Emotional Intelligence, Vigor, and Authentic Leadership: Their Underlying Relationship and Combined Influence on Life Satisfaction, Academic Performance, and Mental Health

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Abstract

In this study, we aimed to investigate the role of emotional intelligence in the relationship between vigor and authentic leadership. Although these concepts have not yet been studied together, they were expected to positively correlate with each other. Moreover, we expected emotional intelligence to play a mediating role in the relationship between the two types of leadership. We also expected this mediational relationship to be more predictive of the outcome variables mental health, academic performance, and life satisfaction than the predictive variables considered separately. We tested a sample of 97 Dutch students (20 males and 77 females, mean age 20.55) through online questionnaires. Our results show that emotional intelligence, vigor, and authentic leadership are all positively related. Also, a partial mediation of emotional intelligence was found. Mental health was significantly predicted by emotional intelligence and authentic leadership, academic performance was significantly predicted by the vigor and emotional intelligence. Satisfaction with life was significantly predicted by vigor, emotional intelligence, and authentic leadership. The strength of relationships decreased when the predictor variables were considered together, therefore rejecting our hypotheses that the mediational relationship had a predictive value of our outcome variables.

Keywords—Education, Emotional Intelligence, Leadership, Life Satisfaction, Vigor

1. Introduction

A. Emotional Intelligence

In 1920, Thorndike proposed an alternative to cognitive intelligence, namely social intelligence; which he defined as the ability to manage people. Later, Garnder (1983) differentiated seven types of intelligence, including intrapersonal intelligence: knowing and understanding oneself, and interpersonal intelligence: understanding and working well with others. In 1990 Mayer and Salovey, influenced by these theories, first defined Emotional Intelligence and its underlying theoretical account (Salovey & Mayer, 1990). Over the past few decades, Emotional Intelligence (EI), generally interpreted as the ability to work effectively with emotions, has received increasing amounts of interest (Marks, Horrocks, & Schutte, 2016; Peña-Sarrionandia, Mikolajczak, & Gross, 2015; Pulido-Martos, Lopez-Zafra, & Augusto-Landa, 2013; Van Rooy & Viswesvaran, 2004). Although researchers do not agree on a single definition of emotional intelligence (Van Rooy & Viswesvaran, 2004), and different models have been proposed (Bar-On 1997; Salovey & Mayer, 1990), Van Rooy and Viswesvaran (2004) describe EI as an ability that allows individuals to display, recognize, and understand emotions in themselves and others, and to use emotion to facilitate thinking and action. One of the prominent models of EI is the Ability Model of Emotional Intelligence by Salovey and Mayer (1990). It suggests a fourfold of abilities underlying EI: the ability to perceive and express emotion, the ability to use emotion in thinking and problem solving, the ability to understand and reason about emotion and to describe it using language, and lastly, the ability to manage and regulate emotion in oneself and in others (Mayer, Salovey, Caruso & Cherkasskiy, 2011). Other researchers, such as Goleman (1995) and Bar-On (1997), adopted a different approach to EI than the Mayer and Salovey’s ability model. This approach is known as the mixed model of EI and focuses on personality traits, including empathy, assertiveness and optimism rather than abilities that underlie emotional intelligence (Petrides, & Furnham, 2000).
In 1995, Goleman introduced the term Emotional Intelligence to the general public in a book titled Emotional Intelligence (Goleman, 1995). In his book, Goleman used the findings of existing research, (e.g., Salovey & Mayer, 1990) to state that emotional intelligence might be more important than cognitive intelligence in predicting life outcomes such as success in work and relationships, and physical well-being, by stating that emotional intelligent individuals are more socially effective than others. Media, including Time Magazine (Gibbs, 1995) used these claims to represent EI as the absolute predictor of life success. These claims are generally not supported by empirical data and add to the confusion among the general public about the definition and predictive ability of emotional intelligence (Mayer, Salovey, Caruso & Cherkasskiy, 2011). However, studies have been dedicated to the relationship between EI and important life aspects such as those described below.

