

Chapter 14

On the Passion Scale

Theory, Research, and Psychometric Properties

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Over the past 20 years or so, research in positive psychology has experienced tremendous growth worldwide. One area in positive psychology that has generated a lot of attention is the field of passion – and for good reason, as passion is thought to promote positive outcomes. For instance, the famous rock singer John Bon Jovi stated that “Nothing is as important as passion. No matter what you do with your life, be passionate.” However, contrary to the opinions of popular figures like Bon Jovi, our work has found that not all passions are equal, and that the type of passion one has for a given activity can lead to either optimal or suboptimal outcomes (Vallerand, 2010, 2015; Vallerand & Houlfort, 2019).

One major instrument that has been used in passion research for over 15 years is the Passion Scale (Marsh et al., 2013; Vallerand et al., 2003). This scale was developed to allow us to conduct the first series of studies testing the role of passion in optimal and suboptimal outcomes based on the dualistic model of passion (DMP; Vallerand et al., 2003) and was later used in well over 200 studies conducted worldwide by several scientists. This chapter reviews the evidence on the psychometric properties of the Passion Scale, including its factorial validity, invariance, reliability, and construct validity. We begin our discussion of the Passion Scale with an overview of the passion construct, including the DMP that serves as the basis for this scale.

On the Psychology of Passion

Dualistic Model of Passion

Vallerand et al. first postulated the DMP in 2003. It posits that, throughout life, people engage in various activities in hopes of experiencing self-growth and, in line with self-determination theory (Ryan & Deci, 2017), the basic psychological needs of autonomy (to feel a sense of personal initiative), competence (to interact effectively with the environment), and relatedness (to feel connected to significant others). With time and experience, most people eventually display preferences for a select few activities, especially

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when these activities are enjoyable, allow for the satisfaction of the aforementioned basic psychological needs, and have become part of one's identity. After a regular engagement in these activities, people become passionate about them. In line with the above, passion is thus defined as a strong inclination toward a self-defining activity that one loves, finds important, and in which one invests time and energy (Vallerand et al., 2003).

The DMP further posits the existence of two types of passion, harmonious and obsessive passion, which differ based on how they are internalized into one's identity. In line with self-determination theory, the DMP suggests that the activities people love and engage in regularly eventually become internalized into their identities, especially when they are highly valued and meaningful. Such internalization takes place through either a controlled or an autonomous process (see Deci et al., 1994; Vallerand, 1997, 2001, 2007; Vallerand et al., 1997). Harmonious passion (HP) results from an autonomous internalization of the beloved activity into the person's identity and self, which occurs when individuals have freely accepted the activity as important for themselves without any contingencies attached to it. This type of internalization emanates from the intrinsic and integrative tendencies of the self (Ryan & Deci, 2003); it produces a motivational force to willingly engage in the activity that one loves and engenders a sense of volition and personal endorsement about pursuing that activity. When HP is at play, the activity occupies a significant but not overpowering space in the person's identity and harmonizes with other aspects of the person's life, thereby allowing them to fully partake in the passionate activity in a mindful (St-Louis et al., 2018), nondefensive, and open way (Hodgins & Knee, 2002) that is conducive to flexible persistence (Vallerand, Chichekian, et al., 2022) and positive experiences.

For instance, if a university professor has an HP for playing basketball, they should be able to resist playing basketball with their friends to complete an unfinished research grant due tomorrow. Thus, they could readily tell their friends that they'll take a rain-check on the basketball game and proceeds to be fully immersed in the grant without thinking about the missed opportunity to play basketball. People with HP can choose not to play on a given day if needed or even to eventually terminate the relationship with the activity if they decide that it has become a permanent negative factor in their life.

Conversely, obsessive passion (OP) results from a controlled internalization of the activity one loves into one's identity. A controlled internalization originates from intra- and/or interpersonal pressure typically because certain contingencies are attached to the beloved activity such as feelings of social acceptance or self-esteem (Mageau et al., 2011), or because the sense of excitement derived from activity engagement is uncontrollable. Consequently, they risk experiencing conflict and other negative affective, cognitive, and behavioral consequences during and after activity engagement (Vallerand, 2015). For instance, if the university professor in the preceding example has an OP for playing basketball, they might not be able to resist an invitation to play with their friends. During the basketball scrimmage, they might feel upset with themselves for playing ball instead of working on the grant, have difficulties focusing on the task at hand (playing basketball), may not experience much positive affect and flow while playing, and may even experience guilt and anxiety as they should be doing something else instead (i.e., working on her research grant). It is thus proposed that individuals with OP display a rigid persistence toward the activity that they love (Vallerand, Chichekian, et al., 2022), as oftentimes they can't help but engage in it and may become dependent on the activity. Thus, people with OP should experience conflict between the passion-

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ate activity and other life activities, negative affect while doing the activity, and less adaptive outcomes than with HP.

The Passion Scale – Beginnings and Improvements

To assess the two types of passion, Vallerand et al. (2003, Study 1) developed the Passion Scale, which includes items assessing HP, OP as well as some criterion items used to examine whether or not people are passionate about a given activity. In this, the first contemporary study on passion, Vallerand et al. recruited 539 college students to complete a questionnaire including scales that measured passion. The students were first asked to think of an activity “that was very dear to their heart.” After listing such an activity, participants were asked to complete 34 items about that activity on a 7-point Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). The authors created these items to reflect the descriptions of the two types of passion. For instance, items assessing HP involved feeling control over the activity a person loves and the activity remaining in harmony with other activities in the person’s life, whereas OP items involved “feelings of obsession” for the activity that the person loves (see Box 14.1 for scale items).

