The Impact of Self-Regulation on the Relationship between Engagement with Short-Form Content on Social Media and Well-Being among University Students

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Bachelor Thesis - Positive Clinical Psychology and Technology (202000381)

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July 2, 2024

Abstract

Short-form content engagement (SFCE), including TikTok, Instagram Reels and YouTube Shorts, is a fast-growing trend with both potential benefits and drawbacks for well-being. There is a gap in research on the factors determining healthy and unhealthy SFCE, but inference can be drawn from research on general social media usage and well-being, which suggests self-regulation as a key element. Therefore, this cross-sectional study investigated the relationship between SFCE and well-being, with self-regulation as a potential moderator. The two expected hypotheses were (1) that SFCE shows a significant negative relation to the well-being of university students and (2) that self-regulation has a significant positive moderation effect on this relationship. A sample of 71 university students, primarily from Germany and the Netherlands, completed an online questionnaire that measured these variables. Results showed unexpectedly low SFCE scores, despite young adults forming the largest user group. High SFCE showed a significant negative relation to well-being (p = .019), consistent with the first hypothesis and prior research (Dudukovic et al., 2023). However, self-regulation did not significantly influence this relationship (p = .79), contradicting the second hypothesis. The study highlights that the negative relationship between SFCE and well-being also applies to university students, although they showed low SFCE in this sample and are generally expected to be highly adaptable to technological change (Smith et al., 2020). It emphasizes the need for students and educators to consider and address challenges like attention allocation, as the use of technological devices becomes more integrated into curricula.

Keywords: short-form content, TikTok, Instagram Reels, well-being, self-regulation, university students

The Impact of Self-Regulation on the Relationship between Engagement with Short-Form Content on Social Media and Well-Being among University Students

Social media has been on the uprise since the introduction of Myspace and Facebook in 2003, but within the last years, a new trend has emerged. Short-form content (SFC) is taking over the internet by storm (Siek & Fariz, 2023). Although its creative and entertaining properties are welcomed by the ever-growing user-base, the potential negative consequences that excessive use and addiction can have on well-being are only starting to uncover (Dudukovic et al., 2023). University students, as young adults, are especially likely to join the trend and are therefore highly affected by the consequences. In trying to determine a difference between healthy and unhealthy short-form content engagement (SFCE), self-regulation might serve as one of the key influencing factors (Reinecke et al., 2022).

Short-Form Content Engagement

SFC is characterized as short user-generated videos ranging from a couple of seconds up to one minute. The videos often feature music and are viewed in a vertical format, where they can be scrolled through one after another. Currently, TikTok, Instagram and YouTube are the biggest platforms providing SFC. Since the release of TikTok to the world in 2018, its growth increased exponentially, causing it to surpass Facebook as the app with the highest monthly use in minutes worldwide. In the United States, people spend 32% of the time that they engage with social media apps on TikTok alone (Statista, 2024). Due to this success, Instagram and YouTube released their “Reels” and “Shorts” features between 2020 and 2021, which both exclusively focus on SFC. Compared to TikTok, Reels and Shorts are not separate apps, but incorporated in Instagram and YouTube. Both appear to be serious competitors to TikTok (Menon, 2022).

Engaging with SFC is a common part of the social media experience nowadays, but it can take place in different forms. Firstly, familiarity with SFC is crucial for content creators. A study has shown that Instagram accounts that have over 10.000 followers and consistently post reels grow two and a half times faster than those who do not post them (Siek & Fariz, 2023). This makes the creation of SFC one of

the most important tools to master, for people trying to generate reach online. Secondly, next to content creators, there is an even larger group of consumers. They watch, like, comment and share the videos that are created by other users. Every minute in December 2023, 694.000 Reels were shared as direct messages, underlining the scale of this group (Statista, 2024). Lastly, there is a large subgroup of consumers that can be defined as “lurkers”. This group has a passive approach, only watching SFC, without creating or engaging actively (Siek & Fariz, 2023). In the context of this research, SFCE describes time that is spent on the creation as well as the active engagement in terms of sharing, liking or commenting and the passive consumption of SFC. With a high amount of people spending more and more time engaging with SFC, it is highly important to understand the psychological implications and consequences of their usage behaviour.