EI correlates with physical health through mediators such as improved self-care practices, lowered stress reactivity and better stress management (Johnson, Batey, & Holdsworth, 2009). Regarding mental health, emotion regulation plays a role in the vulnerability to negative emotion, relating EI to psychological disorders such as anxiety and depression. Emotion regulation also underlies self-control. A lack of self-control is associated with disorders based on impulsivity such as substance use disorder (Wells, 2000). EI has been found to correlate positively with social-emotional well-being, optimism and happiness, and the General Health Questionnaire (GHQ-12) which measures mental health (Greven, Chamorro-Premuzic, Arteche, & Furnham, 2008). Satisfaction with one’s life, measured by the Satisfaction with Life Scale (SWL; Diener, Emmons, Larsen, & Griffin, 1985) was found to be predicted by some aspects of EI controlling for positive and negative affect (Palmer, Donaldson, & Stough, 2002), and personality traits (Extremera & Fernández-Berrocal, 2005).

In education, it has been found that EI can predict academic performance in children (Izard et al., 2001), adolescents (Parker et al., 2004), and university students (Adeyemo, 2007); although a meta-analysis by Morales and Lopez-Zafría (2009) found mixed results. In another study, Petrides, Frederickson, & Furnham (2004) described how EI mediates the relationship between cognitive ability and academic performance. Individuals with low cognitive ability and learning disabilities benefit from a high EI, improving stress management and emotional difficulties. In line with these findings, Hen and Goroshit (2014) found that in students with learning disabilities, EI was a better predictor of academic performance and procrastination than in students without learning disabilities.

B. Vigor

Vigor is a concept predominantly used in the context of work psychology. Shirom (2003) defines vigor as a positive, affective experience characterized by a feeling of physical strength, emotional energy, and cognitive liveliness that is experienced in relation to one’s work environment; although it can be experienced in other life domains. Vigor is a distinct form of other positive affect such as enthusiasm and joy, and pleasantness and commitment (Russell & Steiger, 1982). It combines the characteristics of emotion and mood, and is therefore referred to as an affective state. Additionally, Shirom (2011) mentioned that physical strength signifies one’s physical capabilities, emotional energy refers to the ability to express sympathy and empathy, and cognitive liveliness concerns the flow of thought processes and mental agility.

Characteristics of the work environment such as task significance, feedback from supervisors, and interaction with others have been found to influence vigor. This also seems to play a role in leadership; energetic leaders tend to induce feelings of energy among their followers (Shirom, 2011). Fredrickson’s (2004) broaden-and-build theory of positive emotion that describes how positive emotions function to broaden one’s thought-action repertoire, causing an individual to be more active and that positive emotions build resources to, for instance, cope with emotional setbacks. In the work environment, Shirom uses the broaden-and-build theory to explain how positive emotions associated with vigor can be beneficial. Vigor has been positively related to work motivation, it determines the effort an individual makes with regard to particular work tasks (Shirom, 2007). It has also been found to predict job performance in employees (Carmeli, Ben-Hador, Waldman, & Rupp, 2009). Moreover, vigor seems to predict physical health, mental health, job satisfaction, and academic performance (Shirom, 2011).

In his discussion, Shirom (2003) describes a potential link between emotional intelligence and vigor. He argues that using vigor in an intelligent manner in work related context could have behavioral consequences. To our knowledge, the relationship between vigor and emotional intelligence has not yet been studied, but we expect there to be a correlation between EI and vigor. EI could influence vigor in the sense to being able to recognize and regulate one’s own and other’s emotions effectively results in higher levels of experienced vigor. It can also be argued that high levels of vigor promote EI; positive affect associated with vigor build recourses that can enable individuals to act more emotionally intelligent. When one is feeling vigorous at work, it is more likely that one will use and develop one’s abilities to manage emotions to facilitate work-related tasks.

C. Leadership

Organizational research has investigated the issue of effective leadership (Bass & Stogdill, 1990). Goleman, Boyatzis, and McKee (2002) argued that EI related to competences such as self-confidence, self-awareness, transparency, and empathy are essential for communicating effectively with subordinates. EI might also facilitate the development of transformational leadership. Transformational leadership is characterized by intellectual stimulation, individualized consideration, inspirational motivation, and idealized influence. It is based on the idea that leaders should not only be
concerned with goal achievement but also motivating their followers on an individual level, inspiring internal motivation (Yammarino & Bass, 1990).

