ( $n = 14$ , males = 10, females = 4; mean age =  $30.86 \pm 7.34$ ; pro fights =  $27.29 \pm 28.23$ , CI 10.99–43.58) complete a psychological well-being questionnaire and found that shadowboxing—one of the essential components of Muay Thai training—significantly contributed to all five elements of their psychological well-being (Figure 1). A comparison of composite scores further revealed that shadowboxing contributed to the elements of psychological well-being in the following rank-order in professional Muay Thai fighters: (1) engagement ( $13.36 \pm 1.65$ , CI 12.41–14.31), (2) positive emotions ( $13.18 \pm 1.20$ , CI 12.48–13.87), (3) accomplishment ( $13.00 \pm 2.00$ , CI 11.85–14.15), (4) meaning ( $11.86 \pm 2.03$ , CI 10.68–13.03), and (5) relationships ( $11.54 \pm 2.36$ , CI 10.17–12.90). In other words, the results of empirical research by Croom [77] demonstrated that Muay Thai shadowboxing significantly contributes to all elements of psychological well-being in professional Muay Thai fighters, and further, that Muay Thai shadowboxing contributes most strongly to their engagement or flow experience (1st), followed by positive emotions (2nd), accomplishment (3rd), meaning or purpose in life (4th), and finally, social relationships (5th) (the questionnaire developed by Croom [77] was based on standard questionnaires and scoring methods in the field of psychological well-being, specifically, the Oxford Happiness Inventory and the Oxford Happiness Questionnaire [78–85], but was modified to specifically focus on martial arts training; see Croom [77] for further details and additional results). The results reported in Croom [77] are for professional Muay Thai fighters, so future research should investigate the influence of shadowboxing on beginner and intermediate Nak Muays as well as practitioners of other martial art disciplines.



**Figure 1.** This figure provides a bar plot with 95% confidence intervals (CIs) for overall PERMA scores for professional Muay Thai fighters ( $n = 14$ ). For each element of psychological well-being, the lowest possible composite score is 2 representing that professional Muay Thai fighters strongly agree that shadowboxing negatively impacts that element of psychological well-being, whereas the highest possible composite score is 14 representing that professional Muay Thai fighters strongly agree that shadowboxing positively impacts that element of psychological well-being. A composite score of 8 (dotted line) reflects a neutral position on whether shadowboxing contributes positively or negatively to that element. Results of this study by Croom [77] show that professional Muay Thai fighters strongly agree that shadowboxing positively contributes to all five component elements of psychological well-being. Statistics were calculated using IBM SPSS Statistics software.

### 3. Perspectives from an Everlast Master Instructor

We have now reviewed the literature on psychological well-being and found ample empirical evidence confirming that positive emotions [33–39], engagement [36,44–48], relationships [51–56], meaning [36,60–65], and accomplishment [67–72] are important elements that contribute to overall psychological well-being [16]. We have also reviewed recent research on Muay Thai training and found a growing body of empirical work suggesting that Muay Thai training can contribute to positive emotions [40–43], engagement [49,50], relationships [41,50,57–59], meaning [42,49,66], and accomplishment [41,50,58,73,74,76]. Our review of the literature on psychological well-being and Muay Thai training therefore supports the main hypothesis in this article that Muay Thai training can contribute to overall psychological well-being by contributing to the individual elements that constitute overall psychological well-being [16]. This is an important contribution to the literature on martial arts since existing research has not yet positioned the potential psychological benefits of martial arts training within the context of an empirically adequate theoretical model of psychological well-being. Since previous work has also not demonstrated that Muay Thai is a martial art that can contribute to all component elements of psychological

well-being, this article further contributes to the literature in martial arts by showing that practicing this specific martial art is capable of improving all five elements of psychological well-being from the PERMA framework. This is not to deny that other martial arts are also capable of improving all five elements of psychological well-being, and in fact, in other work I have argued that other martial arts can contribute to psychological well-being [17]. However, it is important to be specific in our research in the martial arts, since general claims of the form “the martial arts improve physical fitness” and “the martial arts improve psychological well-being” fail to provide us with important information about the martial arts, given the important fact that distinct martial arts can provide distinct physical and psychological benefits to practitioners. For example, Tai Chi and Muay Thai are clearly distinct and very different forms of martial arts, which may offer very different physical and psychological benefits to their respective practitioners. Accordingly, in order to investigate the extent to which distinct martial arts contribute distinct physical and psychological benefits to practitioners, we must investigate specific martial arts and not merely theorize about the martial arts in a general way. In fact, by doing careful research on specific martial arts, we will become better positioned to subsequently draw theoretical generalizations that are grounded in specific findings from empirical research.