Box 14.1. The Passion Scale

Please name an activity that you love, highly value, and regularly spend time on, and respond to the various items while referring yourself to this activity.

Harmonious and Obsessive Passion

1. This activity is in harmony with the other activities in my life.
2. I have difficulties controlling my urge to do my activity.
3. The new things that I discover with this activity allow me to appreciate it even more.
4. I have almost an obsessive feeling for this activity.
5. This activity reflects the qualities I like about myself.
6. This activity allows me to live a variety of experiences.
7. This activity is the only thing that really turns me on.
8. My activity is well integrated in my life.
9. If I could, I would only do my activity.
10. My activity is in harmony with other things that are part of me.
11. This activity is so exciting that I sometimes lose control over it.
12. I have the impression that my activity controls me.

Passion Criteria

13. I spend a lot of time doing this activity.
14. I love this activity.
15. This activity is important for me.
16. This activity is a passion for me.
17. This activity is part of who I am.

Note. Key: harmonious passion: # 1, 3, 5, 6, 8, 10; obsessive passion: # 2, 4, 7, 9, 11, 12; passion criteria: # 13, 14, 15, 16, 17. The Passion Scale © Robert J. Vallerand, 2003.

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Factorial Validity

To evaluate the factorial validity of the Passion Scale, Vallerand et al. (2003, Study 1) randomly separated the participants into two groups. Using the first set of participants ($N=284$), they conducted an exploratory factor analysis with the 34 items to create a parsimonious preliminary version of the scale assessing HP and OP. Results of the analysis revealed the presence of two factors with 14 items (7 items for each type of passion) that loaded as expected. Using those 14 items, they conducted a second exploratory factor analysis, the results showing these items adequately reflect the two factors of HP and OP. Using the second group of randomly selected participants ($N=235$), Vallerand et al. conducted a confirmatory factor analysis that provided statistical support for the two-factor model, as indicated by acceptable fit indices. In addition, acceptable levels of reliability were also obtained (i.e., internal consistency, Cronbach's alphas of .79 for HP and $\alpha = .89$ for OP).

Vallerand et al.'s findings (2003, Study 1) provided support for the Passion Scale. Nevertheless, subsequent minor changes were made to the scale to allow for generalizability (i.e., to use the scale for a variety of activities), resulting in 6 items for each subscale (instead of the 7 that were initially found). The refined version of the Passion Scale is very similar to the original (correlation between the original and refined versions above .80; see Vallerand, 2015). This condensed 12-item version is the most often used scale assessing HP and OP (although subscales with fewer items have been used in some studies).

Since the initial study on passion, well over 20 other studies have conducted exploratory/confirmatory factor analysis and/or exploratory structural equation modeling to validate the Passion Scale. These studies took place in a variety of different settings, such as work, education (for both teachers and students), marketing, music, driving, religion, the environment, romantic relationships, sports (from the perspective of athletes, coaches, referees, and fans; see Vallerand & Verner-Filion, 2020, for a review), gambling, outdoor activities, and plenty of other activities (for an overview, see Table 14.1.).

In addition to the HP and OP subscales, the Passion Scale also includes 5 passion criterion items based on the definition of passion which address the different elements of this construct. They are used to assess whether people are truly passionate about a given activity or not (e.g., "This activity is a passion for me"; see items 13–17 in Box 14.1). Because most studies were conducted in life domains about which most people were indeed passionate, this subscale has not been used regularly. However, when studying samples of participants who may not be passionate, researchers should use these items to first identify whether a person is passionate and, then, if they are, proceed to examine the relationships between HP and/or OP and outcomes (see Carbonneau et al., 2008, on this issue with passion for teaching). Furthermore, the passion criteria items can be used to determine whether passion has developed over time (see Mageau et al., 2009, Study 3).

Invariance of the Factor Structure

To further examine the psychometric properties of the Passion Scale, several authors have assessed the degree to which the structure of the measurement model is equivalent (invariant) between different groups of participants on some dimensions (e.g., between females and males). In a first such study, Marsh et al. (2013) used a sample of 3,570 in-

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Table 14.1. Overview of studies validating the Passion Scale

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Anagnostopoulos et al. (2016)	The Passion Scale – adapted to The Passion for Your Job Scale	English	236 employees from the UK football industry	12 1 CP	CFA t-test ANOVA	HP $\alpha = .73$ OP $\alpha = .75$	CFA supported the two-factor model of passion. Better fit was found for 8-item, two-factor model. Employees who worked for football foundations (charitable organizations) had more HP and OP than those who worked for football clubs.
Bonneville-Roussy & Vallerand (2018)	The Passion Scale – adapted to The Passion for Music Scale	English	225 professional/student musicians from the UK	12 5 CP	ESEM Structural Equation Modeling	HP $\alpha = .83$ OP $\alpha = .77$ CP $\alpha = .89$	ESEM supported the two-factor model of passion. HP positively related to well-being ($\beta = .50$), and negatively to musical anxiety ($\beta = -.28$), whereas OP negatively related to well-being ($\beta = -.18$). Musical anxiety negatively related to well-being ($\beta = -.40$).
Burke et al. (2012)	The Passion Scale	French and English	177 breast cancer survivors from Montreal	12 5 CP	CFA Path Analysis	HP $\alpha = .87$ OP $\alpha = .85$	CFA supported the two-factor model of passion. HP positively related to positive affect ($\beta = .24$), and negatively to cancer worry ($\beta = -.19$), whereas OP positively related to negative affect ($\beta = .23$), posttraumatic growth ($\beta = .24$), and cancer worry ($\beta = .21$).
Carbonneau et al. (2008) Longitudinal Study	The Passion for Work Scale – adapted to The Passion for Teaching Scale	French	494 teachers from the Quebec City area	12 4 CP	CFA Cross-lagged Structural Equal Modeling	T1/T2 HP $\alpha = .87/.87$ OP $\alpha = .76/.80$ CP $\alpha = .79/.78$	CFA supported the two-factor model of passion. HP (T1) positively related to positive student behaviors (T2, $\beta = .14$), work satisfaction (T2, $\beta = .22$), and negatively to burnout (T2, $\beta = -.14$), whereas OP (T1) positively related to positive student behaviors (T2, $\beta = -.11$).

