Optimal Experience: The Relationship between Flow, Psychological Richness and Well-being

Jannik Wessling

s2361396

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Faculty of Behavioural, Management and Social Sciences (BMS)

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First Supervisor: PhD. Gamze Baray

Second Supervisor: Mieke van Bergen

Abstract

Background: Research on markers of the "good life" has shown that experiencing flow positively correlates with eudaimonic and hedonic well-being. However, recently the dichotomous view of well-being has been challenged by research on psychological richness as a new type of well-being.

Aim: In this study, the relationship between flow, and well-being is investigated with an additional focus on psychological richness as firstly, a correlate of flow and secondly, a moderator of the effect of flow on well-being.

Method: Employing a cross-sectional design with convenience sampling, the sample of 118 university students filled out a modified version of the Flow State Questionnaire (FSQ), the Mental Health Continuum Short-Form (MHC-SF) and the Psychologically Rich Life Questionnaire (PRLQ).

Results: The results for the relationship between flow on eudaimonic and hedonic well-being mirrored previous research with a moderately strong positive correlation between the constructs. Furthermore, flow weakly positively correlated with psychological richness. Lastly, a moderation effect of psychological richness on the relationship between flow and eudaimonic and hedonic well-being was not found.

Conclusion: This study is in line with previous research, which showed a correlation between flow and well-being. Moreover, results revealed that flow positively correlates with psychological richness, giving completely new insight into flow and its relation to well-being. However, this study also provides evidence that there is no moderation effect of psychological richness on the relationship between flow and eudaimonic and hedonic well-being.

Keywords: flow, optimal experience, eudaimonic well-being, hedonic well-being, well-being, psychological richness

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The Relationship between Flow, Psychological Richness and Well-being

The debate about the "good life" and what it constitutes has been going on for more than two thousand years (Armon & Dawson, 2002). It started in ancient Greek philosophy, and with the advent of positive psychology, has found its way into contemporary scientific discourse. Especially in this context, the notion of well-being was researched extensively, trying to answer similar questions to those that Aristotle posed in ancient times. Aristotle called the good life a *eudaimonic life* in which one's inner conscience is in line with one's actions and abilities (Aristotle & Rackham, 2003). Moreover, for Aristotle, happiness was an end in itself and, therefore, worth pursuing for its own sake. To attain eudaimonia and consequently well-being meant for him to live by particular virtues, where there is no excess or deficiency in one's actions, which he called "the golden mean". Nowadays, in positive psychological literature, two types of well-being are widely accepted: firstly, *eudaimonic well-being,* which, as the name says, is derived from Aristotle's conception, although the intricacies of this term have changed over time. The other modern concept of well-being is *hedonic well-being,* which also has its origin in ancient Greece. *Hedonia* means pleasure which is why this term to this day reflects the affective side of well-being. Alongside these philosophical notions, modern psychology uncovered a major aspect of the good life which is the subjective experience of "being in the flow state". This phenomenon has found much interest since the 1970s and can now be regarded as a central research topic in positive psychology. Flow is a state of total concentration on a task (Nakamura & Csíkszentmihályi, 2014), a definition of which will be given later, alongside a thorough definition of well-being.

The current research paper investigates the subjective experience of "being in the flow" and possible correlations between the frequency of flow experiences and well-being. To expand the scientific knowledge of the relationship between flow and well-being, one relatively new type of well-being will be included: psychological *richness.* This type of well-being is relating to the experiential and quantitative richness of a person's life (Oishi & Westgate, 2021). A thorough definition of this term also follows below.

The motivation to conduct this research lies in the fact that no previous research on the relationship between flow and psychological richness has been done before. Therefore, the findings can contribute to the philosophical debate on the good life and the scientific body of knowledge in positive psychology. This research might help to overcome the dichotomous view of well-being and help psychologists to understand the different aspects of the good life. Depending on the outcome of this study, it might deliver evidence based on which therapies or interventions in positive psychology could be built. For example, it might back up a type of

therapy aimed at increasing psychological richness by integrating more flow into the patients' life. If, on the other hand, no correlation is found, it still widens the scientific body of knowledge surrounding these concepts.

Flow

Flow is defined by Nakamura and Csíkszentmihályi (2014) as a state of high concentration paired with total absorption in a task. This state is often experienced by athletes, painters and musicians, although flow is also experienced in mundane situations such as household chores and work on assembly lines (Csíkszentmihályi, 1992/2002). Nakamura and Csíkszentmihályi (2014) have identified six different characteristics of a flow experience. The first is an intense and focused concentration on the action performed in the present moment. The second characteristic is that action and awareness merge, which is often described as becoming one with the action. The third is that there is no reflective self-consciousness anymore when concentrated on the task. The fourth is that there is a strong sense that one can control one's actions, knowing how to respond to whatever happens next. The fifth characteristic is that temporal experience gets distorted, where it is mostly reported that time passes faster than usual. The sixth characteristic of flow is that it is *autotelic*, which means it is intrinsically rewarding, regardless of the outcomes it might bring. This motivates an individual to engage in the flow-producing activity repeatedly, consequently facilitating learning.