Rosete and Ciarrochi (2005) found that EI was associated with leadership effectiveness, controlling for IQ and personality traits. Results of Kerr, Garvin, Heaton and Boyle (2006) have shown that EI of supervisors was positively related to supervisor effectiveness rated by their employees. Other studies have focused on the relationship between EI and specific forms of leadership, such as the abovementioned theory of transformational leadership, and found that EI could be linked to transformational leadership (Barbuto, & Burbach, 2006). Because these results were not consistent across studies, Harms and Credé (2010) conducted a meta-analysis combining the results of 62 samples. Their analyses show a weak but significant relationship between EI and transformational leadership.

Apart from transformational leadership, other theories on leadership have been proposed as well; one of these theories is Authentic Leadership (AL; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). Authenticity involves being true to oneself; this can be translated to leadership in the sense that a leader acts in a way that is consistent with his or her true values, beliefs, and strengths, while helping others to do the same. Walumbwa et al. (2008) have defined authentic leadership as: “a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development.” (p. 7). Based on this definition, the authors have developed a scale called the Authentic Leadership Questionnaire (ALQ) to measure AL. This scale is divided into four subscales: self-awareness, relational transparency, balanced processing of information and internalized moral perspective. Self-awareness entails showing awareness of one’s strengths and weaknesses, and understanding how one’s view of the world influences the view of oneself. Relational transparency requires presenting one’s authentic self, promoting trust through the expression of true thoughts and feelings. Balanced processing signifies that the leader first objectively analyzing the data while challenging their own positions before making a decision. Lastly, internalized moral perspective is self-regulation and decision-making that is guided by high moral standards and values. AL in leaders was found to be positively correlated with their follower’s job satisfaction and job performance (Walumbwa et al., 2008).

AL has not yet been studied together with EI. We expect EI to have a positive influence on AL. Leaders that are good at recognizing, expressing, understanding and regulating emotion in themselves and their followers are expected to be more authentic leaders. Self-awareness could develop through a superior understanding and recognition of their own emotions, relational transparency due to the ability to express emotions more appropriately.

Balanced processing could come from the ability to use emotion to facilitate thinking and decision making, and furthermore superior internalized moral perspective from the regulation of emotion.

D. Objective and Hypothesis

In the present study, we investigate the relationship between emotional intelligence, vigor, and authentic leadership. We are also interested in how these concepts influence different outcomes including mental health, academic performance and satisfaction with life. Based on the existing literature we formulate several hypotheses.

1) **Hypothesis 1**

We expect authentic leadership, vigor, and emotional intelligence to be positively related. Links between leadership and emotional intelligence have already been established, however, we hypothesize that EI correlates positively with AL: emotional intelligent leaders will also be more authentic. Superior abilities in recognizing, expressing, understanding, and regulating emotion could promote authentic leadership skills, including self-awareness, relational transparency, balanced processing of information and internalized moral perspective. We expect a positive correlation between authentic leadership and vigor, thus individuals with higher levels of vigor will also be more authentic leaders. To our knowledge, no research investigates this relationship yet. Lastly, we also expect a relationship between vigor and EI. Highly vigorous individuals will also demonstrate superior emotional intelligence.

2) **Hypothesis 2**

We expect emotional intelligence to play a mediating role between authentic leadership and vigor. We expect vigor to predict EI, and EI to in turn predict AL. This expectation can be explained by the fact that individuals with EI may be better at using their vigor in a way that promotes authentic leadership skills.

3) **Hypothesis 3**

We expect each of the factors emotional intelligence, vigor and authentic leadership correlate with the outcomes mental health, academic performance and life satisfaction. The effect of the separate factors on the outcomes is expected to increase when the three factors are considered together.

2. Method

A. **Translation and Pilot Study**

Since all participants of the present study were Dutch, we made sure to present the questionnaires in Dutch as well. For the purpose of this study, three questionnaires, the Shirom-Melamed Vigor Measure (SMVM), the Authentic Leadership Questionnaire (ALQ) and the General Health questionnaire (GHQ) were translated from English into Dutch. Following the International Test Commission (2005) guidelines, the questionnaires were first translated from English into Dutch by a bilingual, native Dutch speaker, and then translated back from Dutch into English.
by a bilingual, native English speaker with no knowledge of the questionnaires and their underlying theory. To ensure that the translations matched the original questionnaires, the original and the back-translated questionnaires were compared. Because no contextual difference was found, the translations were considered appropriate. The Wong and Laws Emotional Intelligence Scale (WLEIS), had previously been translated from English into Flemish for research purposes by other researchers. As Flemish is a Dutch dialect, some words are used differently. We slightly adapted some of the questions to fit better in the Dutch language. A small pilot study was conducted consisting of 12 native Dutch speakers. Participants filled in the translated questionnaires, i.e. the SMVM, the ALQ, the GHQ and the WLEIS, and evaluated the understandability and fluency of the language used in the questionnaires. They were also given the opportunity to give comments and alternative phrasing. After analyzing the responses some items were rephrased to improve the translations.