Now that we have reviewed empirical research that supports the hypothesis that Muay Thai training can contribute to overall psychological well-being by contributing to the components elements of psychological well-being, here I would like to further discuss the psychological benefits of boxing and Muay Thai training from my personal experience as an Everlast Master Instructor. Before completing my Ph.D. and joining the cognitive science faculty at the University of California, I taught Real Deal Boxing at Equinox South Bay and the Striking Specialist Level 1 Course for Everlast Worldwide. I have been training in martial arts for over 30 years, focusing especially on the striking arts (Karate and Kung Fu as a child, boxing, kickboxing, and Muay Thai as an adult), and I believe that my martial arts training has significantly contributed to my overall physical health, psychological well-being, and academic success. There are many reasons for practicing martial arts and the reasons that an individual has for practicing martial arts can change over time. One major reason for practicing martial arts is for the purpose of mastering self-defense and other combat techniques, whereas another major reason for practicing martial arts is for the purpose of improving overall health and fitness. However, both reasons are incredibly important for the martial artist and are in fact complementary rather than mutually exclusive reasons for practicing martial arts.

First, mastering combat techniques is central to martial arts training since a martial art like Muay Thai is a striking *system* that is characterized in terms of the combat techniques that are utilized in that system. For example, Muay Thai is distinct from kickboxing in that the Muay Thai striking system includes elbow strikes whereas the kickboxing striking system does not. If an individual is simply swinging their arms and legs around in a random and unsystematic way, this does not yet constitute practicing a *martial art* since each martial art consists of a *system of movement patterns and techniques*. Just as producing a single isolated and unsystematic sound does not constitute speaking a natural language (English, Spanish, etc.), it is similarly the case that producing a single isolated and unsystematic movement with the body does not constitute practicing a martial art (Muay Thai, Karate, etc.). Natural languages and martial arts are *systems* of interrelated technical components, and an individual cannot be said to be “speaking English” or “practicing Muay Thai” unless they are working within these specific systems in the appropriate ways. Clearly, one must practice real English words in order to master English, and one must practice real techniques from Muay Thai in order to master Muay Thai. Even if you speak English and practice Muay Thai for fun and personal enrichment, and have no interest in becoming a professional debater or Nak Muay, it is nonetheless crucially important to understand and practice the actual component parts that make English and Muay Thai what they uniquely are: distinct linguistic and martial art systems among other distinct linguistic and martial art systems.

Second, improving health and fitness is also central to martial arts training in order to develop the physical capacities to *execute* a system of movement patterns and techniques effectively. For example, an individual clearly cannot practice a Muay Thai *flying knee* if that individual does not have the energy, strength, mobility, and coordination to physically execute this maneuver. This component of training is often neglected in scholarly discussion of the martial arts, but it is nonetheless of great importance to the practicing martial artist. As Bruce Lee [86] discussed in *Bruce Lee's Fighting Method*: "One of the most neglected elements of martial artists is the physical workout. Too much time is spent on developing skill in techniques and not enough in physical participation. Practicing your skill in fighting is important, but so is maintaining your overall physical condition. Actually, both are needed to be successful in a real fight" (p. 8). Since a martial art like Muay Thai is a system of movement patterns and techniques, and since executing this system of movement patterns and techniques requires a body of sufficient physical fitness, the proper goal of the practicing martial artist is at least twofold: "developing skill in techniques" and "maintaining your overall physical condition" (p. 8).