Motivation behind and Consequences of SFCE

In order to understand how the consequences of SFCE come about, the motivation behind using SFC platforms, making them so successful, needs to be analysed. Menon (2022) conducted a quantitative study including 540 Reels users, aged 18-36, trying to conclude the motivational factors behind their usage. A total of seven main factors was found, which are socially rewarding self-promotion, entertainment, escape, surveillance, novelty, documentation and trendiness (Menon, 2022). The argument of escapism, which is frequently addressed in literature, is enhanced by the algorithms that SFC platforms use, presenting the user with videos that are tailored to their individual preferences and interests. These algorithms are so refined that users can get fully involved in what feels like an endless supply of videos fitting their interests, which allows them to temporarily escape from the buzz of everyday life (Rach & Peter, 2021). For the consumer group especially, entertainment plays one of the most important roles, whereas creators also benefit from having a creative outlet and challenge (Dudukovic et al., 2023).

One of the leading frameworks in explaining human motivation is the self-determination theory (Ryan & Deci, 2017). It combines factors of intrinsic and extrinsic motivation while arguing that the social and cultural context contribute to the individual factors that increase or decrease motivation

towards an action. The satisfaction of the needs for autonomy, competence and relatedness increases well-being and makes the engagement with an activity attractive. Autonomy includes the desire to feel independent and to express opinions and emotions. Competence describes feeling of capability and being able to achieve goals and to execute plans. Relatedness is the need to be accepted and loved as part of a group with a sense of safety from physical and emotional harm (Ryan & Deci, 2017). Additionally, a social context in which these needs are not supported, has a significant negative impact on a person's well-being (Ferguson et al., 2015). An argument can be made that social media in general offers the opportunity to satisfy these basic intrinsic needs (Reinecke et al., 2022). Creating expressive content, consuming relatable videos and receiving support when posting, commenting or sharing SFC can therefore be a major source of increased well-being (Reinecke et al., 2022; Zilka, 2018).

Although, engaging with SFC can bring a lot of benefits, excessive consumption is likely to overshadow them with addiction and distraction. A wide variety of serious mental health issues is linked to high levels of SFCE, which can range from anxiety, depression and loneliness to self-harm and suicide ideation (Dudukovic et al., 2023). Body-image and self-esteem are also more likely to be negatively affected with higher SFC usage. This happens due to the social comparison with content creators, who usually put a lot of focus on presenting beauty and perfection in a life that is filled with highlights. Although the lives that are presented are often not authentic, they are still used as a reference by millions of people. (Dudukovic et al., 2023). Especially when paired with low self-esteem, social comparison becomes one of the most negative influences on mental health (Reinecke et al., 2022). Additionally, escapism which has been described as a positive motivational factor allowing to reduce the stress of everyday life, can also be defined as "a behaviour employed to distract oneself from real life problems" (Young et al., 2017). This way, SFCE can adopt a distractive character, which allows for tedious tasks or boredom to be forgotten, but which can also temporarily disable more serious concerns like feelings of anxiety and depression (Kırcaburun & Griffiths, 2019). These motivations and consequences show how SFCE can affect mental well-being both positively and negatively.

Well-Being

Mental health is described by the World Health Organization as “a state of well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community” (World Health Organization, 2024). Unlike many people expect, the focus lies on a positive mental space, rather than the absence of mental illness. This well-being can be divided into emotional, psychological and social well-being (Lamers et al., 2011). Within these divisions, a variety of connections to SFCE can be drawn.

Emotional well-being describes happiness and the experience of pleasant emotions. Looking back at the motivational factors behind SFCE, it becomes clear how entertainment, creativity and the satisfaction of intrinsic needs can contribute to emotional well-being (Lamers et al., 2011; Menon, 2022). On the other hand, the consequences of excessive use, like a worsened body-image and lowered self-esteem, can significantly impact this area of well-being negatively. (Dudukovic et al., 2023).

Psychological well-being describes the extent to which an individual is functioning well in life. Self-acceptance, personal growth, purpose in life, positive relations with others, autonomy and environmental mastery have been identified as the main factors and challenges, that allow people to maximize their potential and therefore optimize their psychological well-being (Lamers et al., 2011). While SFCE can support that by offering a place where people get recognition for their achievements and relate to the challenges of others, it also brings the risk of serving as a great distraction from this path (Dudukovic et al., 2023; Reinecke et al., 2022).

Social well-being describes the extent to which an individual is functioning well in a community context. The dimensions in which this is measured are social integration, social contribution, social coherence, social actualization and social acceptance (Lamers et al., 2011). It is out of question, that social media contributes to the feeling of being part of a community, where one is integrated, accepted and able to contribute. However, the extent to which this also applies to SFCE is not yet clear. Especially, for the lurker group, entertainment appears to be prioritized over the maintenance of positive social

relationships. Additionally, social media can displace activities like offline social interaction, negatively affecting social well-being (Reinecke et al., 2022). The question arises, which factors determine whether well-being is positively or negatively influenced by SFCE.