B. Study

1) Participants
The sample originally consisted of 121 participants. Twenty-four participants were excluded after an initial investigation of the data. Reasons for exclusions included failing to complete the questionnaires, acquiescence responding, or completing the questionnaire within a 2-minute timeframe, which was considered an unreasonably short amount of time to consciously fill in an 80-item survey. Finally, the data of 97 participants was included in the analyses (20 males and 77 females). The participants were all Dutch students from different faculties, studying at Maastricht University. Ages ranged between 18 and 25 years old with a mean age of 20.55 (SD=1.76). For males, the mean age was 21.65 (SD=1.87), for females the mean age was 20.26 (SD=1.62).

2) Materials
To measure emotional intelligence, the Wong and Laws Emotional Intelligence Scale (WLEIS; Wong & Law, 2002) was used. The WLEIS is a self-report scale based on the ability model, specially developed to measure EI related to the work environment. The WLEIS contains 16 items, equally divided into four subscales: self-emotion appraisal, emotion appraisal of others, use of emotion, and regulation of emotion; referring to the four branches of the ability model. The WLEIS uses a 5-point Likert-scale to rate statements from 1 = strongly disagree to 5 = strongly agree. Libbrecht, Beuckelaer, Lievens, and Rockstahl (2014) translated the WLEIS into Flemish to use it in a sample of Belgian students. Their study also showed that the WLEIS can be compared across cultures. We asked participants to imagine themselves in the university environment when considering the questions. As our hypothesis, did not include any subscales, we considered the total score of all the items together in our analyses.

To measure vigor, the Shirom-Melamed Vigor Measure (SMVM; Shirom, 2003) was used. The SMVM is a 12-item self-report questionnaire divided into three subscales: physical energy, emotional energy and cognitive liveness. It uses a 7-point Likert-scale ranging from 1 = never, to 7 = always. We translated the SMVM from English into Dutch for the purpose of this study. In the introduction of the scale, participants were asked to consider their academic activities, such as attending lectures or studying for an exam, when responding to the questions. The three subscales were considered together in our analyses.

The Authentic Leadership Questionnaire (ALQ; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008) measured authentic leadership. The ALQ consists of 16 items and 4 subscales including self-awareness, relational transparency, balanced processing of information and internalized moral perspective. The ALQ uses a 4-point Likert-scale ranging from 0 = not at all to 4 = frequently. The ALQ was translated from English into Dutch for the purpose of this study. As this study was conducted in students, who typically do not fulfill traditional leadership roles, we asked the participants to imagine themselves in the role of discussion leader when considering the ALQ. The education system at Maastricht University is based on Problem-Based Learning (PBL). PBL is centered on the student and implements small work groups. In every group-meeting, a different student fulfills the role of discussion leader, ensuring that the discussion is well structured and that all-important topics are discussed (Barrows, 1996).

To measure life satisfaction, we used the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWL consists of 5 items and a 7-point Likert-scale ranging from 1 = completely disagree to 7 = completely agree. A Dutch translation of the scale was found on the website of the publishers (retrieved from: http://internal.psychology.illinois.edu/~ediener/SWLS.html, translated by Wilhelm A. Arrindell).

The General Health Questionnaire (GHQ-12; Goldberg, 1992) was used to measure mental health. To keep the questionnaire short, we used the 12-item version of the questionnaire. The 4-point Likert-scale ranged from 1 = not at all to 4 = a lot more than usual. Because no Dutch translation was found we translated the questionnaire into Dutch.

To measure academic performance, the participants were asked to provide the last version of their Grade Point Average (GPA), the average of all the grades received in the current study program of the student.

3) Procedure
Participants were recruited via social media and posters at the university and participated through the online research database of Maastricht University. Participants received course credits for their participation. Admission of the study took place online and the survey was built and administered through the online Qualtrics software (Qualtrics 2016, Provo, UT).