Consider two common forms of martial arts training that are aimed at developing technical skill and overall physical conditioning: shadowboxing and mitt work. Shadowboxing is the practice of rehearsing and refining martial arts techniques and mentally simulating training or combat-relevant scenarios in order to develop technical mastery and physical capacity. For example, a Muay Thai practitioner may use a shadowboxing session to practice their jab-cross-hook-roundhouse-kick combination, both aiming to improve the mechanics with which this complex movement pattern is executed as well as their energetic ability to execute this complex movement pattern successfully. Given the large number of individual strikes and common combinations available in the "Art of Eight Limbs", shadowboxing sessions provide the Muay Thai practitioner with a mentally and physically engaging activity with potentially limitless aspects of this art to work on. Given that shadowboxing requires no equipment or partners, it is an extremely convenient form of martial arts training that can be done almost anywhere and at any time.

Mitt work or pad work is another form of martial arts training that is aimed at developing technical skill and overall physical conditioning. Mitt work involves the practice of executing strikes and combinations into the mitts or pads of your coach or partner. Sometimes your coach or partner will verbally call out strikes for you to perform, such as "jab-cross" or "1-2". Other times your coach or partner will hold the pads in a particular configuration that *solicits* or *affords* a particular strike, without providing an accompanying verbal call. For example, when your coach quickly turns the two focus mitts towards you at chin height, this is your signal that they are ready to receive your "jab-cross" or "1-2". Similarly, your coach may throw a leg kick while appropriately preparing the pads so that you see their incoming kick as *affording an opportunity to check-and-return-with-a-kick* (blocking a kick then immediately returning with a kick, a common technique to practice with partners in Muay Thai). The psychologist James Gibson [87,88] used the concept of an *affordance* to clarify the important point that humans do not engage in a form of "abstract perception" of objects that is detached from their relation to the human perceiver (e.g., seeing an approaching leg as a purely geometrical object moving through physical space), but rather, humans engage in a form of "affordance perception" of objects that is situated in relation to the human perceiver (e.g., seeing an approaching leg *as an attack to evade or counter*).

As Gibson [88] writes in *The Ecological Approach to Visual Perception*, "To perceive a cliff is to detect a layout but, more than that, it is to detect an *affordance*, a negative affordance for locomotion, a place where the surface of support ends [ . . . ] What animals need to perceive is not layout as such but the affordances of the layout [ . . . ] This is not abstract depth perception but affordance perception" (pp. 157–158, 168). Gibson [88] further writes about our perception of objects that "The shapes and sizes of objects, in fact, are perceived in *relation* to the hands, as graspable or not graspable, in terms of their affordances for manipulation. Infant primates learn to see objects and their hands in conjunction. The

perception is constrained by manipulation, and the manipulation is constrained by perception" (p. 224). In other words, we do not perceive an "apple" as a purely three-dimensional object with certain geometric properties, but rather, we perceive an "apple" as something that *solicits* or *affords graspability* in relation to the action possibilities of our hands. Importantly, Gibson [88] further extends this point about affordances to the human perception of the social world: "different objects of the environment have different affordances for manipulation. The other animals afford, above all, a rich and complex set of interactions, sexual, predatory, nurturing, fighting, playing, cooperating, and communicating. What other persons afford, comprises the whole realm of social significance for human beings" (p. 128). Finally, Gibson [88] explains that "The theory of affordances implies that to see things is to see how to get about among them and what to do or not do with them. If this is true, visual perception serves behavior, and behavior is controlled by perception" (p. 223). Gibson's [87,88] notion of affordance perception is highly relevant to our discussion of martial arts training here since I argue that part of what martial artists are doing when they engage in martial arts training is *cultivating combat-relevant affordances*, for example, learning or fine-tuning their ability to see an incoming kick as *affording an opportunity to check-and-return-with-a-kick*. Although one can practice striking and defensive maneuvers while shadowboxing individually, my point here is that working interactively with a coach is also crucially important for developing appropriate techniques, relevant reaction times, and combat-relevant affordances (see Figure 2).

