

How Students' Strength Use Relates to Higher Self-Esteem: The Role of Self-Efficacy

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Abstract

This research was conducted to shine light on the relations between strength use, self-efficacy and self-esteem in university students. As foregoing research showed, strengths use has an overall positive effect on well-being and reaching mental health goals. For students specifically, well-being has been related to self-esteem and other factors closely connected to a well-experienced university life. Thus, this study set self-esteem as a specific factor related to students' well-being. It was expected that self-efficacy would partially mediate the relationship between strength use and self-esteem in students since self-efficacy was reportedly only one of many factors contributing to well-being of students.

In order to test for this hypothesis, multiple questionnaires measuring the different factors were put together and administrated online to a German student sample ranging between the ages of 18 and 32. The data was then analysed using correlation analysis and Hayes' mediation analysis.

As expected, the results showed a significant positive relationship between strength use and self-esteem which was partially mediated by self-efficacy with strong results for all of those relations. In conclusion, this study provided a good starting point for further research to utilize strength use for university students. The results show that strength use really contributes to a successful university life for students and can help them to achieve their mental health goals.

Introduction

The study of positive psychology introduced strength use and focusing on positive emotions as their two main methods to improve mental health (Snyder & Lopez, 2007). Positive Psychology has been growing and flourishing since 2000 (Park, Peterson, Seligman, & Steen, 2005) and especially the strengths approach is gaining more and more popularity in nowadays' psychology. Included in this approach are interventions which focus on showing people what their strengths are and how they are able to make use of them in their lives. Studies showed that these strengths interventions lead to positive outcomes such as confidence, self-efficacy, motivation, well-being and other related concepts (Giehlen, Meyers & Woerkom, 2017). These findings are not restricted to a particular context, but the results were found in educational contexts, working contexts as well as clinical settings (Giehlen, Meyers & Woerkom, 2017). However, it is yet to be explained how the process of using one's strengths to reach mental health goals works in particular. This paper seeks to shine light on the particular relations in the process of students using their strengths in order to reach their mental health goals.

Prior Research about Character strengths

The VIA (values in action) inventory of strengths was proposed by Peterson and Seligman (2004), giving deeper insight into the topic of strengths within the context of positive psychology. Many researchers have been conducting studies building on their findings since and to date, the VIA survey is the most used tool to measure strengths and conduct research in this area (Biswas-Diener, Linley, Nielsen & Gillet, 2010). The VIA consists of 24 strengths which Peterson and Seligman (2004) proposed as a list of all the possible strengths people can have. The inventory was designed as a measurement tool to find what the researchers called 'character strengths'. Those strengths are embedded in the person's specific character as their positive character traits and are reflected in thoughts, feelings and behaviour. In this first study, the researchers found that character strengths are associated with life satisfaction to different degrees, meaning that some character strengths are related to higher levels of life satisfaction than others. Especially zest, gratitude, hope and love are associated with life satisfaction.

Later, the same researchers in cooperation with Park and Steen (2005) found a way to use the VIA not only as a questionnaire in order to determine people's strengths, but as part of an intervention. The researchers let the participants perform different exercises in order to find out about the effects of strength use. They aimed to discover that finding out about and

using one's character strengths does not only make people more happy but can also improve mental health problems such as depression, which was used as a second outcome measure. One of these exercises was completing the VIA, noting the five highest strengths and using those more often during the following week, which will be called condition one. Another exercise extended this and asked the participants after completing the VIA to use each of the top five character strengths in a new way each day of the week. This will be called condition two. The outcomes of this study were very influential for further research, as condition two showed high positive effects, especially long-term. Results of condition one were small positive effects immediately after the exercise, but no effects long-term. This indicates that the VIA could be used as part of an effective strengths intervention in order to increase happiness. However, while identifying one's strengths may have a short-term effect on happiness it is a measurement tool and is no intervention when used on its own. These findings make the VIA to be very important in positive psychology research.

Over the years, other strengths finding measurements have been developed. To name some there are the Strengths Finder (The Gallup Organisation, 1999) and the Character strengths rating form (Ruch, Martínez-Martí, Proyer, & Harzer, 2014), which was proposed as a very short questionnaire as an alternative to the lengthy VIA. Although the validity and reliability of these questionnaires are ranging from acceptable to excellent, none of them has been as widely used as the VIA. This may be due to the fact that there is an institution representing the VIA and facilitating research in the field of character strengths. This led to research with this tool in many places around the world as in an internet study to find out about commonly endorsed strengths in all 50 American states and 54 other nations (Park, Peterson & Seligman, 2006). Another explanation may be that Seligman himself developed the VIA. This is relevant, as the field of positive psychology developed a lot due to his facilitation after starting his presidency of the APA in 1992 (Blackburn, 2002).