Firstly, participants gave their informed consent. Then personal and demographic data was collected, including...
their participant code, age, gender, faculty, and year of study. The participants then filled in the above-mentioned questionnaires. The survey ended with a short, written debriefing explaining the hypotheses and the relevance of the study.

3. Results

Firstly, we conducted factor analyses and reliability analyses to see whether the translated scales were reproduced well. The results are summarized in table 1. The dimensions were only inspected in light of the reproduction of the original scales, in this study we did not make use of the different subscales.

Correlational analyses were used to determine the links between the different variables. Results can be found in table 2. As can be seen in table two, many of the correlations were found to be significant in support of our hypotheses.

Table 1. Factor analyses and reliabilities.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Cronbach’s alpha</th>
<th>KMO</th>
<th>Sig.</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLEIS</td>
<td>.89</td>
<td>.84</td>
<td>&lt;.001</td>
<td>4</td>
</tr>
<tr>
<td>SMVM</td>
<td>.88</td>
<td>.80</td>
<td>&lt;.001</td>
<td>3</td>
</tr>
<tr>
<td>AL</td>
<td>.78</td>
<td>.66</td>
<td>&lt;.001</td>
<td>5</td>
</tr>
<tr>
<td>GHQ</td>
<td>.67</td>
<td>.75</td>
<td>&lt;.001</td>
<td>4</td>
</tr>
</tbody>
</table>

Cronbach’s alphas and Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) all turned out to be > .65 and significant at < .001, thus the scales were considered adequate for further analyses.

Correlational analyses were used to determine the links between the different variables. Results can be found in table 2. As can be seen in table two, many of the correlations were found to be significant in support of our hypotheses.

Table 2. Correlational analyses between all variables

<table>
<thead>
<tr>
<th>Scales</th>
<th>WLEIS</th>
<th>SMVM</th>
<th>GPA</th>
<th>SWL</th>
<th>AL</th>
<th>GHQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLEIS</td>
<td>.53**</td>
<td>.17</td>
<td>.65**</td>
<td>.48**</td>
<td>.23</td>
<td>.13</td>
</tr>
<tr>
<td>SMVM</td>
<td>.17</td>
<td>.06</td>
<td>.49**</td>
<td>.04</td>
<td>.22</td>
<td>.24</td>
</tr>
<tr>
<td>GPA</td>
<td>.65**</td>
<td>.49**</td>
<td>.27**</td>
<td>.84**</td>
<td>.29</td>
<td>.29</td>
</tr>
<tr>
<td>SWL</td>
<td>.48**</td>
<td>.49**</td>
<td>.04</td>
<td>.28**</td>
<td>.22</td>
<td>.24</td>
</tr>
<tr>
<td>AL</td>
<td>.23</td>
<td>.13</td>
<td>.22</td>
<td>.24</td>
<td>.29</td>
<td>.29</td>
</tr>
<tr>
<td>GHQ</td>
<td>.29</td>
<td>.13</td>
<td>.22</td>
<td>.24</td>
<td>.29</td>
<td>.29</td>
</tr>
</tbody>
</table>

** Significant at the .01 level (2-tailed).
* Significant at the .05 level (2-tailed).

WLEIS = Emotional Intelligence; SMVM = Vigor; GPA = Academic performance; SWL = Satisfaction With Life; AL = Authentic Leadership; GHQ = General Health.

To test the mediation of EI on the relationship between vigor and AL hypothesis 2), the Baron and Kenny method was used. The results can be found in table 3. The first step, regression of the initial variable (vigor) on the outcome variable (AL) was found to be significant (β = .49, p = .000). Step two, regression of the mediator (EI) on the initial variable (vigor) was also found significant (β = .53, p = .000). The third step, regression of the mediating variable (EI) on the outcome variable (AL) was also significant (β = .31, p = .003). When adding both the initial variable (vigor) and the mediator (EI) to the regression on the outcome variable (AL), both appeared to be significant (vigor: β = .33, p = .001; EI: β = .306, p = .003), but adding EI did not improve the model of only vigor as a predictor of AL. The Sobel test (Sobel, 1982) showed a test statistic of 4.019 with a p-value <.0001. This suggests a partial mediation.

Table 3. Four steps of mediational analyses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Vigor → AL</th>
<th>Vigor → EI</th>
<th>EI → AL</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>.49</td>
<td>.53</td>
<td>.48</td>
</tr>
<tr>
<td>R square</td>
<td>.24</td>
<td>.28</td>
<td>.22</td>
</tr>
<tr>
<td>P</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

** Significant at the .01 level (2-tailed).

As for our third hypothesis, we used linear regression to test whether vigor, EI, and AL were more predictive considered together or separately for academic performance, satisfaction with life and mental health.