To enter the flow state, besides having to direct concentration on the task at hand Nakamura and Csíkszentmihályi (2014) name two conditions that must be met. The first is that perceived challenges of the task and the skills one has to deal with them lie within the correct range, that is, between being too easy/having too much skill and being too hard/ lacking the necessary skills. Challenges should marginally exceed one's skills so that the individual is working at full capacity. The second precondition for a flow state to occur is that clear goals are given and that there is immediate feedback about the progress that is being made. The action can then be adjusted according to the feedback.

Consequently, with challenges that stretch one's skills and immediate positive feedback, an individual emerges with a wider set of skills and a higher capacity to confront the challenges of a given task (Csíkszentmihályi, 1992/2002). This leads to learning and the emergence of a self that is more complex than it was prior to the flow experience. Increased complexity in this context also means psychological growth of the self. As the Flow experience is intrinsically rewarding, it makes sense that in retrospect, individuals experiencing a flow state regard it as

being highly enjoyable. The question then arises whether experiencing a flow state also increases well-being in general, that is, outside of the task itself.

Well-being

In contemporary psychology, two types of well-being are most widely accepted: *hedonic well-being* (Diener, 1984) and *eudaimonic well-being* (Ryff & Singers, 1998). Firstly, hedonic well-being is congruent with Diener's (1984) conception of subjective well-being and pertains to an individual's subjectively felt life satisfaction, positive affect and the absence of negative affect.

Eudaimonic well-being, on the other hand, has less of a focus on raw emotions; there are rather two other characteristic components of eudaimonic well-being, namely, personal meaning and growth (Ryff & Singers, 1998). It is often put in connection to Ryff and Singers' (1998) concept of psychological well-being, which is also connected to positive functioning. Especially the component of growth will be of special interest for this research because of its apparent connection to the self's increase in complexity after a flow experience. Lastly, it should be noted that hedonic and eudaimonic well-being both cannot be said to be fully distinct from each other conceptually and that a correlation between high levels of hedonic well-being and high levels of eudaimonic well-being has been shown before (Grant & McGhee, 2021; Huta & Ryan 2010). Previous research has shown Psychological Need Satisfaction as a common core connecting eudaimonic and hedonic well-being in that an individual has both the need for a meaningful (eudaimonic) and happy life (hedonic) (Martela & Sheldon, 2019). As these two types of well-being have the most solid scientific foundation and are regarded as two crucial aspects of well-being in general, they will be investigated and referred to as the combined construct of well-being in the current research.

Psychological Richness

Oishi and Westgate (2021) suggest that there is yet another type of well-being promising for an investigation of the good life. They propose the concept of *psychological richness* as a complement to the dichotomous view of well-being dominating psychological research. A psychologically rich life, as Oishi and Westgate (2021) define it, includes a variety of interesting and perspective-changing experiences. Moreover, Oishi and Westgate (2021) explicitly state that besides unexpectedness, novelty and complexity, change in perspective is most integral for an individual to experience an event as psychologically rich. With change in perspective being the biggest factor of psychological richness, it gives rise to the assumption that an event might contribute to psychological richness if it provokes a change in perspective

even though the event itself is not far away from the day-to-day experience of an individual. Moreover, it is the subjective evaluation of an event's unexpectedness, novelty and complexity that influences psychological richness (Oishi & Westgate 2021). This then means that only the subjective experience of an individual is indicative of an event's psychological richness and not objective environmental circumstances.

The Relationship between Flow, Psychological Richness and Well-being

Relating the concept of flow to both types of well-being and psychological richness, a theoretical connection between the concepts becomes apparent. Firstly, between Flow and eudaimonic well-being, there is the peculiarity that both concepts have a strong emphasis on goals and growth. Firstly, to experience flow, it is a necessary condition that one's skills stretch when trying to overcome the challenges of a given task, which consequently leads to increased complexity of behaviour, which Csíkszentmihályi identified as growth (Csíkszentmihályi, 1992/2002). On the other hand, for eudaimonic well-being, growth is also a core component. In this respect, an individual's eudaimonic well-being levels depend on a subjectively felt sense of growth within the framework of its life (Ryff & Singer, 1998). To experience a meaningful life, individuals need to have the feeling of having a place in this world, from which they can contribute to positive change in the world. This is labelled as the “life purpose”. Eudaimonic well-being levels correlate with goal-directed progress aligned with the life purpose. This process is referred to as personal growth.

The theoretical connection between flow and eudaimonic well-being becomes apparent through the fact that in both constructs, goals are present in relation to which growth occurs. In flow, there is the goal of overcoming a challenge for which the individual has to grow its skills. In eudaimonic well-being, goals relate to the life purpose, in relation to which personal growth occurs. In this regard, previous research has provided evidence for a positive correlation between flow and eudaimonic well-being (Sedlar, 2014). Especially, the flow dimensions of having clear goals and autotelic experience were mostly connected to a meaningful life.

Coming to the relation between flow and hedonic well-being, Moneta (2004) indicates that flow is directly connected to hedonic well-being because, for flow, positive affect is a fundamental attribute due to its autotelic nature. Additionally, Fritz and Avsec (2000) found that higher intensity of flow experiences is predictive of higher levels of hedonic well-being. Specifically, challenge-skill balance, autotelic experience and action-awareness merging were most closely connected with measures of positive affect.