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Table 14.1. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Castelda et al. (2007)	The Passion for Gambling Scale translated from French to English	English	147 students from Binghamton University, NY	10	CFA Correlations Partial correlations	HP $\alpha = .89$ OP $\alpha = .90$	CFA supported two-factor model of passion (with some error variances correlated). HP ($r = .39$) and OP ($r = .37$) were positively correlated with pathological gambling (partial correlations: $r = .16, .22$). Partial correlations were not statistically different from one another.
Gousse-Lessard et al. (2013) Study 1	The Passion Scale – adapted to The Passion Toward an Environmental Cause Scale	French	110 volunteers from Quebec engaged in a cause	12 5 CP	CFA Path analysis	HP $\alpha = .81$ OP $\alpha = .85$ CP $\alpha = .74$	CFA supported the two-factor model of passion. HP positively related to the endorsement of mainstream behaviors ($\beta = .35$), whereas OP positively related to the endorsement of both mainstream ($\beta = .25$) and radical behaviors ($\beta = .32$).
Junot et al. (2017)	The Passion Scale – adapted to The Passion for an Outdoor Activity Scale	French	212 residents of and visitors to Reunion Island engaged in outdoor activities	12 5 CP	CFA Path analysis	HP $\alpha = .88$ OP $\alpha = .88$ CP $\alpha = .79$	CFA supported the two-factor model of passion. HP positively related to positive emotions ($\beta = .74$), whereas OP positively related to negative emotions ($\beta = .47$). Positive emotions were subsequently negatively related with an affiliation with nature and environmental behaviors, whereas negative emotions were negatively related. Lastly, an affiliation with nature is positively related to environmental behaviors.

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Table 14.1. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Lafrenière et al. (2011)	The Passion for Work Scale – adapted to The Passion for Coaching Scale	No mention	103 athlete-coach dyads	12	CFA Path analysis	HP $\alpha = .78$ OP $\alpha = .87$	CFA supported the two-factor model of passion. HP for coaching predicted coaches' autonomy support ($\beta = .54$), which positively predicted quality relationships between athletes and coaches that led to athletes' happiness. OP for coaching predicted controlling behaviors ($\beta = .32$).
Lafrenière et al. (2008) Study 2	The Passion Scale – adapted to The Passion for Coaching Scale	French	106 French-Canadian coaches	12	CFA Path analysis	HP $\alpha = .83$ OP $\alpha = .85$	CFA supported the two-factor model of passion. HP, not OP predicted the quality of coach-athlete relationship ($\beta = .58$), mediated by positive emotions. The quality of the coach-athlete relationship subsequently positively predicted subjective well-being.
Lajom et al. (2018)	The Passion for Work Scale – adapted to reflect passion for computer science in sample 4	English	767 participants from the Philippines (four samples)	12	CFA EFA Correlation	Across samples: HP $\alpha = .75$ – .95 OP $\alpha = .82$ – .92	CFA and EFA results showed support for the two-factor model. HP related to more adaptive constructs (learning goals and work engagement), whereas OP related to less adaptive constructs (performance-avoidance goals and workaholism). Also, participants with HP were more likely to feel confident when making career-related decisions and persist in their careers.

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Table 14.1. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Philippe et al. (2009) Study 1	The Passion Scale – adapted to The Passion for Driving Scale	French	113 undergraduate/graduate students from a French-Canadian University	12 4 CP	CFA Correlation Partial correlation	HP $\alpha = .85$ OP $\alpha = .80$	CFA results supported the two-factor model of passion. CP correlated with HP and OP (r s range .49–.76; convergent validity). OP for driving was positively associated with three types of aggression (r s range .21–.33) and HP was not (discriminant validity).
Ratelle et al. (2004)	The Passion for Gambling Scale	French	412 gamblers recruited from the Montreal Casino	10	EFA Partial correlation	HP $\alpha = .79$ OP $\alpha = .91$	EFA results supported the two-factor model of passion. HP negatively correlated with concentration ($r = -.17$), whereas OP positively related to negative consequences associated with gambling dependence and negatively related to positive consequences not associated with gambling dependence.
Ratelle et al. (2013) Study 1	The Passion Scale – adapted to The Passion for Romantic Relationships Scale	French	176 undergraduate students	14	EFA (from Ratelle, 2002) Regression	HP $\alpha = .86$ OP $\alpha = .89$	EFA results supported the two-factor model of passion. HP positively predicted all components of relationship quality, whereas OP positively predicted commitment and love, and negatively predicted trust.
Rip et al. (2012) Study 1	The Passion Scale – adapted to The Passion for Quebec Sovereignty Scale	French	114 Quebec sovereignty activists recruited from Quebec	12 4 CP	CFA Regression	HP $\alpha = .86$ OP $\alpha = .85$ CP $\alpha = .87$	CFA results supported the two-factor model of passion. Individuals with HP were peaceful/democratic about advancing their cause, whereas individuals with OP were radical and aggressive.