Table 4. Hierarchical multiple regression

As can be seen in table 4, vigor significantly predicted academic performance (β = .323) and satisfaction with life (β = .492). When controlling for EI and AL, vigor still predicted satisfaction with life (β = .244). EI significantly predicted mental health (β = .228), academic performance (β = .286) and satisfaction with life (β = .652). When controlling for vigor and AL, EI significantly predicted academic performance (β = .314) and satisfaction with life (β = .582). AL significantly predicted mental health (β = .287) and academic performance (β = .277). When controlled for vigor and EI, AL only significantly predicted mental health (β = -.287).
While these results support some of our hypotheses, the relationship between EI, AL and vigor does not seem to add to the predictors.

4. Discussion and Conclusion

In this study, we investigated three previously established but not yet linked concepts: emotional intelligence, vigor, and authentic leadership. We expected these three variables to be related, and we hypothesized a mediating role of EI in the relationship between vigor and authentic leadership. Furthermore, we expected that the relationship between these three variables could also predict other variables, i.e. academic performance, satisfaction with life, and mental health. Our results support some but not all of our hypothesis. First of all, a positive correlation was found between EI, AL, and vigor. The results also suggest that vigor and AL could be related to a partial mediation of EI. When controlling for the other two variables, EI predicted both satisfaction with life and academic performance; AL predicted mental health, and vigor predicted satisfaction with life. These findings reject our hypothesis that the relationship between EI, vigor, and AL improves the prediction of the outcome variables.

The predictive value of EI on life satisfaction, academic performance, and mental health is in accordance with earlier findings (Zeidner, Matthews, & Roberts, 2012; Adeyemo 2007; Palmer, Donaldson, & Stough, 2002). These findings imply that EI can be considered a useful measure in predicting various practical outcomes. Individuals with a high EI also tend to have a higher satisfaction with life. This can be explained by the finding that emotional intelligent individuals might have better interpersonal relations (Schutte, et al., 2001), leading to higher life satisfaction. Being able to influence emotions is also part of emotional intelligence (Mayer & Salovey, 1990). This aspect could benefit life satisfaction, transforming negative emotions into more positive emotions and using emotions to attain one’s goals. The relationship between EI and academic performance could also be explained by enhanced interpersonal relations related to EI (Schutte, et al., 2001). Martin and Dowson (2009) explain the various ways in which good interpersonal relationships can benefit academic performance; even though this aspect might be more prominent during school years, it could still explain the relationship we found between EI and academic performance. Additionally, research has shown that students who have high EI also demonstrate a more adaptive stress coping mechanisms, subsequently influencing academic results (Pau, Croucher, Sohanpal, Muirhead, & Seymour, 2004). Improved stress coping in emotional intelligent individuals can also explain the relationship found between EI and mental health. The results of Ciarrochi, Deane, and Anderson (2002) indicate that EI could play a moderating role in the relationship between stress and mental health; meaning that EI has an influence on how stress affects mental health. The results of this study imply that EI is a good predictor of various aspects of life.

Vigor was found to predict both academic performance and satisfaction with life. To our knowledge, the relationship between vigor and life satisfaction has not yet been studied. This result can be considered a promising, preliminary finding, which could be examined further in future research. It can be argued, however, that this relationship is not a very surprising one; vigor is closely related to positive emotions (Shirom, 2003) which in turn are related to satisfaction with life (Kuppens, Realo, & Diener, 2008). It could also be argued that individuals experiencing high vigor at work, or, in this case related to their academia, have a higher job satisfaction (Shirom, 2011), and therefore a higher satisfaction with life (Judge, & Watanabe, 1993). The relationship between academic performance and vigor corresponds with the findings of Shirom (2011). Feeling physically, cognitively, and emotionally energetic has a positive influence on academic results. This could be explained by the assumption that if one feels vigorous during academic activities, one will demonstrate more effort and one’s efforts will be more effective. One is more likely to feel vigorous during activities of interest (Shirom, 2003); if one enjoys academic activities, it is also more likely that one will achieve better results. Another explanation could be that previous academic results, a predictor of future results, influence the level of vigor.