Lastly, about the connection between flow and psychological richness, it should be noted that there has been no prior research on the relation between these concepts, wherefore the following considerations are to be regarded as speculative. There are two apparent connections between flow and psychological richness: growth and novelty. In psychological richness, growth appears as a change in perspective resulting from a mostly novel experience. Drawing the connection, this partially reflects the growth that occurs in flow. Here, growth constitutes learning a new behaviour to overcome the challenge of a task, consequently leading to psychological growth of the individual itself. Moreover, for an experience to be labelled as psychologically rich, it has to be novel and perspective-changing from the subjective standpoint of the individual. This means that even everyday situations, which from an outside perspective would not be regarded as novel, can in fact, be experienced as novel from the standpoint of the individual. For example, in doing household chores such as cleaning that occur every day, an individual can challenge itself in a variety of ways to produce a novel experience and make it psychologically rich. This reflects what Csíkszentmihályi (1992/2002) regards as an *autotelic personality*; a personality most likely to experience flow. These autotelic personalities create challenges in everyday situations, leading them to experience flow more often. It can now be argued that autotelic personalities with their ability to create novel, flow-producing experiences are more likely to lead a psychologically rich life. Reversing this argumentation, it might also be that a person rarely experiencing flow, might lead a life low in psychological richness due to a predisposition to experience everyday activities with a sense of disapproval and lack of involvement.

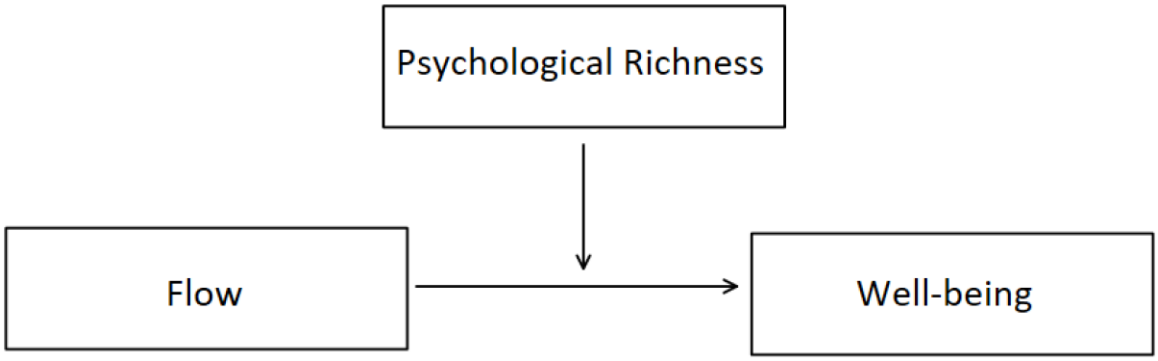
With this assumed relation between flow and psychological richness, further intricacies and underlying mechanisms should be considered. One of these is a possible moderation effect of psychological richness on the relationship between flow and well-being. When a psychologically rich person experiences flow, it might be that he or she is getting more out of this experience than a person scoring low on psychological richness. Consequently, with their predisposition to engage with life in a psychologically rich way, such a person might be able to draw more perspective change and growth out of a flow experience. That would result in higher well-being levels due to the prominent role growth plays in eudaimonic well-being. In conclusion, a person living a psychologically rich life might experience more growth following a flow experience, resulting in a bigger effect of flow on well-being.

Current Research

In this study, the relationship between flow and well-being will be investigated, focusing on psychological richness as firstly, a correlate of a flow experience, and secondly a possible moderator of the effect of flow on well-being (See Figure 1). The sample will consist of university students, although the focus will not be on study-related flow, but on the general frequency of flow.

Figure 1

Research Design: The relationship between flow (independent variable) on well-being (dependent) as moderated by psychological richness (moderator variable)



Research Questions and Hypotheses

Consequently, three research questions are formulated:

Research Question 1: Is there a correlation between frequency of flow and well-being?
Research Question 2: Is there a correlation between frequency of flow and psychological richness?
Research Question 3: Is psychological richness moderating the effect frequency of flow has on well-being?

The corresponding hypotheses are as follows:

Hypothesis 1 (H1): The frequency of flow positively correlates with well-being.
Hypothesis 2 (H2): The frequency of flow positively correlates with psychological richness.
Hypothesis 3 (H3): The effect the frequency of flow has on well-being is moderated by psychological richness.

Methods

Design

To conduct this study, a cross-sectional design was chosen in which multiple scales were presented to the participants in succession. It should be noted that scales that do not pertain to this study were also employed, which will not be discussed here. Ethical approval was received from The Ethics Committee of the Faculty of Behavioural Sciences (ECBMS) at the University of Twente (application number: 220324)

Participants

To take part in this study participants had to be English-speaking university students aged above 16. Every participant had to give consent in order to take part in the study. A convenience sampling method was employed, where a link to the study was shared via the social media platforms Instagram, WhatsApp and Reddit. Furthermore, the study was published on the online application system SONA, where students got 0.25 credit points as compensation for completing the study. In total, 197 responses were collected, although 79 participants had to be taken out. Of these, 60 participants were deleted because they did not give consent, left the study or did not answer all questions, 11 were deleted for not stating their age or being too young. Lastly, an additional 8 participants were deleted for completing the in under 5 minutes, which was set as the minimal time needed to complete the survey. A complete overview of the demographics can be found in Table 1.