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Table 14.1. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Rip et al. (2012) Study 2	The Passion Scale – adapted to The Passion for Islam Scale	French	111 Muslims from Montreal	12 4 CP	CFA Path Analysis	HP $\alpha = .74$ OP $\alpha = .67$ CP $\alpha = .82$	CFA results supported the two-factor model of passion. In identity-threatening situations, individuals with HP engage in peaceful religious activism, whereas individuals with OP engage in religious extremism.
Rousseau et al. (2002) Study 1	The Passion for Gambling Scale	French	312 participants from the Montreal Casino	10	EFA/CFA Partial Correlations	HP $\alpha = .76$ OP $\alpha = .90$	EFA and CFA results supported the two-factor structure of the scale. Partial correlations showed men to report more HP than women ($r = .17$). OP was more strongly associated with negative behaviors related to gambling than HP.
Rousseau et al. (2002) Study 2	The Passion for Gambling Scale	French	28 participants from the Montreal Casino	10	Test-retest correlations	HP $\alpha = .83$, .84 OP $\alpha = .96$, .89 Test-re-test = HP $r = .82$ OP $r = .83$	The test-retest correlations were significant and high, supporting the temporal stability of the GPS.
Salama-Younes (2018) Study 1 *Two samples	The Passion Scale – adapted to The Passion for Running Scale	French	Sample 1: 567 adult runners from Rennes Sample 2: 163/154 participants	12	CFA Test-retest correlations	HP $\alpha = .78$, .77 OP $\alpha = .75$, .73 Test-retest = .29 ($r > .76$, $p < .001$)	CFA results supported the two-factor model of passion.

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Table 14.1. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Schellenberg et al. (2014)	The Passion Scale	English	N = 1,256 from 3 studies: recreational athletes, competitive athletes, sports fans	12	ICM-CFA/ ESEM Invariance		Invariance was found across the three samples.
Skitch and Hodgins (2005)	The Passion for Gambling Scale	English	162 students from the University of Calgary	10	Correlations Test-retest correlations	HP $\alpha = .90$ OP $\alpha = .76$ 4-week test-retest ($r = .82$)	OP was consistently more related to problematic gambling than HP ($r = .55$ vs. $.29$).
Swimberghe et al. (2014) Study 2	The Passion Scales – adapted to The Passion for the Consumer Brand Scale	English	121 US university students	10	CFA	HP $\alpha = .87$ OP $\alpha = .89$	CFA results supported the two-factor model of passion.
Vallerand et al. (2006) Study 1	The Passion Scale – adapted to The Passion Toward Sports Scale	English	206 participants (collegiate recreational sports)	14	CFA Structural Equation Modeling	HP $\alpha = .80$ OP $\alpha = .89$	CFA results supported the two-factor model of passion. Autonomous personality was positively related with HP ($\beta = .43$), whereas controlled personality was positively related with OP ($\beta = .22$).
Vallerand et al. (2008) Study 1	The Passion Scale – adapted to The Passion Toward Your Favorite Team Scale	English	165 UK adults	12	CFA Correlations Regressions	HP $\alpha = .83$ OP $\alpha = .82$	CFA results supported the two-factor model of passion. HP was positively associated with adaptive behaviors (e.g., celebrating), whereas OP was positively associated with negative behaviors (e.g., risking job to go to a game).

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dividuals to assess the invariance of the Passion Scale concerning the language of the scale (English vs. French), sex (female vs. male), and types of activities that participants indicated being passionate about. Note that different types of invariance can be conducted. While Marsh et al. (2013) examined some of these different types of invariance, not all of their results are presented in the present paper. For more information on this issue, refer to Marsh et al. (2013). Similarly, we don't discuss the different types of invariance tested by other authors (e.g., Schellenberg et al., 2014).

The original Passion Scale was created in French but was later translated to English using the double translation/backtranslation technique (Vallerand, 1989). Results showed that the English and French versions of the scales were equivalent and provided strong support for the factor structure of the Passion Scale. Other tests conducted by Marsh et al. supported the invariance of the Passion Scale for sex as well as five types of activities: leisure, sports, social activities, work, and education.

The invariance of the Passion Scale has also been tested in sport/exercise settings (Schellenberg et al., 2014). Using many participants involved with exercise or sports, Schellenberg et al. replicated the factor structure of the Passion Scale and investigated whether there was equivalence across three different samples (recreational athletes/exercisers, competitive athletes, and sports fans). The results showed that there was indeed invariance among these groups. Finally, additional support was also found for invariance on several dimensions of the Passion Scale as translated into a dozen different languages such as Arabic (Salama-Younes & Hashim, 2018), Brazilian Portuguese (Peixoto et al., 2019), Chinese (Zhao et al., 2015), Hungarian (Tóth-Király et al., 2017), Portuguese (Cid et al., 2019), Spanish (Chamarro et al., 2015), and many others. Thus, overall, there is impressive support for the invariance of the Passion scale regarding several dimensions including sex, languages, age, levels of competition (in sports), and types of activities (see Table 14.1 for more information on this issue).