We now see that shadowboxing and mitt work are two forms of martial arts training that provide at least two clear paths for developing positive emotions. First, since there is always a technical component to martial arts training, one can develop positive emotions from developing improved mastery in a martial art discipline. If you compare your first Muay Thai session to your 100th Muay Thai session, you will likely feel great about the technical improvements that you have made. Second, since there is always a physical fitness component to martial arts training, one can also develop positive emotions from achieving physical fitness goals. Muay Thai has become increasingly popular around the world since it is fun and incredibly effective for improving physical fitness. Meeting friends at the park or coaches at the gym for mitt work is easily one of my favorite activities and an excellent way to add a serving of positive emotions to the day.

Muay Thai training can also contribute to engagement or flow experience. Whether shadowboxing alone or engaging in focused mitt work with a partner (Figure 3), it is easy to become completely absorbed in these activities. Muay Thai or the "Art of Eight Limbs" is a technical system of complex movement patterns that requires focused attention and sufficient practice to achieve flow, but similar to other athletes that have developed highly refined technical motor skills, shadowboxing and mitt work can give Muay Thai practitioners opportunities to utilize their highly practiced skills as a conduit for producing positive emotions and inducing flow experiences. Since I have experienced flow while shadowboxing individually as well as while engaging in mitt work interactively with coaches, I want to point out that both *individual flow* and *socially coordinated flow* are possible. Different forms of martial arts training may contribute to different forms of flow experience, so it is useful to distinguish between individual and social flow here. Whereas shadowboxing may contribute more to individual flow experiences, interactive mitt work may contribute more to social flow experiences. One of the great benefits of gaining skill in a technical craft like Muay Thai is that the skill becomes a conduit for flow experience (E), an important component of psychological well-being. Developing social flow with others may also contribute to social relationships (R), another important component of psychological well-being.



**Figure 2.** Muay Thai training helps to improve relevant perception and action and can contribute to the cultivation of combat-relevant affordances. Muay Thai training can also contribute to positive emotions, an important component of psychological well-being. Training is fun and produces immediate enjoyment and excitement while training. Training also provides a more long-lasting positive emotion as one pursues lifelong excellence in a highly technical craft. This image demonstrates an orthodox cross (**top**) and orthodox lead hook (**bottom**). Thanks to UFC Coach Bob Perez and Houston Muay Thai in Houston, Texas, for the excellent training.

Muay Thai can therefore contribute to positive social relationships in several ways. First, in order to begin learning a martial art like Muay Thai, one must find a coach or join a martial arts gym, so this necessarily involves meeting new people and initiating new social relationships. For example, when I started training at Boxing Works in California, I met Coach Bryan Popejoy and other professional fighters and students that regularly train together at Boxing Works. One thing that I liked about training at Boxing Works, even though I worked at Equinox South Bay, was that Boxing Works was not just a general

fitness club with random members but was a more cohesive group united by a common purpose, values, and culture. So, one of the great things about becoming a martial artist is meeting others that share common goals and values and that will support you in your personal endeavors. Muay Thai training, as an interactive social activity, brings together individuals from different backgrounds, professions, and socioeconomic statuses and unites them under the common goals of improving fitness and developing mastery in martial arts skill. As partners continue training together over time and continue to experience positive emotions and flow experiences with each other, they continue to forge a special social bond that can potentially last a lifetime (Figure 4).



**Figure 3.** Muay Thai can contribute to engagement or flow experience. Whether shadowboxing alone or engaging in focused work with a partner, it is easy to become completely absorbed in the activity. One of the greatest benefits of gaining skill in a technical craft like martial arts is that the skill becomes a conduit for flow experience, an important component of psychological well-being. Developing *social flow* with others may also contribute to social relationships, another important component of psychological well-being. For video demonstrations of shadowboxing and interactive mitt work, please see the martial arts playlists on my YouTube channel: <https://www.youtube.com/c/DrAdamMCroom> (accessed on 25 April 2022).





**Figure 4.** Muay Thai training can contribute to social relationships. Individuals across cultures, professions, religions, political affiliations, and socioeconomic statuses are united by the common goals of improving fitness and developing mastery in martial arts skill. Photo with Kru Bryan Popejoy and the Boxing Works familia in Redondo Beach, California.