Self-Regulation

Influencing factors on the relationship between SFCE and well-being are still a relatively novel area of research, but inspiration can be drawn from research on social media in general, without a specific focus on SFC. Self-regulation is an important variable to consider when analysing the effect of social-media usage on wellbeing. Self-regulation is defined as the "dynamic process of determining a desired end state (i.e., a goal) and then taking action to move toward it while monitoring progress along the way" (Reinecke et al., 2022). It works as a monitoring system, that compares current goals to the state of action of a person and tries to reduce possible discrepancies. Self-control is a type of self-regulation that comes into play when a conflict between goals and action is detected. It is defined as the "ability to override or change one's inner responses, as well as to interrupt undesired behavioural tendencies (such as impulses)" (Reinecke et al., 2022). Both self-regulation and self-control specifically have been found to benefit physiological health and mental well-being. Another component of self-regulation is emotion regulation, the process of altering the type or intensity of emotional states. Inference for SFCE can be drawn from the findings on general social media usage, where it shows to play a huge role in mood management, as it can be used to deal with stress and anxiety, like coping with pandemic related stress or through self-enhancing social comparison. However, the rewarding qualities of social media usage also make it more dangerous. By being readily available, the instantaneous rewards make them a highly tempting short-term alternative to more unpleasant tasks, which are focused on achieving long-term goals (Reinecke et al., 2022).

Even without a conflict between actions and goals, social media use can pose a risk to successful self-regulation. Social media is likely to be approached hedonically, where attention is automatically allocated to it, without conscious decision-making. The skill of meta-attention also forms a part of self-regulation, that entails being aware of one's attention state, as well as being able to regulate to what the

attention is allocated (Wu, 2015). Failing to do so can interfere with the monitoring and implementation processes, necessary for self-control and emotion regulation. As a result, social media use can displace other activities, such as offline social interaction, sleep or physical activity, which are essential for fostering well-being. Individuals can also be internally and externally interrupted from other tasks, by either experiencing a need to use social media or by receiving notifications. Social media use is further increased by the fear of missing out, perceived social pressure, connectivity expectations and the pressure to be continuously available and responsive. This means, while using social media can cause conflict with other goals, not using it also causes conflict with these intrinsic needs (Reinecke et al., 2022).

People differ in their capacity and motivation to self-regulate. The argument that can be drawn from this is that self-regulated social media use can serve as mood management, emotion focused coping and intrinsic needs satisfaction, whereas poorly regulated social media use leads to goal-conflict in the form of displacement of or distraction from other activities. This indicates that self-regulation might moderate the relationship between SFCE and well-being, where it will be more positive or at least less negative, for people with a high ability to self-regulate, compared to people with low self-regulation skills. It is therefore important to consider the nature of social media engagement when measuring it (Reinecke et al., 2022).

Target Group

University students, as young adults, form a group that is particularly exposed to SFC. With 64.3% of TikTok users being between the ages of 18 and 34, this group is at a high risk of being influenced by the consequences of SFCE (Statista, 2024). Different reasons lead to the target groups interest and engagement with the social media trend. This age group, as a generation, is one of the first to grow up in a world that is permeated by technology. They are therefore accustomed to a digital environment which can quickly change, causing them to be interested in and equipped with the skills to quickly adopt new technologies, like SFC (Smith et al., 2020). In the context of studying, university students are also exposed to digital devices constantly. This is often connected to an opportunity to

allocate attention to social media or SFC, suggesting self-regulation to be detrimental for the students' functioning (Wu, 2015). Not only does self-regulation contribute to their ability to study, but well-being and academic performance are also closely intertwined. Leading back to the self-determination theory, academic success, which is better achieved by being able to study more, increases well-being (Bücker et al., 2018). In reverse however, higher well-being also allows for better academic performance, because a positive emotional state leads to increased motivation, self-regulation and learning capability. Although these variables are only a small fraction of factors that contribute to concepts like academic performance and well-being, they underline the importance of understanding the influence that SFCE has on this group (Bücker et al., 2018).