Reliability and Temporal Stability

In Study 1 by Vallerand et al. (2003), each of the two passion subscales demonstrated a relatively high reliability (HP, $\alpha = .79$; OP, $\alpha = .89$). In addition, to the best of our knowledge, *all* published studies using the Passion Scale (well over 200 studies) have shown the scale to be reliable (α above .60). For example, the reliability indices for the papers cited in Table 14.1 are the following: HP range between $\alpha = .70$ –.95 and OP range between $\alpha = .66$ –.99. Finally, it should be underscored that high reliability has been found in both field and laboratory studies (e.g., Bélanger et al., 2013a, 2013b, $\alpha = .70$ –.89), demonstrating that, regardless of the research method, the reliability of the Passion Scale is satisfactory.

We should also note that some studies have examined the temporal stability of the Passion Scale. The DMP would hypothesize some stability to exist without expecting unity because if there is a passion for a given activity, there should be some stability over time, as the passion should remain relatively constant. However, at the same time, the DMP posits that passion can also be influenced by contextual factors. Overall, support was found for the temporal stability of the scale. For instance, Carbonneau et al. (2008) found that passion for teaching was relatively stable over 3 months (e.g., β s ranging from .67–.88); Rousseau et al. (2002, Study 2) found that passion for gambling to be comparatively

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stable for participants who gambled twice over 1 month (test-retest correlation: HP, $r = .82$, OP, $r = .83$); and Ratelle (2002, reported in Vallerand, 2015) found support for temporal stability in participants who reported passion for their romantic relationships (HP = .63; OP = .77). Thus, overall, there is good support for the reliability and temporal stability of the Passion Scale as expected.

Construct Validity of the Passion Scale

Given that the Passion Scale was constructed to empirically test various hypotheses derived from the DMP, to the extent that results support these hypotheses, there is evidence for the construct validity of the scale. In this regard, two types of construct validity have been studied. The first concerns convergent validity, which is established if both HP and OP positively correlate with a variable with which they should be similarly correlated. Most studies have tested this hypothesis using the passion criterion items (e.g., loving the activity, etc.), and given that both HP and OP reflect passion, they should be positively correlated with the passion criteria. The second issue deals with divergent/discriminant validity. The DMP posits that each type of passion is qualitatively different, so that, whereas HP is expected to lead to more adaptive outcomes (e.g., flow), OP is hypothesized to lead to less adaptive consequences and at times even to maladaptive outcomes (e.g., burnout).

Convergent Validity

Two prominent studies assessing the convergent validity of the Passion Scale are those of Marsh et al. (2013) and Vallerand et al. (2003, Study 1). The latter study investigated how the HP and OP subscales correlated with the passion criterion subscale and, using over 500 participants, found convergent validity as both the HP and OP subscales positively correlated with elements of the passion criterion subscale described previously (except for love for the activity, which was not assessed). The other major study (Marsh et al., 2013) looked at correlations between the HP and OP subscales and the criterion items (except for identity inclusion which was not measured). Results with close to 3,000 participants yielded the same findings as the Vallerand et al. (2003, Study 1) study: Both subscales positively correlated with all passion criterion items. In addition, tests of invariance revealed that these correlations were the same as a function of sex, age, language, and types of activities (while some minor distinctions took place in some activities relative to others).

Divergent Validity

As mentioned previously, in line with the DMP, it is hypothesized that HP should lead to more adaptive outcomes than OP. Overwhelming support has been obtained for this major hypothesis from the DMP. For instance, in the initial study (Vallerand et al., 2003, Study 1), HP was more positively correlated with the adaptive outcomes than OP (e.g., positive emotions, concentration), whereas OP was more positively correlated with less adaptive outcomes (conflict, negative emotions, ruminations, etc.) than HP. These find-

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ings were also replicated in the Marsh et al. (2013) study regarding conflict and ruminations. In addition, Marsh et al. also showed HP to be positively – and OP negatively – correlated with life satisfaction.

In addition to the two major studies mentioned above, several studies have focused on the divergent validity of HP and OP using the Passion Scale. A complete review of such literature is beyond the scope of this chapter as it includes more than 200 studies (for major reviews, see Curran et al., 2015; Vallerand, 2010, 2015; Vallerand & Houliort, 2019). However, Table 14.1 provides some examples of such research about a variety of outcomes, such as psychological well-being, physical health, burnout, chronic injuries in dancers and runners, satisfaction in personal and romantic relationships, and contributing to one's community and society at large. Finally, although both HP and OP for a given activity lead to high levels of performance in the passionate activity, the process through which such performance is attained is much more adaptive and involves having a richer and fuller life with HP than with OP (see Vallerand et al., 2007, 2008).

The Cross-Cultural Use of the Passion Scale

As seen above, the psychometric properties of the Passion Scale have been extensively assessed through investigations in several languages. The Passion Scale was found to be invariant for language (French vs. English; Marsh et al., 2013), and since then, it has been translated and validated into at least the following languages: Arabic, Chinese, Greek, Hungarian, Italian, Norwegian, Portuguese, Brazilian Portuguese, Russian, and Spanish.