Furthermore, Muay Thai can contribute to meaning or purpose in life. As Seligman [16] explains, “having meaning in life” consists of “belonging to and serving something you believed was bigger than you were” (p. 233) and martial arts training certainly provides opportunities to serve something you believe is bigger than yourself. For example, as a Muay Thai student at a gym like Boxing Works, individuals are not simply there for their own sake but are also there for the sake of others. In class you will not only practice executing your own punches and kicks, but also hold pads for others that are practicing their punches and kicks. When practicing Muay Thai at a gym like Boxing Works, your commitment to show up for yourself is inextricably intertwined with your commitment to show up for others. As you support other martial artists working towards their own goals and you play this role of supportive partner for your fellow martial artists, you benefit as well by belonging to and serving something that you believe is bigger than yourself [16]. Some of the martial artists at Boxing Works are champions with hundreds of thousands of fans, and children look up to them as role models and mentors. As a fellow training partner and friend, each martial artist can play an important role in the lives of others in their community and find meaning and purpose in life through this. One of the best parts about working as a professional martial arts instructor in California was being able to earn a living serving an important role in the lives of the people that I care about, since coaching can be rewarding in the meaning that it confers through service to others (Figure 5).



**Figure 5.** Muay Thai can contribute to meaning or purpose in life. An important part of martial arts training is serving as a supportive training partner for others. The photo on the right is from a social media ad posted by Box N Burn in Santa Monica, California.

Finally, Muay Thai can contribute to personal accomplishments. The martial arts provide many opportunities for accomplishment as a student, partner, or competitor, since most martial arts utilize a ranking system or have professionally sanctioned competitions where martial artists can compete for rank and championship titles. Some Muay Thai schools also utilize an armband ranking system, where each rank represents a higher level of Muay Thai mastery, so that students can devote themselves to productively progressing through the armband ranks (Thai Boxing Association). This may be especially useful for children since it provides clear and specific goals to work toward (basic goals for white armband students) as well as a low-stakes way to experience accomplishment (being promoted from white to yellow armband). However, most modern Muay Thai gyms focus less on ranking systems and more on the craft for its own sake or for the sake of winning championship titles, such as a WBC MuayThai, One Championship, Lion Fight, or Glory title. Boxing Works, for example, is filled with championship titles representing the accomplishments of their students and coaches. This is all very motivating and encourages students from all walks of life that they, too, can achieve their goals if they are willing to train, learn, and develop themselves in this form of life. Importantly, one does not even need to be a competitor, professional fighter, or win a championship title to experience accomplishment in martial arts, since there are many ways to experience success in this community. For example, you may serve as an essential training partner or coach for a friend that is about to participate in their first professional bout, and you may experience accomplishment in helping your friend achieve their first victory. Muay Thai can also be used to accomplish health and fitness goals [75], and using Muay Thai to achieve your own fitness goals or to help others achieve their fitness goals can contribute to a genuine sense of accomplishment. Further, by gaining mastery in Muay Thai, you also thereby gain greater mastery over your own body, which is an important kinesthetic accomplishment. And personally, as a lifelong practitioner of martial arts, being selected to serve as the first Master Instructor to teach Everlast's Striking Specialist Level 1 course in Southern California contributed both to my sense of meaning or purpose in life ("I am responsible for successfully delivering the first striking specialist course in California for Everlast") as well as to my sense of accomplishment ("How excellent that I was able to successfully deliver the first striking specialist course in California for Everlast!") (Figure 6). Finally,

earning a living as a martial arts instructor in California also contributed to my greatest accomplishment, since it helped me pay my way through graduate school and accomplish my goal of earning my Ph.D. and joining the cognitive science faculty at the University of California.



**Figure 6.** Muay Thai can contribute to personal accomplishments. The martial arts provide many opportunities for accomplishment as a student, partner, or competitor. There are many professional competitions that individuals can participate in to become amateur, professional, and master champions (UFC, One Championship, WBC MuayThai, Lion Fight). There are also many other opportunities within the martial arts community to experience accomplishment, for example, by becoming a boxing coach or Master Instructor for a martial arts company or gym. Martial artists also experience more immediate forms of accomplishment by completing challenging training sessions and developing kinesthetic mastery over their own body. Since I have been practicing martial arts for over 30 years, being given the opportunity to teach the first Everlast Striking Specialist Level 1 course in my hometown of Redondo Beach, California, also gave me a great sense of accomplishment. The top photo shows the Everlast Master Instructor team at City Boxing Club in Las Vegas, Nevada. The bottom photo shows the assigned coaching gear for Everlast Master Instructors.