Table 1

Demographics: Gender Identity, Age and Nationality of the Sample (n = 118)

Variable	Frequency	Percentage
Gender Identity		
Female	80	67.8
Male	34	28.8
Non-binary	2	1.7
Prefer not to say	2	1.7
Age (years)		
16 - 20	31	26.3
21-25	76	64.4
26-31	5	4.2
32-47	7	5.9
Nationality		
German	76	64.4
Dutch	13	11.0
Other	29	24.6

Materials

The questionnaire was created and conducted using the web-based survey tool Qualtrics, which also collected and saved the responses. In order to measure flow, well-being and psychological richness, respective scales were included.

Flow State Questionnaire (PPL-FSQ)

To measure the frequency of flow, the Flow state Questionnaire of the Positive Psychology Lab (PPL-FSQ) was employed. The PPL-FSQ was developed by Magyaród et al. (2013) and consists of 20 Items with two underlying factors. The first factor is Balance between

challenges and skills, which covers 11 items. The second factor is Absorption in the task which covers 9 items. These factors and the items respectively were derived from the theoretical and empirical groundwork of Csíkszentmihályi on flow (Csíkszentmihályi, 1992/2002). The factor pertaining to the balance of challenges and skills covers items pertaining to the dimensions: skills-challenge balance, feeling of control, and clear goals. Furthermore, the second factor, absorption in the task, covers aspects pertaining to the lived experience and includes change of time perception, forgetting the environment, merging with the task, autotelic experience and focused concentration. As the present study aims to measure the frequency of flow experience in day-to-day life, and the items of the original questionnaire were relating to activities in the singular, the wording of the items was changed so that they relate to activities in the plural (See Appendix D). Consequently, also the scoring system was changed from a 5 -point Likert-sale (1 = Strongly disagree - 5 = Strongly agree) to a 6 -point Likert scale (1 = Almost always - 6 = Almost never), which, combined with asking participants to base their answer on their experience of the preceding week allowed for more generalised and nevertheless timely concise measurement of the frequency of flow. For this, the Likert scale of the Mental Health Continuum Short-Form (MHC-SF) was used because it is specially designed to measure frequencies. Moreover, the 6 -point Likert scale was employed to avoid a central tendency and give more readily observable results. Hence, the highest score possible for this questionnaire is 120, and the lowest score 20. The reliability of the questionnaire fulfils the psychometric requirements with a Cronbach's alpha of .84. Moreover, Intercorrelation between the factors is low ($r = .221$, $p < .01$) (Magyaród et al. 2013). With the modified items and the sample of this study, a Cronbach's alpha of .90 was found.

The Psychologically Rich Life Questionnaire (PRLQ)

For measuring psychological richness, the short version of the Psychologically Rich Life Questionnaire was used (See Appendix E). It was developed by Oishi et al. (2019) and is based on the theoretical work of Oishi and Westgate (2021) on psychological richness. The short form of the PRLQ consists of 12 items that measure different aspects of a psychologically rich life, as indicated by Oishi and Westgate (2021). Scoring is done on a 7 -point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The highest score possible is 84, and the lowest 12. The scale indicated a good internal consistency with a Cronbach's alpha of .93 (Oishi et al., 2019). For the present study's sample, reliability was excellent, with a Cronbach's alpha of .91.

Mental Health Continuum Short Form (MHC-SF)

The MHC-SF is a shorter version of the Mental Health Continuum Long Form and includes 14 items in total (See Appendix C). These items are representative of three types of well-being. The first is emotional well-being, which covers three items and closely reflects what was already described as hedonic well-being. Moreover, the other two types of well-being, namely, psychological and social well-being, cover 6 and 5 items respectively and relate to what was described as eudaimonic well-being. Participants are asked to indicate for the preceding month how often they feel a particular statement to be true. Responses are scored on a 6 -point Likert scale ranging from 0 "never" to 5 "every day". In total, the highest score possible is 70 and the lowest 0, with higher scores indicating higher levels of well-being. Based on this score, participants can be located on a continuum ranging from languishing (low scores) to flourishing (high scores). Internal reliability scores for the MHC-SF are high, with a Cronbach's alpha of 0.89. Moreover, the MHC-SF has been shown to have good test-retest reliability (Lamers et al., 2010). The present study's reliability was excellent, with a Cronbach's Alpha of .92.

Procedure

After clicking the link to start the survey on Qualtrics, participants were presented with a short debriefing explaining the purpose of the study and a declaration of ethical considerations, which included that the risk for harm in the study is low, that participants could withdraw at any time without reason and that data would remain confidential and anonymous (See Appendix A for the informed consent). Participants then had to give their consent by clicking: "I agree to participate in this study", which led to the next page, which asked for demographics. Then, after stating the demographics (Appendix B) the questionnaires were presented, starting with the MHC-SF (Appendix C), continuing with the PPL-FSQ (Appendix D) and ending with the PRLQ (Appendix E). It should be noted that in-between other questionnaires were employed as well, which are not subject to this research project and will therefore not be mentioned here. Lastly, participants were thanked for their collaboration and given the opportunity to reach out to the researchers through e-mail in case they had questions. The whole questionnaire as it appeared to the participants can be found in the Appendix.