Advantages, disadvantages and the importance of strength use

Studies over the past years showed many different positive outcomes of strength use. The literature review of Giehlen, Meyers and Van Woerkom (2017) gives an overview about those findings. Strengths use has proven to be motivating and enhances individuals' confidence, success expectations, perseverance, and resilience and is linked to positive feelings such as excitement and joy. Clifton and Hartner (2003) also proposed that extensively focusing on strengths in the workplace as well as in educational contexts shows great

increases in well-being and productivity. Thus, the positive effects of strengths use have been researched in a variety of fields related to personal change and accomplishment. Furthermore, Biswas-Diener et al. (2010) found that the use of character strengths is a strong predictor for an increase in well-being and overall life satisfaction.

Although the use of character strengths has mostly been presented as an effective and safe tool in positive psychology, there are also some drawbacks. Recent research has found that there needs to be a new focus on strength research and interventions. Not only strength underuse but also overuse can be connected to different psychopathologies. For instance, obsessive compulsive disorder has been linked to overuse of social intelligence, judgment, appreciation of beauty, excellence, fairness, perseverance, and prudence in combination with underuse of other character strengths (Littman-Ovadia & Freidlin, 2019). Moreover, a link has been found between the overuse of some character strengths with social anxiety disorder (Freidlin, Littman-Ovadia & Niemiec, 2017). Thus, an optimal balance of strength use has to be found in order to facilitate strengths effectively as a psychological tool.

In studies researching the effect of strengths interventions, there is a great focus on determining people's strengths by using tests such as the VIA questionnaire (Giehlen, et al., 2017). This could give the impression that the main feature to focus on in positive psychology techniques concerning strengths is the determination of the individuals' strengths. However, Winheller (2018) found that the actual use of strengths is a more important predictor for psychological and emotional well-being than which specific strengths one has. Although this study's participants were chronic disease patients, the findings may apply to other groups too, such as students. Thus, 'strengths use' may be an important predictor for reaching mental health goals.

Winheller's (2018) findings are in line with research by Biswas-Diener and colleagues (2010). The study was conducted with 240 second year university students, and they found that character strengths use is associated with higher goal progress. This is associated with greater need satisfaction which is in turn associated with higher levels of well-being. Furthermore, there is an association between the goal progress and well-being as well. Thus, they found that by influencing goal progress and need satisfaction, strengths use was associated with higher levels of well-being. Therefore, strengths use is an important factor contributing to the well-being of students. However, there may be more specific factors involved for different target groups.

University students strength use and their mental health goals

In order to gain deeper insight into the effects of strengths use, one needs to specify the needs and goals of the target group. As has been explained above, strengths use leads to greater life satisfaction. For university students, life satisfaction is greatly dependent on their self-esteem (Choi, 2018). It was found that in comparison to negative feeling and positive caring, self-esteem stood out the most, predicting life satisfaction. Furthermore, it also mediated the relationship between positive caring and life satisfaction. This means that by enhancing one's self-esteem, for example by caring actions one can take pride in, one's life satisfaction is enhanced as well. This is further substantiated by the findings of the Tagay (2015), who proposed a structural model which demonstrates that contact disturbances, which are unsuccessful forms of contact with others, influence self-esteem which in turn influences life satisfaction.

Not only does Tagay (2015) show that self-esteem is a direct predictor of life-satisfaction in students, but also successful contact to others is highly important to this specific group of people. As contact disturbances significantly reduce students' self-esteem this shows clearly that life satisfaction is greatly dependent on a variety of factors contributing to a successful university experience. In the study, the factor that is shown to relate to self-esteem is good contact to others, which can also be interpreted as a good social life. Other factors may also play a role which relate to life when attending university such as self-efficacy.

Self-efficacy is a concept defined as a general sense of one's competence and ability to fulfill goals in life (Schwarzer & Jerusalem, 1995; Zimmermann, 2000). Freire et al. (2019) found that well-being, in terms of feeling so good that the person is fully functioning and succeeding in life (Ryan & Deci, 2001; Blackburn, 2002), led to stress-coping strategies for university students. This relationship is partly mediated by self-efficacy which shows how important self-efficacy is in a student context, as stress-coping is highly relevant in university (Freire et al., 2019). This is highlighted even more by the results of a study on the effect of strengths-based parenting on teens (Lonton & Waters, 2017). The results demonstrate that strengths based parenting relates to higher levels of happiness and lower levels of depression in teens. Both of these relations are mediated by self-efficacy. Thus, it is not only shown that self-efficacy has great importance in educational contexts and relates to positive emotions in students, but it is shown that strengths use is positively linked with self-efficacy as well.