#### 4. Discussion

At this point it should now be clear that most critics of martial arts are theorists that speculate from a position unsupported by experience or empirical data. Further, their discussion about martial arts is centered on artificially contrived cases based on negative stereotypes about martial artists that do not reflect their actual behaviors and cognitive states. For example, Russell [9] claims that in martial arts “athletes win *by* harming their opponents [ . . . ] it is *how* one wins” (p. 32) and Dixon [11] further claims that “its explicit goal is to hurt and incapacitate opponents” (p. 365). However, the simple fact of the matter is that martial artists compete in highly regulated sports where judges do not score fights based on pain but rather based on rules [89–92]. This is how fights can be won in video games where participants do not experience pain at all, but win or lose based on points or rules of the game.

Consider also the philosophical case of a *zombie fighter* that has no phenomenal experience of pain whatsoever. A zombie fighter without the subjective experience of pain can still win or lose a fight in Muay Thai or MMA, since winning and losing are not based on pain but rather based on rules of the professional sport. For example, the zombie can lose their fight by scoring fewer points than their opponent, resulting in the zombie’s loss by decision regardless of its phenomenology. It is clearly false to claim that “athletes win *by* harming their opponents” just as it is false to claim that “philosophers win *by* harming their interlocutors”. It may very well be the case that physical harm leads to one’s opponent giving up a fight in martial arts, just as it may very well be the case that psychological harm leads to one’s interlocutor giving up an argument in philosophy. Nonetheless, causing pain in others is not *necessary* or *essential* to the practice of martial arts or the practice of philosophy.

Furthermore, the claims of critical philosophers contradict the actual behaviors of martial artists displayed to millions of fans during martial arts competitions. For example, if Russell [9] and Dixon [11] were right that the explicit and sole objective of a martial artist is to inflict pain on others, then an expert martial artist should never aim to *minimize the pain of an opponent* during a championship competition. However, professional martial artists often purposely avoid inflicting more harm than is necessary to win a bout, even during championship events where their record and millions of dollars are on the line. For example, at UFC 254, Khabib Nurmagomedov had Justin Gaethje in an armbar and could have easily ended the fight there by breaking Justin’s arm. However, since Khabib knew that Justin’s parents were in attendance watching the fight, and Khabib remembered Justin stating in an interview that he would never tap out under any circumstances, Khabib switched holds on Justin mid-fight in order to avoid breaking Justin’s arm right in front of his parents. Khabib therefore switched from the armbar to a triangle choke instead, which simply caused Justin to pass out instead of breaking his arm. Jones [93] describes the event nicely in an article for *The Sun*:

Khabib—who lost his dad to Covid-19 this summer—could have won [at UFC 254] even earlier, when he had his rival in a trademark armbar, had Gaethje’s family not been in attendance. According to former heavyweight champion Daniel Cormier, Khabib feared he would end up breaking his opponent’s arm, after hearing Gaethje’s pre-fight claims that he would never tap out. So the Russian [Khabib] chose to use the triangle method instead, choking his opponent unconscious to take his record to 29–0.

As Khabib explained in a post-fight interview, “I didn’t want to hurt him [Justin] in front of his parents so I went to the triangle [choke]—if he goes to sleep, he goes to sleep, you wake up and you’re fine” quoted in [93]. Khabib clearly accomplished his goal at UFC 254 by defeating Justin Gaethje in the second round, improving his perfect record to 29–0, and cementing his status as one of the greatest mixed martial artists of all time. However, Khabib *accomplished his goal as a martial artist while intentionally aiming to minimize the pain or harm of his opponent*. As Khabib clearly demonstrates, the principal goal of the