Data Analysis

The acquired data was analysed using SPSS (version 25). First, all data that did not fulfil the inclusion criteria was deleted. This included participants who did not consent, left out any answers, withdrew from the study, were too young or who completed the survey in under

5 minutes. Before checking for correlations, the FSQ was reversed so that high scores relate to high levels of flow. Then, Pearson correlations were calculated, which allowed for the investigation of a correlation effect between flow and well-being (Hypothesis 1) and flow and psychological richness (Hypothesis 2). Whether the effect of flow on well-being is moderated by psychological richness (Hypothesis 3) was analysed using the PROCESS macro moderation analysis by Andrew Hayes, with flow as the independent variable, well-being as the dependent variable and psychological richness as the moderating variable (Hayes, 2017).

Results

Descriptive statistics

Descriptive statistics of the scores on the Mental Health Continuum Short-Form (MHC-SF), Flow State Questionnaire (PPL-FSQ) and Psychologically Rich Life Questionnaire (PRLQ) can be found in Table 1, which shows the mean scores and standard deviations of the scales with a sample size of 118.

Table 1

Means and Standard deviations of the MHC-SF, FSQ and PRLQ (N=118)

	M	SD
MHC-SF	3.87	.96
PPL-FSQ	4.05	.67
PRLQ	5.14	1.05

Note. The Mental Health Continuum Short-Form (MHC-SF) and the Flow State Questionnaire (PPL-FSQ) were measured with a 6-point Likert scale and the Psychologically Rich Life Questionnaire (PRLQ) with a 7-point Likert scale.

Correlation between Flow and Well-being

A Pearson correlation coefficient was computed to assess the first hypothesis concerning a possible linear relationship between flow and well-being. There was a positive correlation between flow and well-being, $r(116) = .55$, $p < .001$. Consequently, the first hypothesis is accepted.

Correlation between Flow and Psychological Richness

To assess the second hypothesis concerning a possible linear relationship between flow and psychological richness, another Pearson correlation coefficient was computed. There was a positive correlation between flow and psychological richness, $r(116) = .33$, $p < .001$. Consequently, the second hypothesis is accepted.

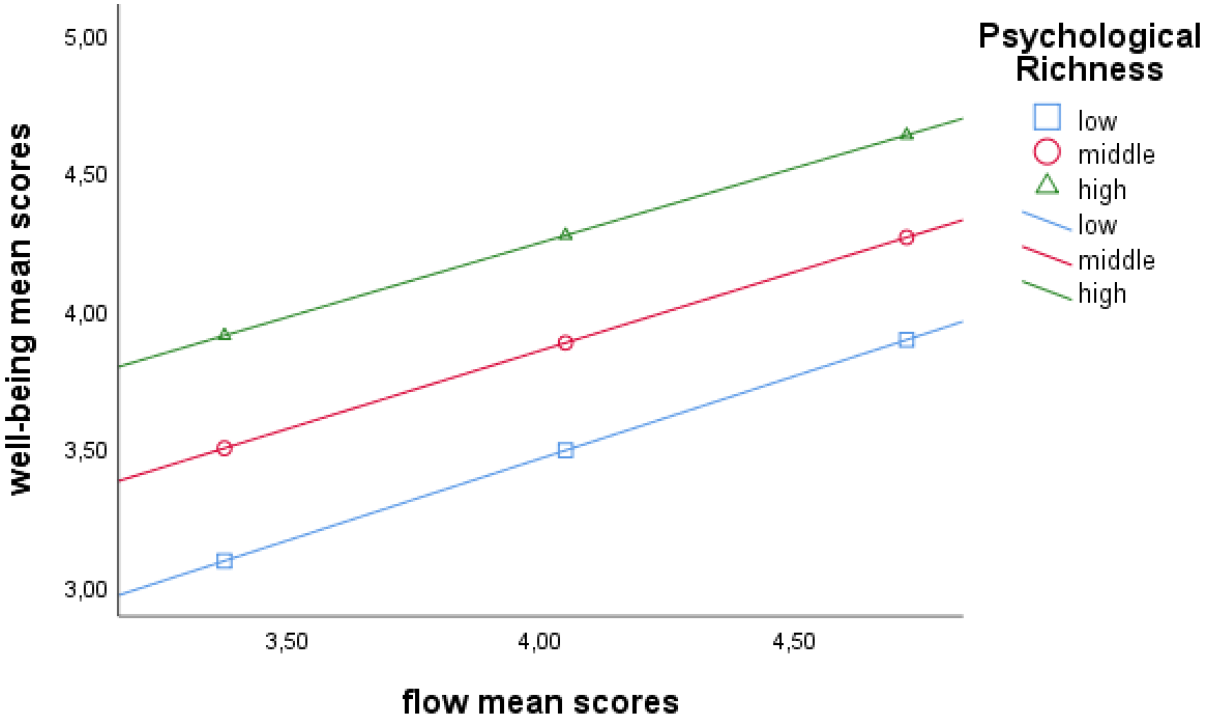
Moderation Test of Psychological Richness

To answer the third hypothesis, the PROCESS macro analysis by Andrew Hayes was run to test whether the interaction between psychological richness and flow significantly predicted well-being levels. The overall model was significant, $F(3, 114) = 28{,}95$, $p < .05$, accounting for 45.61% of the variance in well-being levels.

Although, no significant interaction effect of psychological richness on the relationship between flow and well-being was found, $\Delta R^2 = .00\%$, $F(1, 114) = .03$, $p = .87$, 95% CI [-0.33, -0.28]. Because the interaction effect between psychological richness and flow does not explain any variance in well-being levels, the third hypothesis is rejected. A scatterplot depicting these findings can be found in Figure 2. It can be seen that for all three levels of psychological richness, the effect flow has on well-being remains the same.