The current research

Research on strengths use and its effects has not been extensive yet. It has been established that strengths use predicts well-being and life satisfaction by need satisfaction (Linley et al., 2010) however, this is rather general. When researching university students, life satisfaction is mostly dependent on their self-esteem (Choi, 2018), which leads to the conclusion that self-esteem is a specific mental health goal for this target group. This study seeks to research the specific way strengths use relates to student's mental health goals. Thus, the research question is:

“To what extent do student's strength use and self-esteem relate to each other?”

As strength use has been established to be a factor that leads to life satisfaction in general, this study focuses on the effects on the target group of university students. Multiple studies found that self-efficacy is heightened by strength use (Freire et al., 2019; Park et al., 2005) and it has been established that self-efficacy is an important factor in the life of university students (Linton & Waters, 2017). Furthermore, it has been established that self-esteem and self-efficacy are factors that together relate to more success in terms of professional employment in comparison to unemployment (Azar & Vazudeva, 2006). These findings can also be generalized in terms of achievement for students, as both factors were shown to be important for university students' life satisfaction and study related life. Thus, the positive outcome of strength use for students can be a heightened level of self-esteem.

As mentioned above, there are multiple factors contributing to students' well-being which connect to a successful study life. These are not only self-efficacy but also successful contact to others (Tagay, 2015). Thus, self-efficacy is only one factor that may mediate the relationship between strength use and self-esteem and has been singled out to be researched in this study. Therefore, the hypotheses of this study are:

H1. Strength use positively relates to the level of self-esteem in students.

H1b. This relationship is partially mediated by self-efficacy.

As directionality between the expected relations cannot be determined by statistical analysis in this study due to its design, Figure 1 shows the assumption of the researcher in regards to the hypothesis.

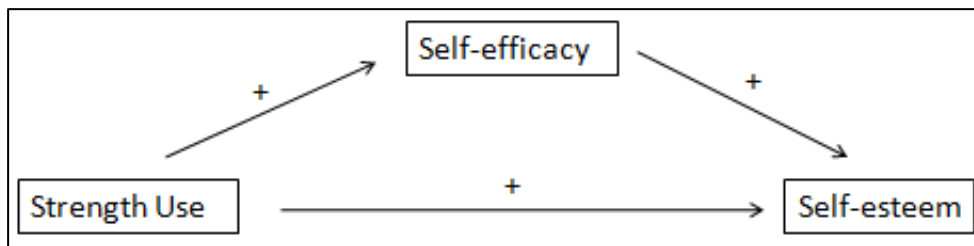


Figure 1. Expected relations of the variables.

Method

Participants

In total, 177 people participated in this study. The sample consisted of native German-speaking university students who were mainly studying in the Netherlands and Germany. This is due to the fact that the researchers recruited students from their own network in Germany via a link as well as students from the University of Twente. The latter were recruited via the university's program 'SONA systems', which is mainly directed at first and second year psychology students.

The participation rate was unexpectedly low from this website, as there was an error not allowing students to participate for the first four weeks within the data collection frame. To increase the number of participants, both researchers posted the link on their social media account on 'Instagram', asking for more students to participate. Furthermore, after the error on 'SONA' has been fixed, the researchers contacted psychology students in the first and second year, asking them to promote the study to their fellow students. Due to the fact that some participants did not finish the questionnaire 47 participants had to be excluded, reducing the number to 130 participants. The sample mainly consisted of young female adults with the average age of 22 years ($M = 21.78$, $SD = 2.7$) ranging between 18 and 32. The characteristics of the participants are presented in table 1.

Table 1.

Characteristics of participants (N=130)

	Number	Percentage
Gender		
Male	31	23.8
Female	99	76.2

Location of University

Netherlands	27	20.8
Germany	97	74.6
Other	6	4.6

Research Design and Materials

The study was approved by the ethics committee of the University of Twente (file number 190234). In this research a nonexperimental correlational design was employed. The design consisted of the German versions of five different questionnaires to gather primary data of the sample. These questionnaires were namely the Inventory of Strengths with 72 items (VIA-72) by Ruch et al. (2010), the Strengths Use Scale (SUS) by Huber, Webb and Höfer (2017), the General Self-Efficacy Scale (GSE) by Schwarzer and Jerusalem (1999), Rosenberg's Self-esteem Scale (RSS) by Collani and Herzberg (2003) and the Positive and Negative Affect Schedule (PANAS). The questionnaire was put together and distributed in cooperation with another researcher (Hosseinian, 2019) conducting a similar study on strengths as some factors overlapped in both studies. Furthermore, when using the network of two different researchers, there was a greater chance of reaching the anticipated number of 150 participants.

For the current study, analyses were only conducted of the collected data of the following questionnaires, also presented in table 2. The SUS (Appendix A) had a high reliability in the German version with a cronbach's alpha of .95. Also, a single factor has been found in the questionnaire, giving an overall acceptable construct validity (Huber, Webb & Höfer, 2017). The seventh question of this questionnaire was slightly changed to fit the target group, as it asked for the strength use at work ("Arbeit") which was changed to studies ("Studium").