Research Question and Hypotheses

This work aims to expand on the findings of previous research by researching the question: "What role does self-regulation play for the impact of short-form content engagement on the well-being of university students?". The goal is to bridge the gap of research there is on the relationships with SFCE, compared to conventional social media usage. While positive and negative consequences of SFCE have already been identified, the determinants that differentiate between healthy and unhealthy engagement are yet to be explored. To answer the question, the first hypothesis that will be tested is that SFCE has a significant negative relationship with well-being. Based on previous research it appears likely that the negative consequences of SFCE become stronger, the more time is spent on it. Well-being in general is picked as a variable because all division of well-being are expected to be negatively affected by SFCE, without major differences. The second hypothesis that will be tested is that self-regulation has a significant positive moderating effect on the relationship between SFCE and well-being. Due to the promising outcomes of self-regulated social media usage, a high capacity of self-regulation and motivation to self-regulate are expected to mitigate the negative consequences SFCE has on well-being.

Methods

Design

A cross-sectional design was used for this study, to investigate the effect that self-regulation has as a moderating variable on the relationship between SFCE as an independent and well-being as a dependent variable. To do so, an online survey was administered to students at universities and universities of applied sciences. Ethical approval for the study design was given by the BMS ethics committee/domain humanities and social sciences (HSS) of the University of Twente for request number 240423 on March 25, 2024.

Participants

Several inclusion and exclusion criteria were established to determine eligibility for participation in this study. Participants had to be at least 18 years old and currently enrolled as a student at a university or a university of applied sciences. Additionally, a sufficient understanding of English was required. The main criterium for exclusion was currently having a diagnosed mental illness, due to the likely consequences on well-being.

To determine the minimal sample size required for this research design a power analysis was executed. This included a medium effect size, a .05 level of significance and a power of .80. The according sample size needs to be 67.

The demographic characteristics of participants of the final sample (n = 71) are presented in Table 1. They had an average age of 22 years (SD = 1.71). There were slightly more females, compared to male participants. The two main nationalities present in the sample were German and Dutch. Other nationalities included Cypriot, Greek, Latvian, Polish, Ukrainian and Vietnamese.

Table 1

Demographic Characteristics of Participants

	n	%
Gender		
Female	43	60.6
Male	28	39.4
Nationality		
Dutch	17	23.9
German	48	67.6
Other	6	8.5

Note. N = 71. Participants were on average 22 years old (SD = 1.71), and age did not differ based on the other characteristics.

Materials

After being informed about the study and giving their consent, participants were first presented with questions about their demographics. They were asked to give their age in years, as well as their gender and nationality. The exclusion criteria were checked by asking the questions 'Are you currently studying at a university or a university of applied sciences?' and 'Are you currently diagnosed with a mental illness?', which could be answered with 'yes' or 'no'. The whole questionnaire used can be found in Appendix A.

Short-Form Content Engagement

SFCE was assessed using the Social Media Use Scale (SMUS). This is one of the most widely used questionnaires, to measure social media usage, because the items were specifically designed and formulated to make it suitable for a variety of social media platforms (Tuck & Thompson, 2023). This means, the questionnaire could be easily adopted to measure SFCE, by instructing participants to only

give their answers for activities related to the use of TikTok, Instagram Reels and YouTube shorts. To avoid confusions, minor adjustments were made to the wording of some questions, for example in the statement ‘Made/shared a post or story about something positive that was personally about me’, the ‘or story’ was cut as it does not fit the context of SFC platforms. Participants had to reply to 17 statements, by indicating how often they engaged in the described activity during the last week on a Likert-scale ranging from 0 (never) to 9 (hourly or more). A high total mean on this scale would mean that an individual spends a lot of time engaging with SFC and that this engagement is important to them, occupying them mentally. Confirmatory factor analysis has proven the validity of the 17-item scale to be high with a CFI of .92 for a four-factor model dividing social media usage / SFCE into image-based, comparison-based, belief-based and consumption-based. The items show good internal consistency (α = .77 - .83) and the factors are significantly related (r = .20 - .55), while still measuring distinct subcategories (Tuck & Thompson, 2023). Therefore, the SMUS offers a rather short tool that can be used to measure SFCE with strong psychometric qualities (Tuck & Thompson, 2023).