Figure 2

Scatterplot depicting the results of the moderation analysis



Note. Scores on psychological richness were averaged to match three different levels depicting low, middle, and high scores respectively.

Discussion

The aim of the current research was to investigate the relationship between flow, well-being and psychological richness. As the relationship between flow and well-being is scientifically accepted (Fritz & Avsec, 2000; Moneta, 2004; Sedlar, 2014), this study specifically focused on psychological richness as, firstly, a correlate of flow and, secondly, a moderator of the effect of flow on well-being. Because this relationship was not researched before, the rationale behind this investigation was a theoretical connection between flow and psychological richness, where in both concepts, novelty and growth/change are fundamental. Moreover, psychological richness was thought to be indicative of a predisposition to experience growth following a flow experience and with that moderating the effect of flow on well-being.

The first hypothesis: "The frequency of flow positively correlates with well-being." was confirmed by the current research. A Pearson correlation analysis showed a moderately strong positive correlation between flow and well-being.

Coming to the second hypothesis: “The frequency of flow positively correlates with psychological richness.”. Here, a weak positive correlation between flow and psychological richness was found, confirming the second hypothesis.

However, the third hypothesis: “The effect frequency of flow has on well-being is moderated by psychological richness.” had to be rejected. This study did not find evidence for a moderation effect of psychological richness on flow and well-being. Psychological richness, hence, cannot be said to increase the amount of well-being following a flow experience.

Flow and Well-being

As the first hypothesis was confirmed and a correlation effect between flow and well-being was found, it can be concluded that in this regard, the findings are in line with previous research. Considering that the autotelic, intrinsically rewarding nature of a flow experience is conceptually close to what is measured with hedonic well-being and that the growth following a flow experience is conceptually close to growth measured in eudaimonic well-being, the findings seem to be perfectly in line with this theoretical connection between the concepts. Although the link between flow and well-being is well established, it should be noted that most research measured flow in specific situations, such as in a student sample: flow experience in study situations. This study, on the other hand, employed a slightly modified version of the PPL-FSQ, which explicitly asked for the frequency of flow experiences throughout everyday life. Therefore, it can be concluded that this research took a slightly different approach, with nevertheless the same outcome.

Flow and Psychological Richness

For the relationship between flow and psychological richness, a positive correlation between the concepts was found. As there has been no research on this relationship before, this study delivers promising results for the investigation of flow and psychological richness. What might explain this finding is the theoretical connection between flow and psychological richness, with both having an emphasis on novelty growth and change. Moreover, because psychological richness is yet another type of well-being (Oishi & Westgate 2021), and with that conceptually close to eudaimonic and hedonic well-being, which both have been shown to correlate with flow (Fritz & Avsec, 2000; Sedlar, 2014), the found correlation might be explained.

Moderation of Psychological Richness on Flow and Well-being

It was found that higher levels of psychological richness did not predict the magnitude of the effect flow has on well-being. Regardless of the levels of psychological richness, the effect flow had on well-being remained the same. Therefore, the assumption that people living a psychologically rich life would have a predisposition to experience more growth resulting from a flow experience is to be rejected. Because a correlation between flow and psychological richness was found, it might be that higher levels of psychological richness result from flow as a consequence, but not influence the experience of flow itself. The explanation for the fact that no moderation effect of psychological richness was found might lie in the directionality of the relation between flow and psychological richness. As stated above, it is apparent that psychological richness is a posterior byproduct of flow rather than a prior influence on how flow is experienced. This might mean that the novel, and growth-producing nature of a flow experience, as a consequence heightens an individual's level of psychological richness. Applying this in clinical practice, Interventions integrating flow could result in higher levels of psychological richness. However, as of now, these are still assumptions that nonetheless deliver important implications for future research.

Strengths and Limitations

There are a few limitations of the current study that must be adressed. The first limitation pertains to the version of the PPL-FSQ that was employed in this research. In the original scale, items were related to one specific situation in which flow was measured. Therefore, the whole scale was constructed around measuring flow in one specific, often experimentally controlled condition. However, in this study, the items were changed to refer to situations in the plural, allowing measure a general predisposition to experience flow. This might be problematic because the psychometric properties of this scale were calculated for the original scale with the purpose of measuring flow in a specific setting. However, the scale still showed an excellent Cronbach's alpha for this study, wherefore, this limitation should not be regarded as a problem.

The second limitation relates to the fact that this study employed a cross-sectional design. This type of design limits the depth of what can be deduced from the research in that it only allows for a one-time measurement of all variables of interest (Wang & Cheng, 2020). This means that no information on the directionality or causality of the relation between flow, well-being and psychological richness can be drawn. As can be seen above, this means any inferences drawn on directionality are merely speculative by nature, limiting their scientific

value. However, as a cross-sectional design is often a relatively cheap and timely alternative to other designs, it can, with little investment, reap the reward of shifting scientific interest in any promising direction, such as a newly discovered correlation (Wang & Cheng, 2020).