In previous studies, the internal reliability of the GSE (Appendix B) showed to be more than satisfactory with Cronbach's alpha between .80 to .90 and acceptable construct validity (Schwarzer & Jerusalem, 1999), which is the reason why this questionnaire was used in order to measure self-efficacy. The reliability of the RSS (Appendix C) was more than satisfactory with Cronbach's alpha between .83 and .85. As for construct validity, one underlying factor was found (Collani and Herzberg, 2003). As the researchers refined the German version for better psychometrics, this questionnaire has been chosen as the best

option to measure self-esteem. The VIA-72 measures 24 strengths which has been confirmed by construct validity although the underlying six virtues could not be confirmed (MacDonald et. al., 2008). The internal reliability of VIA-72 showed to be satisfactory ($\alpha = .75$; Peterson & Seligman, 2004). Still, this is the most frequented questionnaire in the research of strengths. The results of this questionnaire were analysed as an exclusion method for participants, as this questionnaire determines the strengths of the participants. With the SUS measuring strength use, it was important to exclude people who may not have strengths as this would make their data irrelevant to the study.

Table 2.

Presentation of facilitated questionnaires

Questionnaire	Scale	Number of items	Example item	Cronbach's alpha
SUS	1 (trifft überhaupt nicht zu/ "not at all true") to 7 (trifft genau zu/ "exactly true"	14	"Ich bin in der Lage meine Stärken in vielen verschiedenen Situationen einzusetzen." ("I am able to use my strengths in lots of different ways")	.89
GSE	1 ("stimmt nicht"/ "not at all true") to 4 ("stimmt genau" / "exactly true")	10	"Es bereitet mir keine Schwierigkeiten, meine Absichten und Ziele zu verwirklichen." ("It is easy for me to stick to my aims and accomplish my goals.")	.79
RSS	1 ("trifft gar nicht zu"/ "not at all true") to 4 ("trifft voll und ganz zu"/ "exactly true")	10	"Ich kann vieles genauso gut wie die meisten anderen Menschen auch." ("I am able to do things as well as most other people.")	.88
VIA-72	1 ("völlig unzutreffend"/ "very much unlike me" to 5 ("völlig zutreffend"/ "very much like me")	72	"Ich habe meinen Standpunkt schon häufig gegen Widerstand vertreten." ("I have taken frequent stands in the face of strong opposition.")	.87

Procedure

The questionnaires for the current research were arranged and conducted in Qualtrics. First of all, the participants were informed about the purpose of the survey and received an informed consent (Appendix D). After electronically agreeing to the terms and conditions, the participants got to fill in their demographic data including their age, gender, and the country in which they are currently studying. Subsequently, the participants answered the questions of the VIA, the SUS, the GSE, the RSS, and the PANAS in that order. Finally they were thanked for their participation and debriefed with information on the questionnaires they just filled out. Furthermore, there were links included to the freely accessible questionnaires in case they were interested in seeing their own results. The researchers' contact information was included in case the participants wanted to know about the results of the study or had any other questions.

Data-analysis

First, the data was prepared for analysis, reversed items were re-coded and the set was screened for missing values. The data of those participants who did not complete the questionnaire including the RSS had to be excluded. Furthermore, the responses to the VIA-72 were analysed in order to determine outliers who did not identify with any strengths. However, the lowest scoring participant still had a result indicative of a medium amount of strengths (see figure 2) which is why no participant had to be excluded based on this criterion. To find out about the relations of the variables in this research, a correlation analysis was conducted. Afterwards, a regression analysis was conducted to analyse the relation between the independent variable, strength use, and the dependent variable, self-esteem more in depth. This also provided numbers which were needed to put the following mediation analysis into context. The mediation analysis included computing the confidence interval with the bootstrapping method (Hayes, 2013) and a Sobel test in the end in order to test for the hypothesis that strength use relates to self-esteem and that this relationship is mediated by self-efficacy.