martial artist is to win based on the rules of the sport [92], not to cause pain or harm in others. Philosophers such as Russell [9] and Dixon [11] who maintain that the very purpose of martial arts is to harm others hold an implausible position since they are unable to account for many actual instances of true sportsmanship in professional martial arts, such as that demonstrated by Khabib Nurmagomedov at UFC 254. Furthermore, martial artists often embrace and congratulate each other post fight, forming life-long friendships and business collaborations through this process (for example, Khabib donated \$100,000 to the charity of another fighter he defeated, Dustin Poirier, and offered him a place in the new promotion he created called Eagle FC) [94,95]. Importantly, for a martial artist, an opponent for a particular event is not necessarily an enemy and can very often become a great ally in the broader context of life.

As I have argued throughout this article, practicing a martial art can provide an opportunity for many individuals to experience improved physical health as well as improved psychological well-being. Recently, other scholars of martial arts have also argued that martial arts and combat sports can be useful for taking care of the self and cultivating health [96]. By improving our research methods on the study of martial artists—relying less on negative stereotypes about martial artists from pop culture and relying more on empirical facts about martial artists derived from expert experience and systematic experiments—cognitive science and philosophy have much room for growth in this area of research, especially as martial arts concerns flow experience, mental simulation, positive psychology, expertise development, and embodied cognition. As I have presented the case here, by further studying the minds of martial artists, we may gain fresh new insights in philosophy (for example, about mental simulation during shadowboxing and the experience of social flow during coordinated mitt work) and help to remove negative ungrounded stereotypes about martial artists, contributing both to progress in philosophy as well as social equality in our society.

## 5. Conclusions

Some scholars such as Russell [9] and Dixon [11] have argued that martial arts training is maladaptive, contributes to psychological illness, and provides a social harm, whereas other scholars such as Croom [17] and Allen [1] have argued that martial arts training is adaptive, contributes to psychological wellness, and provides a social benefit. This debate is important not only to scholars but also to the general public since beliefs about martial arts training can have a real impact on how we evaluate martial artists for job opportunities and career advancement, and in general, how we treat martial artists from different cultures in our communities. This debate is also important for children and adults that have considered enrolling in martial arts training programs but remain uncertain about the potential benefits of martial arts training due to the lack of scientific research in this area. The purpose of this article was therefore to make several important contributions to the literature on martial arts and psychological well-being. First, this article provided a review of the PERMA framework for psychological well-being from positive psychology that characterizes psychological well-being in terms of five elements including positive emotions, engagement, relationships, meaning, and accomplishment. Second, this article provided a review of the relevant empirical literature on Muay Thai training from the fields of social psychology, sociology, education, and health and exercise science. Third, this article argued that the results of the literature review on Muay Thai training support the hypothesis that Muay Thai training can positively contribute to all five elements of psychological well-being. Fourth, this article provided supporting discussion on Muay Thai and psychological well-being from the perspective of an Everlast Master Instructor. Fifth, this article introduced the concept of *affordance perception* to the martial arts literature and discussed how martial arts training leads to the cultivation of combat-relevant affordances. Finally, this article argued that most critics have offered uncharitable views about the martial arts because they fail to understand the rules and regulations of these professional sports as well as the actual conduct of real martial artists. This leaves philosophers such

as Russell [9] and Dixon [11] in an explanatorily weak position, where their account of martial arts is not only disconnected from, but in direct conflict with, the rule systems of specific martial arts. For example, Russell [9,10] discusses the practice of “eye gouging” and “fish-hooking” in martial arts, although these are completely illegal in professional martial arts events [97]. Further, the critical account of martial arts presented by Russell [9] and Dixon [11] fails to explain the many cases of true sportsmanship that we see in the martial arts, such as the example of Khabib Nurmagomedov at UFC 254 [92].

Contrary to critics, I have presented the case in this article that empirical evidence supports the hypothesis that Muay Thai training in particular, and martial arts training more generally, may in fact contribute to overall psychological well-being. As I have presented the case here, the art of eight limbs can contribute to overall psychological well-being by contributing to the five elements that constitute psychological well-being, including positive emotions, engagement or flow experience, social relationships, meaning or purpose in life, and accomplishment.

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