The third limitation to be noted here relates to the measured concepts. All assumed to be constituents of the "good life": flow, eudaimonic/hedonic well-being and psychological richness shared considerable conceptual overlap. This can be problematic in that it makes it hard to distinguish and pinpoint underlying reasons for correlations. For example, one could argue that flow and hedonic well-being cannot be separated conceptually as flow with its autotelic nature is already a symptom of hedonic well-being. This would limit what can be derived from correlational studies on these concepts. The same goes for the conceptual overlap of the growth following a flow experience, the change in character following a psychologically rich experience and the factor of psychological growth in eudaimonic well-being. However, without a conceptual link between concepts, there would be no rationale to look for correlations. Moreover, as the correlations found were not extreme, it can be deduced that rather than conceptual overlap, it is instead a matter of theoretical connection. Therefore, this limitation is not further regarded as problematic.

Coming to the strengths of the current study, this study, built on the prior investigation of the relationship between flow and well-being, could expand research on this relationship by including psychological richness as a third type of well-being. Consequently, this study contributes toward breaking the paradigm of the dichotomous view of well-being. It was shown that besides eudaimonic and hedonic well-being, also psychological richness is a type of well-being correlated with flow. This might, along with the theoretical considerations, deliver a ground for future research and implications for therapy. The finding that flow correlates with psychological richness opened the door to replication studies and studies that employ other methods and designs. Especially, the directionality of the relation between flow and psychological richness should be investigated, based on which new theories could be built. As for therapies, this research might have set the first basis of evidence pertaining to interventions built around promoting psychological richness using flow.

The second strength is that this study measured flow in everyday situations. As opposed to most studies on flow, which mostly focus on one specific, this research emphasised the importance of flow throughout everyday life, broadening the scientific body of knowledge surrounding flow. This might also help to break the prejudice that flow can only be experienced in work or play settings (Csíkszentmihályi, 1992/2002).

Lastly, this study showed good markers for statistical reliability and validity, with a big enough sample size and good psychometric properties for all scales.

Implications for Future Research

Based on the current studies' findings and limitations, some implications for future studies can be deduced. Firstly, based on the limitations, it can be recommended to use another scale to measure flow. To measure flow in general for example, there is the *Dispositional Flow Scale-2 (DFS-2)*, which is specifically designed to measure a person's disposition to experience flow (Johnson et al., 2014). Therefore, when measuring the general tendency to experience flow, as in this study, the DFS might be a better fit. This is, firstly, because the items are not relating to any specific experience and secondly, because the scales' psychometric properties were established for this specific purpose. Another approach to investigating the relation between flow and psychological richness is to measure aspects of autotelic personality rather than flow itself. For this purpose, there is the *Autotelic Personality Questionnaire (APQ)* (Tse et al., 2018). The APQ focuses on the different character traits of the autotelic personality, which allows for a good estimate of a person's proneness to experience flow. Additionally, it can provide further insight into how certain subcomponents of the autotelic personality, such as curiosity relate to psychological richness. Moreover, it can also be recommended to additionally look into the relationship between flow and psychological richness using a scale that measures flow in a field specific to the sample; for example for students the *Study-Related Flow Inventory (WOLF-S)* (Ljubin Golub et al., 2017). This would allow for a more nuanced investigation of the relationship between flow and psychological richness.

Coming to the limitations pertaining to the fact that this study is cross-sectional, it can be recommended to employ other study designs. For example, a randomised controlled trial with two groups, in which one group is asked to partake in an intervention aimed at building optimal conditions for a flow (setting goals, eliminating distractions, and creating challenges (Nakamura & Csíkszentmihályi, 2014)) and one group as a control group that does not receive any intervention. Before and after the study, dispositional flow and psychological richness could be measured, which would allow for insights into the directionality of the relationship between both concepts.

Thirdly, it can be recommended to further differentiate the concepts and also investigate correlations between subscales. For example, a focus could be set on any one of the dimensions of flow, such as merging with the task and then looking at how it correlates with subscales or aspects of psychological richness or eudaimonic well-being. This would bring a more in-depth

understanding of the concepts and allow for finer distinctions between underlying mechanisms. Consequently, with this more detailed investigation, we might be able to uncover interaction effects among these subscales and dimensions.

Moreover, the effects found in this research, especially that of flow on psychological richness, should be replicated in other samples, using other methods as well, in order to achieve a greater generalisability and certainty of scientific inferences. Using other samples would allow drawing inferences applicable to a population exceeding that of university students. Also, employing other methods such as the DPS or WOLF-S can help to further back up or refute the findings of this research. With the APQ, more general implications could be drawn between autotelic personality and psychological richness that exceed the plainly experiential investigation of flow.

Most importantly, this research could hint at a yet unexplored correlation between flow and psychological richness, wherefore the main implication for future research is to investigate this more thoroughly. This could also entail looking for possible moderating variables of the relationship between flow and psychological richness. One example would be goal setting, which Csíkszentmihályi (1992/2002) has identified as a correlate and necessary precondition for flow. In this regard, setting first-order goals for the immediate task and setting higher-order goals such as mastery might indicate a person's willingness to achieve these goals and consequently influence the amount of psychological richness that results from growth and change. This argumentation also builds on previous research showing that goal-setting promotes behaviour change (Strecher et al., 1995), although the connection to psychological richness is only theoretical.

Conclusion

Within the confines of the debate on the "good life", research on flow has often focused on its relationship to eudaimonic and hedonic well-being. However, the current research could show that besides the traditional two types of well-being, psychological richness is also positively correlated with flow. Moreover, it was found that psychological richness does not moderate flow's effect on well-being. This research was done to contribute to the ongoing debate on the good life and shed light on the relationship between flow, psychological richness and well-being. The results of this study might help to back up certain positive psychological interventions to increase well-being through therapies focusing on flow.