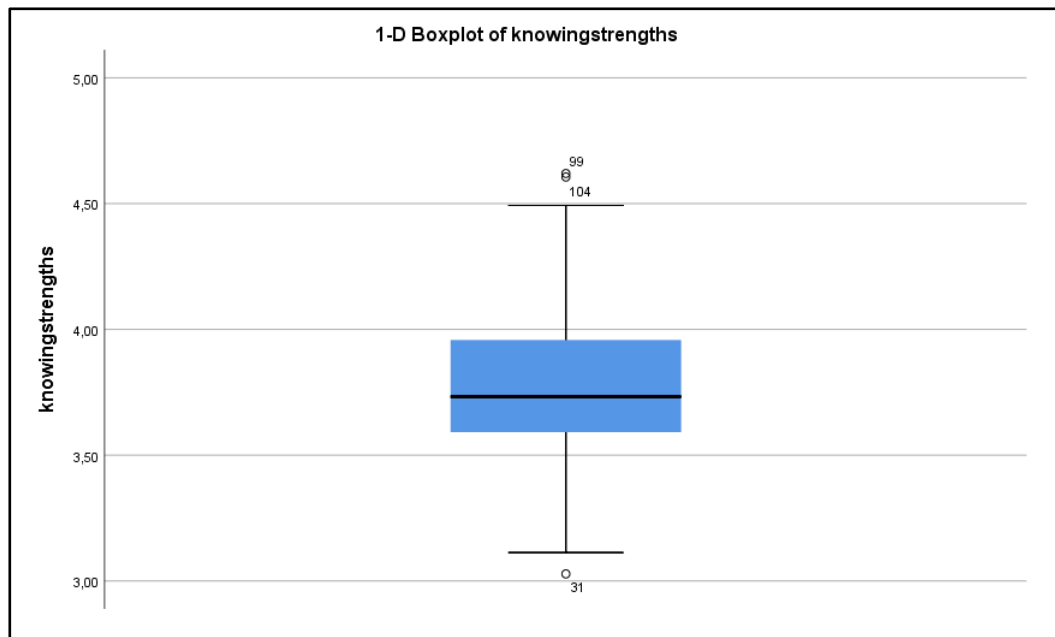


Figure 2. Control for outliers who do not know any strengths

Results

Correlations between strength use, self-efficacy and self-esteem

Participants had high scores on self-efficacy ($M= 3.82$) as this is assessed with a four point scale. Furthermore, Brähler, Klaiberg und Schuhmacher (2001) found the average level of self-efficacy of this test to be at 2.9 (Sum Score = 29.38). The results on strengths use were moderate ($M= 4.88$) since the highest scale point was 7. Still, the results of the current sample are slightly higher than those of a Chinese student sample ($M= 4.24$) (Zhang& Chen, 2018). Of the four-point scale on self-esteem, participants in a study by Alsaker, Perren, Ruggieri& Sticca (2013) had a mean score of 1.81. Compared to this, the participants of the current study scored rather high on self-esteem ($M= 3.09$). This means that they experience high feelings of self-efficacy, use their strengths regularly and have a rather good level of self-esteem.

When testing for the expected relations of the variables by computing the Person correlations coefficients, significant positive relations were found between strength use and self –efficacy ($p < .01$), between self-efficacy and self esteem ($p < .01$) and between strength use and self esteem ($p < .01$). The relations of all three variables are presented in table 3. In the following analyses, the expected relations are tested more in depth.

Table 3

Descriptives of correlations between the most relevant variables (N = 130)

	M	SD	1	2	3
1. Strength Use	4.67	.82	-	.448**	.332**
2. Self-efficacy	3.74	.51		-	.360**
3. Self-esteem	2.59	.27			-

Note. Strength use is measured on a scale from 1 to 7; Self-efficacy and self-esteem are measured on a scale from 1 to 4; Pearson significance level.

* $p < .05$, ** $p < .001$.

Strength use and self-esteem mediated by self-efficacy

The hypothesis proposed that strength use relates to self-esteem in students and that this relationship is mediated by feelings of self-efficacy. When testing the hypothesis with a regression analysis, it showed that there was indeed a significant positive relationship between strength use and self-efficacy ($B = .25$, $t = 5.67$, $p = .01$, $R^2 = .20$). This indicates that students' who use their strengths more frequently do also have higher feelings of self-efficacy. Furthermore, there were significant relations between strength use and self-esteem ($B = .15$, $t = 2.36$, $p = .019$, $R^2 = .17$) and between self-efficacy and self-esteem ($B = .31$, $t = 2.92$, $p = .004$, $R^2 = .17$). Thus, students experience higher feelings of self-esteem, when they use their strengths frequently and or have higher feelings of self-efficacy. Thus, the first part of the hypothesis has been supported, as students who use their strengths more frequently experience higher levels of self-esteem.

For further substantiation of the second part of the hypothesis, the bootstrapping method was used generating a confidence interval which is confirmatory of the indirect effect of strength use on self-esteem BCa CI [.01; .16]. Moreover, the mediation effect could be supported with a Sobel test ($z = 2.59$, $p = .01$). Thus, the relationship between strength use and self-esteem is partly mediated by self-efficacy which substantiates the hypothesis. The results are presented in figure 3.