Well-Being

The ‘Mental Health Continuum – Short Form’ (MHC-SF) was utilized to measure well-being. This short self-report measure comprises 14 items, allowing for quick and easy completion, making it an efficient tool for mental health screening and evaluation. Its three-dimensionality of emotional, psychological and social well-being has been approved by a confirmatory factor analysis (Lamers et al., 2011). An example question assessing emotional well-being is, “How often in the past month did you feel happy?” For psychological well-being, a sample question is, “How often in the past month did you feel good at managing the responsibilities of your daily life?” and for social well-being, “How often in the past month did you feel that you had something important to contribute to society?”. Participants respond on a scale from ‘never’ (1) to ‘every day’ (6), where a high total mean represent high well-being which is cumulated from all its dimensions. The MHC-SF also demonstrates discriminant validity, distinguishing mental health from mental illness as a separate component of well-being. Its internal reliability is high (α

= .74 to .89), and the test–retest reliability ranges from .49 to .65, indicating satisfactory psychometric properties (Lamers et al., 2011).

Self-Regulation

Self-regulation was measured using the short self-regulation questionnaire (SSRQ). This is a shortened version of the self-regulation questionnaire (SRQ), consisting of only 31 instead of 63 items, making it more suitable for a cross-sectional study. Regular items, like 'I usually keep track of my progress towards my goals', and reverse items, like 'I get easily distracted from my plans', are to be answered on a Likert-scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The reverse items, as presented in Appendix A, are question 33, 34, 35, 37, 38, 41, 42, 47, 50, 53, 54, 58 and 62. A high total mean on this scale indicate that an individual possesses a strong ability to self-regulate. This short version shows high internal consistency ($\alpha = .92$) and is highly correlated with the original SRQ ($r = .96$). A principal factor analysis was conducted on the original version, confirming its convergent and discriminant validity for a single-factor solution. Deriving the strongest items with factor loadings greater than 0.4, the 31-item SSRQ was created, allowing this scale to measure self-regulation with strong psychometrics (Carey et al., 2004).

Final Questionnaire

Krosnick & Presser (2010) recommend limiting surveys to no more than 20-30 minutes in length, which normally translates to around 40-60 questions. The survey that was created for this study consists of 62 questions. However, all questions are presented in a multiple-choice format and the majority is expected to be answered based on a first instinct, which means that with a response-rate of four questions per minute, the expected time for completion is less than 20 minutes. This ensures a high completion rate, as respondents are less likely to become fatigued or disengaged while a variety of variables is covered (Krosnick & Presser, 2010).

Procedure

The participants were recruited through two methods. The first method involved placing the questionnaire on the SONA-System, accessible to students and researchers from the University of Twente. In this system, students from the BMS faculty can earn credits required for their study program by participating in research studies. This approach is a form of non-probability sampling, specifically convenience sampling, as it selects participants based on their availability and ease of access. This platform offers researchers easy access to participants, as students are encouraged to participate in the questionnaires, and it also provides students with easy access to the questionnaire. The second method combined convenience sampling and snowball sampling, both of which are non-probability sampling strategies. Participants were recruited by reaching out to various social groups directly connected to the researcher, either verbally or via social media platforms. This included, but was not limited to, students enrolled at the University of Twente who were accessible to the researcher and asking them to further distribute the questionnaire to enlarge the sample through the snowball sampling strategy.

The survey itself was carried out online on Qualtrics with a multiple-choice questionnaire. They had to use their own electronic devices to complete the survey and received SONA credits if they signed up for the survey through this portal. Before being able to fill out the questionnaire, participants had to check a box, giving their consent to participate and agreeing that they were informed sufficiently about the procedure and handling of data. If informed consent was given, participants were asked to provide information on their age, nationality and gender. Additionally, the yes/no statements for the exclusion criteria were checked for. The participants were only able to continue to the first part of the questionnaire, when they met the criteria. Otherwise, they would be informed about the incompatibility and redirected to the end of the survey. After this, participants marked their answers on different Likert-scales by checking boxes. The questions were always accompanied with an instructional text of what is asked for.

The MHC-SF, the SMUS and the SSRQ were presented to participants one after another in this sequence. While the order of questions within each questionnaire was randomised, the order in which the questionnaires were presented was specifically chosen. This was done with the intention of minimising

the effect that questions, which have already been answered and thought about would have on future answers. After the completion of the survey the participants were redirected to a final screen, thanking them for their participation.

Data analysis

First, the dataset was imported into R-Studio and cleaned up. This consisted of removing participants that did not meet the inclusion and exclusion criteria or that did not agree to the informed consent. One additional response was deleted as an outlier due to monotone and extreme scores, leaving the sample with 71 out of the original 82 participants. Furthermore, the items of the SSRQ requiring it were reverse coded and new variables were created, accumulating the total scores for SFCE, well-being and self-regulation. These new variables were then used to run a descriptive analysis to check for the means and standard deviations within the sample.