Considering the number of studies conducted in these various cultures, we can draw some conclusions on the crosscultural validity of the Passion Scale. A first conclusion is an overwhelming support for the two-factor structure of the Passion Scale in the various languages. The 21 studies presented in Table 14.2 used either an EFA or CFA, and all found support for the two-factor structure of the Passion Scale in a variety of languages. Of note, sometimes the Passion Scale was found to be appropriate concerning the same language as used in different countries such as Arabic with Saudi women and Arabic with older adults in Egypt, French in Canada (Quebec) and in France, and Portuguese in Brazil and Portugal.

Second, several researchers have also investigated the invariance of the Passion Scale in different languages and cultures, such as Chamarro et al. (2015), who found the Spanish version of the scale to be invariant across sex, type of activities, and age; Cid et al. (2019), who found the Portuguese version of the scale to be invariant across sex and sports; and Peixoto et al. (2019), who found the Brazilian Portuguese version of the Passion Scale to be invariant across sex and competition levels among athletes. Salama-Younes and Hashim (2018) also found invariance across sex and physical activity types in older adults in Egypt, and Tóth-Király et al. (2017) found invariance across sex and age in adults in Hungary.

Third, *all* versions, irrespective of language, have shown acceptable levels of internal consistency. Specifically, the internal consistency of the HP subscale of studies in Table 14.2 showed a range of $\alpha = .70-.94$, whereas OP yielded a range of $\alpha = .79-.99$. In addition, one study conducted in Arabic looked at the temporal stability of the Passion

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Table 14.2. Overview of studies validating the Passion Scale in different languages or populations

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Abdelati & Salama-Younes (2016) Study 1	The Passion Scale translated to Arabic	Arabic	474 female Saudi undergraduate students from Riyadh	12	CFA	HP $\alpha = .74$ OP $\alpha = .66$ OP after deleting item 10: $\alpha = .72$	CFA demonstrated good fit indices for the 11-item version of the Passion Scale in Arabic (item 10 was deleted).
Abdelati & Salama-Younes (2016) Study 2	The Passion Scale translated to Arabic	Arabic	Female Saudi undergraduate students from Riyadh	11	Correlation	HP $\alpha = .75$ OP $\alpha = .73$ Test-retest subscales/total ($r = 0.59-.68$)	HP and OP positively related to emotional ($r = .63, r = .32$), and psychosocial well-being ($r = .48, r = .34$), as well as overall mental health ($r = .66, r = .34$). Temporal stability for 4–5 weeks apart.
Balon et al. (2013)	The Passion Scale	French	241 Belgian and French participants	12 4 CP	EFA Correlation	HP $\alpha = .74$ OP $\alpha = .83$ CP $\alpha = .70$	EFA supported the two-factor model of passion. HP positively related to conscientiousness ($r = .30$), extraversion ($r = .18$), agreeableness ($r = .23$), and openness ($r = .20$), whereas OP negatively related to agreeableness ($r = -.19$).
Birkeland & Buch (2015) Study 1	The Passion for Work Scale translated to Norwegian	Norwegian	385 participants from Norway	12	CFA/ESEM Correlations	HP $\alpha = .86$ OP $\alpha = .75$	CFA/ESEM were done with HP, OP, work engagement (physical, emotional, and cognitive engagement), and workaholism. Model showed good fit. Results showed support for convergent and divergent validity HP and OP, concerning work engagement and workaholism.

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Table 14.2. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Birkeland & Buch (2015) Study 2 Longitudinal Study	The Passion for Work Scale	Norwegian	223 employees from Norway	12	CFA Correlations Hierarchical Multilevel Modeling	HP $\alpha = .83$ OP $\alpha = .82$	Controlling for work engagement and workaholism, HP was positively related to life satisfaction ($\beta = .19$)/negatively related to burnout ($\beta = -.18$). OP was negatively related to life satisfaction ($\beta = -.27$)/positively related to burnout ($\beta = .29$).
Burke et al. (2015)	The Passion for Work Scale	Russian and Chinese	233 participants from Russia and 193 participants from China	14	CFA Regression	Russia: HP $\alpha = .94$ OP $\alpha = .94$ China HP $\alpha = .88$ OP $\alpha = .89$	CFA showed the eight latent factor model to have a better fit over the seven latent factor model where HP and OP were combined. Russia: HP positively predicted all adaptive job outcomes (e.g., job satisfaction, $\beta = .45$), whereas OP only positively predicted job satisfaction ($\beta = .16$) and occupational commitment ($\beta = .21$). China: HP positively predicted all adaptive job outcomes (e.g., job satisfaction, $\beta = .40$), where OP did not predict anything.
Chamarro et al. (2015)	The Passion Scale translated from English to Spanish	Spanish	1007 participants engaged in a variety of activities	12 4 CP	ESEM Invariance	HP $\alpha = .81$ OP $\alpha = .87$	ESEM results supported the two-factor model of passion. Invariance was supported for sex, type of activity, and age. Overall, pattern of results supported both convergent and divergent validity of the passion scale.