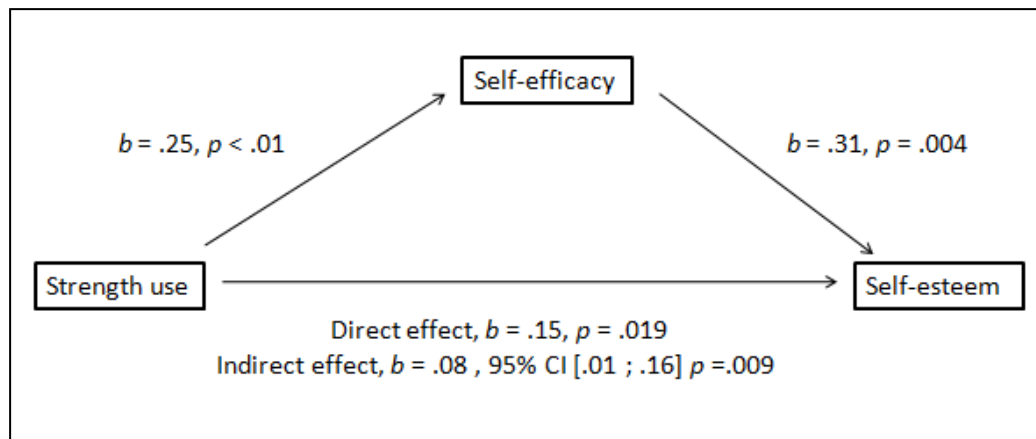


Figure 3. Results presented in mediation model

Discussion

Although strengths in the context of positive psychology have been researched since 2000, it is still not entirely clear how strengths use relates to the reaching of mental health goals in detail. The current research tried to find the specific relations between strength use and reaching mental health goals focusing on the population of university students. One of the main mental health goals for university students is self-esteem and an important factor connecting to this is self efficacy. Thus, it was important to research the interacting relations of these three factors to find out how students use their strengths in order to reach their mental health goals.

It was expected that strength use would relate to self-esteem and that this relationship would be mediated by self-efficacy. This was tested for using questionnaires which measure the different factors. The expected relation between strength use and self-esteem was found. This is in accordance with previous findings which say that strength use relates to life satisfaction (Biswas-Diener et al. 2010) and for university students, life satisfaction is greatly dependent on their level of self-esteem (Tagay, 2015; Choi, 2019). Thus, the assumed relation of strength use and self-esteem could be substantiated.

Moreover, the mean score of the sample was extremely high for self-esteem and a high moderate for their level of strengths use. As this study confirmed the positive relationship between strengths use and self-esteem this can be connected to the findings of Winheller (2018) that the actual strength use is more important than the nature of those strengths. Although this study does not compare the effect of strength use and what strengths the students were having, it still showed that strength use on itself has a detrimental effect on self-

esteem. As the university students in general seemed to have extremely high feelings of self-esteem based on their moderately high level of strength use, this finding seems to substantiate the importance of the actual usage of strengths.

Furthermore the results of the current study substantiated the assumption that the relation between strength use and self-esteem was partly mediated by self-efficacy. This is in line with the findings of Lonton & Waters (2017) who demonstrated a relationship between strength use and self-efficacy in a student sample. Those findings also presented self-efficacy as a partial mediator between strengths based parenting with the resulting strengths use and higher levels of happiness as well as lower levels of depression. Furthermore, it is in line with the general assumption that self-efficacy is greatly important for students as it relates to well-being (Ryan & Deci, 2001) and the development of stress-coping strategies (Freire et. al., 2019).

Moreover the mediation is partial, as was expected. This assumption was based on the fact that prior research demonstrated that there are many factors involved in the enhancement of self-esteem and well-being of students. This can also be seen in reversed in the study by Tagay (2015), who found that different levels of failed contact to others lead to lowered self-esteem and life satisfaction in students. Still, strengths use has been found to be one of those factors enhancing students' well-being (Biswas-Diener et. al., 2010) but also self-efficacy (Lonton & Waters, 2017). When it comes to the positive effects of strength use, there are many factors which may attribute to enhanced levels of self-esteem and well-being in students, for instance stress-coping strategies (Freire et. al., 2019). Thus, it is only logical that self-efficacy only partly mediates the relationship between strength use and self-esteem, as it is one of many factors contributing to this relationship.

The findings of this study are also in line with recent research about strengths interventions at the workplace. Constantini and colleagues (2019) used a strengths based intervention to enhance organization-based self-esteem in the participants to investigate their subsequent work engagement. The results showed that employees who know how to use their strengths have indeed higher self-esteem which leads to more work engagement. As self-efficacy means that one feels like he or she can fulfill goals in life, this is related to achievements in the workplace as well, which connects the findings of both studies even more.

Another study relates to these findings as well, as Spörrle, Strobel and Tumasjan (2011) found that self-efficacy mediated the relationship between personality and factors and subjective well-being. As the participants completed a questionnaire about their character

strengths, the strength use referred to in this study relates to the participants' personality as well. Furthermore, this study adopted self-esteem as the most important predictor of university students' well-being (Tagay, 2015). Thus, the researchers' findings are completely in line with the findings in the current research.