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Appendix A

Informed Consent

You are being invited to participate in a research study titled Exploring Creativity, Mindfulness, Flow and Well-being. This study is being done by Jannik Wessling (j.wessling@student.utwente.nl) and Jana Marquardt (j.marquardt-1@student.utwente.nl) from the Faculty of Behavioural, Management and Social Sciences at the University of Twente. The purpose of this research study is to investigate the relationship between creativity, mindfulness, flow and well-being and will take you approximately 10 to 20 minutes to complete. The data will be used for research purposes only. Your participation in this study is entirely voluntary and you can withdraw at any time. Futhermore, you can skip questions if you do not want to answer them. You are free to omit any question about the research via E-mail. We believe there are no known risks associated with this research study; however, as with any online related activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by deleting the data two years after the data collection.

I agree to participate in this study

I do not agree to participate in this study

Appendix B

Demographics section of the survey

Please indicate your nationality.

- Dutch
- German
- Other

Please indicate the gender you identify with.

- Female
- Male
- Non-binary
- Prefer not to say

Please indicate your age.

Appendix C

Mental Health Continuum Short-Form (MHC-SF) with instructions

Please answer the following questions, they are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

During the past month how often did you feel...

	Never	Once or twice	About once a week	About two or three times a week	Almost everyday	Every day
happy	○	○	○	○	○	○
interested in life	○	○	○	○	○	○
satisfied with life	○	○	○	○	○	○
that you had something important to contribute to society	○	○	○	○	○	○
that you belonged to a community (like a social group, or your neighborhood)	○	○	○	○	○	○
that our society is a good place, or is becoming a better place, for all people	○	○	○	○	○	○
that people are basically good	○	○	○	○	○	○
that the way our society works makes sense to you	○	○	○	○	○	○
that you liked most parts of your personality	○	○	○	○	○	○
good at managing the responsibilities of your daily life	○	○	○	○	○	○
that you had warm and trusting relationships with others	○	○	○	○	○	○
that you had experiences that challenged you to grow and become a better person	○	○	○	○	○	○
confident to think or express your own ideas and opinions	○	○	○	○	○	○
that your life has a sense of direction or meaning to it	○	○	○	○	○	○

Appendix D

Modified version of the Flow State Questionnaire of the Positive Psychology Lab (PPL-FSQ) with instructions and modified Likert scale

In the following you are asked to indicate how you engaged with activities/tasks of your day-to-day life during the past week (for example: doing household chores, studying, making music, dancing, or others). We are interested in your general experience when you engage with activities, wherefore you are asked not to think of a specific activitity but rather your general approach to activities throughout the week.

Please indicate how often you could relate to the following statements during the last week when thinking of how you engaged with activities/tasks.

	Almost always	Very frequently	Somewhat frequently	Somewhat infrequently	Very infrequently	Almost never
My mind worked in total accordance with my body.	○	○	○	○	○	○
I handled the events.	○	○	○	○	○	○
The tasks meant an exciting challenge for me.	○	○	○	○	○	○
Time passed faster than I thought it did.	○	○	○	○	○	○
My attention was not engrossed at all by the activities.	○	○	○	○	○	○
The tasks were not too difficult.	○	○	○	○	○	○
I knew excactly what I had to do, and I acted like that.	○	○	○	○	○	○
I felt the things that I had to do suited well to my skills.	○	○	○	○	○	○
I found the tasks interesting.	○	○	○	○	○	○
I fused with the tasks.	○	○	○	○	○	○
The activities totally engrossed my attention.	○	○	○	○	○	○
I felt I can suit the requirements of the situations.	○	○	○	○	○	○
I felt my control over the situations.	○	○	○	○	○	○
My skills balanced with the challenges of the activities.	○	○	○	○	○	○
I was able to keep up with the challenges.	○	○	○	○	○	○
I could effortlessly perform well.	○	○	○	○	○	○
I knew I'm able to solve the tasks.	○	○	○	○	○	○
It was boring for me.	○	○	○	○	○	○
I forgot about the passage of time.	○	○	○	○	○	○
I forgot about my close environment.	○	○	○	○	○	○

Appendix E

Psychologically Rich Life Questionnaire (PRLQ) with instructions

Please indicate how much you agree with the following statements.

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
My life has been psychologically rich.	○	○	○	○	○	○	○
My life has been experientially rich.	○	○	○	○	○	○	○
My life has been emotionally rich.	○	○	○	○	○	○	○
I have had a lot of interesting experiences.	○	○	○	○	○	○	○
I have had a lot of novel experiences.	○	○	○	○	○	○	○
My life has been full of unique, unusual experiences.	○	○	○	○	○	○	○
My life consists of rich, intense moments.	○	○	○	○	○	○	○
I experience a full range of emotions via first-hand experiences such as travel and attending concerts.	○	○	○	○	○	○	○
I have a lot of personal stories to tell others.	○	○	○	○	○	○	○
On my deathbed, I am likely to say "I had an interesting life".	○	○	○	○	○	○	○
On my deathbed, I am likely to say "I have seen and learned a lot".	○	○	○	○	○	○	○
My life would make a good novel or movie.	○	○	○	○	○	○	○