As far as we know, no research has investigated the implications of authentic leadership outside of the work environment. We found that authentic leadership significantly predicts mental health and satisfaction with life. The relationship between AL and mental health might be explained by the high ethical standard adopted by authentic leaders. Having high ethical and moral standards, and acting upon them, might have a positive influence on mental health and also on life satisfaction. Additionally, self-awareness associated with AL could play a role in the relationship between AL and mental health. Although this has not yet been confirmed, individuals with high self-awareness might be less prone to developing mental illnesses. Being self-aware could also positively influence life satisfaction. Having an accurate understanding of one’s strength and weaknesses could affect the choices that one makes regarding, for example, the way one chooses to live their life and thereby increasing the satisfaction with life. However, the results of this study are not extensive enough to conclude anything about the underlying relationships of these correlations.

Emotional intelligence, vigor, and authentic leadership were all shown to be related. The relationship between EI and vigor can be explained by considering that individuals experiencing high vigor during work or academic activities possess physical, emotional and cognitive recourses (Shirom, 2011). This could allow them to use these resources to act in an emotionally intelligent way, for example, using emotions effectively to accomplish goals or to regulate their own and other’s emotions. It is also possible that EI increases the amount of vigor one experiences by the ability to regulate emotions, transforming neutral or negative emotions into more positive emotions promoting vigor. However, this does
not fit into our proposed model of vigor predicting the EI. The relationship between EI and AL can be understood by considering the specific subscales underlying the concepts. Self-awareness can be promoted by recognition and understanding of emotion. Leaders who know and understand their own emotions might be more likely to show an understanding of their own strengths and weaknesses and how those influence the people around them. Understanding emotions might also lead to higher ethical and moral standards because one can understand how decisions impact emotion in others. Also, the ability to display emotions could result in a leader being more authentic. Authentic leaders display relational transparency, signifying that they promote trust through the expression of true thoughts and feelings. Vigor and authentic leadership were also shown to be related. This relationship might be explained by relating the physical, emotional, and cognitive energy underlying vigor, to the ability to express true feelings and emotions and to act upon one’s high ethical standards. Elevated levels of vigor might indicate high recourses, which in turn could enable leaders to demonstrate high levels of self-awareness, their true thoughts and feelings and maintaining a high ethical standard.

We hypothesized that the relationship between vigor and authentic leadership would be mediated by emotional intelligence, hence vigor influencing EI, and EI subsequently influencing AL. The partial mediation suggested by the results indicates that this could be the case, but that vigor also directly influences AL. While being in line with our hypotheses, these results do not rule out the possibility of other underlying mechanisms of this relationship. A moderating role of EI on the relationship between vigor and AL could also be examined in future research. In this case, EI would influence the direction of the relationship between vigor and AL; emotionally intelligent individuals might be better at using vigor to be more authentic leaders. We would like to discuss the limitations of our study so that these can be taken into account when interpreting the results, and for future research. First of all, this was an observational study, meaning that we did not manipulate any of the variables; as all of when our variables were person-dependent, manipulation was not possible. This implies that results merely reflect correlation, not causation. Another point of consideration is that all participants were Dutch students. It is therefore not certain that findings can be generalized to the general population. However, as this study is part of a bigger project aiming to investigate both cultural differences and differences between students and employees, this point could be argued to be an advantage as well: when comparing different groups, it is beneficial to reduce the differences between group members on the variable of interest. Moreover, almost all of our variables, excluding academic performance, were measured by subjective, self-report scales. It can be argued that individuals who do not always have an accurate understanding of their own abilities and self-report questionnaires are known to be prone to faking (Podsakoff & Organ, 1986). Finally, this was an online questionnaire. This implies that it was not possible to control the external environment. It also means less control over the participants and a higher probability that participants randomly answered the multiple-choice questions. Finally, most items were positively formulated and the scales tended to resemble each other, this makes the results more sensitive to biased answers such as acquiescence responding.

The results of this study suggest a link between emotional intelligence, vigor, and authentic leadership. They also link these three variables to various outcomes, including mental health, academic performance, and life satisfaction. These are promising preliminary results but because this study was the first research that links the three concepts as we did, more research into this topic is of course required to be able to make inferences and generalize findings over a greater population. As mentioned before, more research is already in progress and we hope to be able to in the future link different findings in order to gain a better understanding of the underlying factors of our investigated concepts.

References


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