Strengths and Limitations

This study shows to have some strengths which are important to mention. First it is important to note that while having access to a limited number of people, there were efforts made so that the sample size would be sufficient for the study to have reliable results. This was achieved by collaborating with another researcher (Hosseinian, 2019) on data collection who had a somewhat overlapping research topic and a similar study design. Due to collaborating on this part, the researchers both profited from a greater sample size that could be recruited to participate in this study.

Another strength of this study can be seen in the significance of the relations of the different psychological concepts. As presented in the results section, the significance of relations was extremely high, making it clear that there definitely are strong relations between strength use, self-efficacy and self-esteem. Furthermore, the statistical analysis used in this study was the most recent version of the Hayes mediation analysis tool, which only includes the most reliable and relevant tests to test for a mediation effect. This makes the results of this study very significant for its specific study design.

Finally, the last strength that needs to be mentioned is the reliability of the tests used in this research. The questionnaires which were put together in this study were chosen due to their good reliability and validity in the translated German version. When the reliabilities were tested for the current sample's data set, it showed that they were only slightly lower for the SUS and GSE but also slightly higher for the RSS and the VIA-72 than they have been in foregoing research. This indicates that while those questionnaires were separate, it did not have a negative effect on them that they were attached to each other to form one questionnaire measuring all of the concepts.

There were some limitations to this study as well. The first and most important one may be that while the expected relations between strength use, self-esteem and the mediation role of self-efficacy could be found, the study was only able to relate those variables to each other. If there would have been some form of manipulation or at least a longitudinal study

design, it could have shown real causal relationships. The results of this study give good indication that there would be a causal relationship. However, this study cannot show any prediction which means that in order to put these findings to use, a second study is needed which can show real prediction in order to verify these results and utilize those findings for interventions or therapeutic techniques.

A second limitation presents in the fact that a large number of participants that have been recruited were friends or acquaintances of the researchers. In this study, the mean scores for self-esteem, self-efficacy and strength use were rather high, with the mean on self-esteem being very close to the highest value possible on the scale of the questionnaire. At first sight, this could mean that the participants in this study are doing especially well mentally in their university life in terms of strength use, self-efficacy and self-esteem. However, the personal connection to the researchers may have influenced their way of answering questions. It may be possible that they wanted to seem more positive than they actually feel in order to please their friends. Although the study was anonymous, this may be an alternative explanation for the high mean score, which cannot be ruled out. This also fits to the variance which can be explained in the relations between the variables. Those were only 20 and 17 percent which does not make the results irrelevant, but definitely gives room for such a form of unwanted influence on the answers of the participants.

Taking into account the limitations and strengths of this study it can be concluded that although the study design made only for results which need to be verified and extended in future research, this study design was executed in a very careful manner. Due to many precautions taken, the results in the statistical analysis were very significant and revealed some interesting insights about the topic of strength use. Specifically for university students, the results of this study revealed interesting relations which can be investigated and utilized in future research.

Future Research

Based on the limitation, one possibility for future research is building up on this study. As of now, the relations between strength use, self-efficacy and self-esteem have been shown. However, in future research, one could substantiate these findings and perform a study to find out whether strength use really predicts a greater level of self-esteem and how this can be done with self-efficacy as a mediator. Thus, a follow up study with a manipulated variable

would need to be performed in order to find a causal relationship between the variables. The easiest way would be to include a follow up questionnaire to a similar study design. This would be administrated after the participants completed some exercises to use their strengths more. Then the factors would be measured again and would be compared to the initial results.

With the results of the before described study design, a new possibility may even present to universities, helping them to improve their students' level of self-esteem and self efficacy. This would in the end also increase their well-being. In this context, follow up studies could also be put into place in order to shine light on whether this could also increase academic performance. This was already suggested by Constantini et al. (2019) who found that organization-based self-esteem led to higher work engagement after a strength-based intervention. With future research, those results may be replicable for university students as well.

Furthermore, it would be important to shine light on the negative effects of strengths use in the future. As of now there have been rare but interesting findings on strength over-and underuse (Freidlin, Littman-Ovadia & Niemiec, 2017), but there is not much information on this subject and still focused on mental health disorders. However, the results of this study showed a higher moderate level of strengths use in students, who had a mean score on self-esteem which was close to the highest possible score. This indicates that there might also be a balance which has to be upheld for the positive effects of strength use to show in students as well. Still, most research focuses on the positive influences of strengths, but in order to gain complete insight into the subject and use it in the most effective way, it would be important to research the tool strength use from every possible angle. This would help with exploiting strengths use for instance as an effective and common therapeutic tool.