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Table 14.2. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Chen (2014)	The Passion Scale for Sport and Exercise Scale translated from English to Chinese	Chinese	172 boys, 140 girls, and 312 mothers/fathers from southern Taiwan	14	CFA ANOVA MANOVA	HP $\alpha = .91$ OP $\alpha = .93$	CFA results supported the two-factor model of passion. Children with passionate parents in sports and exercise (HP and OP) scored higher on intrinsic interest value, ability/expectancy, task difficulty, and required effort than those with parents who had lower levels of passion.
Cid et al. (2019)	The Passion Scale	Portuguese	1316 Portuguese athletes	14	CFA Invariance	14 item: HP $\alpha = .79$ OP $\alpha = .90$ 8 item (two samples): HP $\alpha = .80/.81$ OP $\alpha = .90/.91$	CFA showed initial model did not fit the data, however, support was obtained for short subscales of 4 items each. 8 item version of the scale was found to be invariant across sexes and sports types.
Goncalves et al. (2014)	The Passion Scale translated from English to Portuguese	Portuguese	551 Portuguese workers	14	EFA (two Samples) Correlations	HP $\alpha = .92$ OP $\alpha = .93$	EFA supported the two-factor model of passion. HP ($r = .50$) and OP ($r = .32$) positively correlated with job satisfaction. When controlling for OP, HP positively related to job satisfaction ($r = .48$).
Orgambidez-Ramos et al. (2014)	Passion for Work Scale translated from English to Spanish	Spanish	423 Spanish workers	14	EFA Correlations	HP $\alpha = .92$ OP $\alpha = .94$	EFA results supported the two-factor model of passion. HP and OP positively correlated with intrinsic job satisfaction ($r = .68, .46$), and extrinsic job satisfaction ($r = .57, .38$).

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Table 14.2. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Parastatidou et al. (2012)	The Passion Scale translated from English to Greek	Greek	516 participants who exercise	14	CFA Correlations	HP $\alpha = .88$ OP $\alpha = .91$	CFA results supported the two-factor model of passion. HP was more related to several exercise variables than OP (e.g., intrinsic motivation), whereas OP was more strongly related with introjected regulation, exercise inclusion in self and total months of exercise than HP.
Peixoto et al. (2019)	The Passion Scale translated from English to Brazilian Portuguese	Brazilian Portuguese	789 Brazilian athletes	12 5 CP	ESEM Invariance Correlations	HP $\alpha = .79$ OP $\alpha = .89$	ESEM supported the two-factor model of passion. Invariance was obtained for sex and competition level. HP and OP were positively related to CP ($r = .67, .55$), time of practice ($r = .19, .16$) and weekly hours dedicated to activity ($r = -.27, .22$).
Ruiz-Alfonso & León (2017)	The Passion Scale – Harmonious passion in the educational contextual text Scale translated to Spanish	Spanish	1157 high-school students from Spain	6 HP	CFA Multilevel Structural Equation Model	McDonald Omega = .95	CFA supported the proposed single factor of HP. Students reported viewing HP and motivation as different constructs. HP positively predicted math achievement, mediated by the motivation to learn. Teachers' emphasis on the usefulness of class content also predicted HP.

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Table 14.2. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Ruiz-Alfonso & León (2019)	The Passion Scale – Harmonious passion in the educational contextual text Scale translated to Spanish	Spanish	1121 high-school students from Spain	6 HP	CFA Multilevel Structural Equation Model	McDonald Omega = .89	CFA supported the proposed single factor of HP. Teaching quality predicted HP, HP predicted deep strategy to learn and episodic curiosity.
Salama-Younes & Hashim (2018) Study 1	The Passion Scale Scale translated to Arabic	Arabic	354 physically active older adults from Egypt	12	CFA Invariance	HP $\alpha = .76$ OP $\alpha = .72$	CFA results supported the two-factor model of passion. Invariance was supported for sex and physical activity.
Serrano-Fernández Boada-Grau et al. (2017)	The Passion Toward Work Scale translated to Spanish	Spanish	513 workers from Spain	14	ESEM Correlations	HP $\alpha = .70$ OP $\alpha = .85$	ESEM showed support for the two-factor model, however, only 9 items were retained (4 for HP, $\alpha = .77$; and 5 for OP, $\alpha = .89$). Validity also confirmed given the pattern of correlations between various variables and HP (e.g., positive relationship with personal efficacy), and HP (e.g., positive relationship with burnout).
Tóth-Király et al. (2017) *Two samples	The Passion Scale Scale translated to Hungarian	Hungarian	7466 adults from Hungary 504 adults who use the computer 1 x/week from Hungary	12	CFA/ESEM Invariance	HP $\alpha = .80$ OP $\alpha = .88$	CFA and ESEM showed support for the two-factor model, however, some error variances were correlated to obtain a better model fit. After combining both samples, invariance was found for sex, and partial invariance was found for age.

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Table 14.2. continued

Authors	Scale used	Language	Population	Number of items	Statistical technique	Reliability	Main findings
Tóth-Király et al. (2019) Study 1	The Passion Scale – adapted to The Passion for Sex Scale	Hungarian	679 adults from Hungary	12	ESEM Latent Profile Analysis	HP $\alpha = .87$ OP $\alpha = .87$	ESEM showed support for the two-factor model. Four distinct sexual motivation profiles were found (highly self-determined, moderately self-determined, moderately non-self-determined, and highly non-self-determined).
Zhao et al. (2015)	The Passion Scale – adapted to The Passion for One's Studies Scale	Chinese	286 university students from China	12 5 CP	CFA Invariance Correlations	HP $\alpha = .74$ OP $\alpha = .84$ CP $\alpha = .84$	CFA results supported the two-factor model of passion. Invariance was fully supported between the Chinese version of the scale and the French-Canadian version of the scale. Both HP and OP had positive correlations with CP items (convergent validity). HP correlated more strongly to positive outcomes than OP (flow, $r = .39$ vs. $.12$, positive emotions, $r = .63$ vs. $.38$), and OP correlated positively with negative emotions ($r = .28$), whereas HP was negatively related to them ($r = -.14$; discriminant validity).
Zito & Colombo (2017) *Two samples	The Passion Scale – adapted to The Passion for Work Scale Scale translated into Italian	Italian	101 participants 243 participants belonging to a professional association of managers	14	EFA CFA Correlations	HP $\alpha = .92$ OP $\alpha = .87$	The results of the EFA led to deleting item 7 (HP item). CFA confirmed the 13-item version as representing the two-factor model of passion (with some error terms correlated). Correlations showed HP to be related to more adaptive outcomes (e.g., life satisfaction and flow), where OP was more strongly related to negative outcomes (e.g., negative emotions at work), but also positively with flow.