Implications

The results of this study implicate a relationship between strength use and self-esteem which is mediated by self-efficacy. This could be used in order to search for ways of making university students more content. Furthermore, it suggests that when focusing on university students, the correct use of strengths may have a big influence on their study life. Self-efficacy is rather related to studies, which is interesting to research for other positive effects increasing feelings of self-efficacy could have on university students.

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Appendices

Appendix A

Fragebogen zur Anwendung von Stärken

1. Ich bin regelmäßig in der Lage das zu tun, was ich am besten kann
2. Ich mache immer Dinge, die meinen Stärken entsprechen
3. Ich versuche stets meine Stärken einzusetzen
4. Durch den Einsatz meiner Stärken erreiche ich, was ich will.
5. Ich setze meine Stärken jeden Tag ein.
6. Ich setze meine Stärken ein um das zu bekommen was ich vom Leben erwarte.
7. Meine Arbeit bietet mir viele Möglichkeiten meine Stärken einzusetzen
8. Mein Leben bietet mir die Möglichkeit, meine Stärken auf unterschiedliche Weise einzusetzen.
9. Meine Stärken einzusetzen ist für mich selbstverständlich.
10. Ich empfinde es als sehr einfach, meine Stärken einzusetzen.
11. Ich bin in der Lage, meine Stärken in vielen verschiedenen Situationen einzusetzen.
12. Die meiste Zeit verbringe ich mit Tätigkeiten, die ich gut kann.
13. Meine Stärken einzusetzen ist mir vertraut.
14. Ich bin in der Lage meine Stärken auf unterschiedliche Weise einzusetzen.

Appendix B

Allgemeine Selbstwirksamkeitserwartung

1. Wenn sich Widerstände auftun, finde ich Mittel und Wege mich durchzusetzen.
2. Die Lösung schwieriger Probleme gelingt mir immer, wenn ich mich darum bemühe.
3. Es bereitet mir keine Schwierigkeiten, meine Absichten und Ziele zu verwirklichen.
4. In unerwarteten Situationen weiß ich immer, wie ich mich verhalten soll.
5. Auch bei überraschenden Ereignissen glaube ich, dass ich gut mit ihnen zurechtkommen werde.
6. Schwierigkeiten sehe ich gelassen entgegen, weil meinen Fähigkeiten immer vertrauen kann.
7. Was auch immer passiert, ich werde schon klarkommen.

8. Für jedes Problem kann ich eine Lösung finden.
9. Wenn eine neue Sache auf mich zukommt, weiß ich, wie ich damit umgehen kann.
10. Wenn ein Problem auf mich zukommt, habe ich meist mehrere Ideen, wie ich es lösen kann.

Appendix C

Revidierte Selbstwertkala nach Rosenberg

1. Alles in allem bin ich mit mir selbst zufrieden.
 2. Hin und wieder denke ich, dass ich gar nichts taue.
 3. Ich besitze eine Reihe guter Eigenschaften.
 4. Ich kann vieles genauso gut wie die meisten anderen Menschen auch.*
 5. Ich fürchte, es gibt nicht viel, worauf ich stolz sein kann.
 6. Ich fühle mich von Zeit zu Zeit richtig nutzlos.
 7. Ich halte mich für einen wertvollen Menschen, jedenfalls bin ich nicht weniger wertvoll als andere auch.
 8. Ich wünschte, ich könnte vor mir selbst mehr Achtung haben.
 9. Alles in allem neige ich dazu, mich für einen Versager zu halten.
 10. Ich habe eine positive Einstellung zu mir selbst gefunden.
- *im Original: «I am able to do things as well as most other people.» Die Übersetzung bei Ferring und Filipp lautet: «Ich besitze die gleichen Fähigkeiten wie die meisten anderen Menschen auch».

Appendix D

72-VIA German

The VIA is copyrighted by the VIA institute on character, which is why they are not openly accessible. All versions of the VIA in different translations can be found on the VIA website, where they can be conducted or be requested for research purposes.

<https://www.viacharacter.org/>

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Appendix E

Informed Consent

Zunächst möchten wir uns bei Ihnen für die Teilnahme an dieser Studie bedanken. In dieser Studie werden Sie Fragen über Ihre Stärken, die Verwendung dieser Stärken, Ihrer Selbstwirksamkeit, Ihrem Selbstbewusstsein und Ihrer allgemeinen emotionalen Befindlichkeit beantworten. Es gibt keine richtigen beziehungsweise falschen Antworten, denn hierbei geht es um Ihre persönliche Einschätzung. Die Dauer dieser Studie wird ca. 45 Minuten betragen.

Ihre Antworten werden vertraulich behandelt und sie sind in keinster Weise auf Sie persönlich zurückführbar. Die Daten werden ausschließlich für Studienzwecke verwendet.

Um an dieser Studie teilzunehmen müssen Sie mindestens 18 Jahre alt und in der Lage sein, die Fragestellungen in der deutschen Sprache zu lesen und zu verstehen.

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