Note. HP = harmonious passion; OP = obsessive passion. α = Cronbach's α .

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Scale, finding relatively moderately strong correlations ($r=0.59-.068$; Abdelati & Salama-Younes, 2016, Study 2).

Finally, regarding the scale construct validity, overall the conclusions obtained in Western cultures have been replicated in other cultures. For instance, Zhao et al. (2015) found that HP in Chinese university students was more strongly related to flow and positive emotions than OP, which was more strongly related to negative emotions. Similarly, in a Norwegian sample, Birkeland and Buch (2015, Study 2) found HP to be more related to work engagement than OP, whereas OP was more related to workaholism than HP. Finally, using the Italian version of the Passion Scale, Zito and Colombo (2017) found HP to positively predict adaptive outcomes (life satisfaction and flow), whereas OP only predicted negative emotions. Other similar findings appear in Table 14.2.

Note that some cultural variations have been reported. For instance, using the Spanish version of the Passion Scale, Gonçalves et al. (2014) found that HP and OP for work were *both* positively correlated with job satisfaction. However, as hypothesized by the DMP, the correlation involving HP ($r=.52$) was stronger than that with OP ($r=.32$). Similarly, also using the Spanish Passion Scale, Orgambidez-Ramos et al. (2014) found HP and OP for work to be both positively correlated with intrinsic job satisfaction but more so for HP, whereas both types of passion were positively related to extrinsic job satisfaction. Although, overall, most findings support the distinction between HP and OP about outcomes, future research is nevertheless necessary to shed light on some of the differences as to the role of OP in adaptive outcomes obtained in these cultures vs. the North American culture.

Discussion

Taken together, the findings regarding the psychometric properties of the Passion Scale are impressive and lead to several conclusions. First, the Passion Scale demonstrates high levels of factorial validity – indeed, over 20 studies have validated the factor structure of the two-factor model of passion, and extensive support has been found for the invariance of the scale across a variety of modalities (e.g., sex, age, types of activities, etc.). Second, there is substantial evidence for the construct validity of the scale, including both convergent and divergent validity. Convergent validity was established as both HP and OP positively correlated with the passion criterion items, and divergent validity was obtained as HP was more strongly related to adaptive outcomes than OP, whereas the latter was related to negative outcomes but not HP. Of interest is the fact that the range of outcomes assessed is truly notable and includes cognitions, emotions, and behaviors, to mention a few (for a comprehensive review, see Vallerand, 2015; Vallerand & Houlfort, 2019).

Third, the Passion Scale is reliable, as demonstrated by the high levels of internal consistency (average α of both subscales were typically in the mid-70s), reflecting how the subscales assess the two types of passion with high levels of homogeneity without redundancy. Furthermore, support was also obtained for the temporal stability of both subscales, underscoring the fact that passion is not a fleeting interest, and once established, it may remain relatively stable. However, the fact that test-retest correlations were not in the .90s supports the hypothesis from the DMP that passion may also fluctuate because of situational variables (e.g., autonomy support). Fourth, the Passion Scale is valid

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and reliable in at least 13 languages and numerous countries such as France, Spain, Canada, the United States, Australia, as well as in Hungary, Portugal, China, and Russia. Studies conducted across the globe have consistently provided support for the factorial and construct validity of the scale, and high levels of internal consistency and temporal reliability have also been found.

In closing, we would like to make two major recommendations concerning future research with the scale. First, there is a huge interest in translating the Passion Scale into languages other than the 13 for which the scale already exists. To this end, we would like to underscore that scientists interested in this endeavor should use the double-backtranslation procedures recommended by Vallerand (1989). Such procedures imply that one individual translates the scale from English to Spanish, for instance, and that another takes the Spanish translation and translates the scale back into English (of course, without having access to the original English version). This process is done twice, and then all parties involved in the translation meet in a committee and go over the whole process and determine which items from the two translated scales best reflect the original items. Using such a translation process may explain in part the excellent psychometric properties of the translated versions so far. A second recommendation is that future research should start looking into the differential role of passion in objective outcomes such as physiological indicators of health (see Vallerand, Paquette et al., 2022). So far, most studies have focused on affective and well-being variables. A fresh look at other types of variables would go a long way in testing the ramifications of the DMP and the use of the Passion Scale.

The Passion Scale has been used in well over 200 studies and found to be highly valid and reliable. Although strong empirical support for the scale and the DMP exists, we hasten to underscore that research is still in its infancy, and that additional research is necessary to allow us to move forward toward a more comprehensive understanding of the passion construct. We submit that such research should be fertile for the field of positive psychology, and that the Passion Scale will lie at the heart of such research.

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