Afterwards, the assumptions of linearity, homoscedasticity, normality, and normality of residuals were checked to ensure compatibility with the linear regression model. In doing so a 'residuals vs. fitted values plot', a 'quantile-quantile plot', a 'scale-location plot' and a 'residuals vs. leverage plot' were created. Then, a linear regression model was fitted to analyse the main effect between SFCE and well-being, according to the first hypothesis.

Finally, a moderation analysis was run to check the effect of self-regulation on the main effect, according to the second hypothesis. The scores on SFCE and self.-regulation were centred, to control for multicollinearity between the predictors and the interaction term. An analysis of variance (ANOVA) was used to determine the statistical significance of both the simple linear regression model and the moderation analysis with a significance level of $p < .05$.

Results

Descriptive Statistics

The descriptive statistics of the sample are presented in Table 2. Overall, the sample scored average on well-being ($M = 3.78$, $SD = 0.72$) and self-regulation ($M = 3.47$, $SD = 0.51$), but showed rather low scores of SFCE ($M = 3.19$, $SD = 0.75$).

Table 2

Descriptive Statistics of the Variables

	Mean	*SD*	Minimum	Maximum
SFCE	3.19	0.75	1.82	4.82
Well-Being	3.78	0.72	1.57	5.43
Self-Regulation	3.47	0.51	2.03	4.36

Note. SFCE = short-form content engagement; SD = standard deviation

Assumptions

The assumptions (Appendix B) are satisfactory, suggesting the linearity, normal distribution and homoscedasticity of the data. In the process of checking these assumptions however, plotting the residuals against the leverage of an earlier sample revealed one extreme outlier, who had to be excluded.

Main Effect

To test the first hypothesis, the relationship between SFCE and well-being was analysed through a linear regression model (Table 3). The model explained approximately 7.74% of the variance in well-being, with an adjusted R-squared of 0.06, indicating a rather weak relationship. The standard error of residuals was 0.69. A negative trend was found with every point increase in SFCE predicting a -0.27 decrease in well-being. The corresponding ANOVA proved this correlation to be significant ($F(1, 69) = 5.79$, $p = .019$), allowing for the acceptance of the first hypothesis, confirming that high SFCE negatively relates to well-being in this sample.

Table 3

Results of the Simple Linear Regression Analysis

	Estimate	*SE*	*t-value*	*p-value*	95% CI
Intercept	4.63	0.36	12.74	< .001	[3.91, 5.36]
SFCE	-0.27	0.11	-2.41	.019	[-0.49, -0.05]

Note. SFCE = short-form content engagement; SE = standard error; CI = confidence interval (reported: [lower limit, upper limit]). R-squared = 0.08 (F(1, 69) = 5.79, p = .019).

Moderation Analysis

To test the second hypothesis, the interaction effect of SFCE and self-regulation on well-being was analysed through a multiple regression model (Table 4), which showed statistical significance ($F(1, 69) = 9.77$, $p < .001$). It predicts approximately 30.44% of the variance in well-being, with an adjusted r-squared of 0.27. The interaction effect itself was proven to be insignificant ($t(69) = 0.07$, $p = .79$), causing the second hypothesis to be rejected. This means that self-regulated SFCE does not make a difference compared to the effects of general SFCE found on well-being. Instead, self-regulation alone shows a significant ($t(69) = 4.63$, $p < .001$) and strong positive relation with every point increase on the self-regulation scale predicting a 0.68 increase in well-being, assuming constant levels of SFCE. The correlation of SFCE alone is smaller with an effect size of -0.2, but shows statistical significance ($t(69)$, $p = .008$). Although both SFCE and the interaction effect seem to have a mitigating effect on the positive influence of self-regulation, these effects are small in comparison or insignificant.

Table 4

Results of the Multiple Regression Analysis

	Estimate	*SE*	*t-value*	*p-value*	*95% CI*
Intercept	3.78	0.07	51	< .001	[3.63, 3,93]
SFCE	-0.2	0.1	-2.02	.04	[-0.4, -0.003]
Self-Regulation	0.68	0.15	4.63	< .001	[0.39, 0.97]
Interaction Effect	-0.06	0.21	-0.27	.79	[-0.47, 0.36]

Note. SFCE = short-form content engagement; SE = standard error; CI = confidence interval (reported: [lower limit, upper limit]). R-squared = 0.3 (F(1, 69) = 9.77, p = < .001).

Discussion

The goal of this research was to investigate the relationship between SFCE and well-being, as well as to see how this relationship is moderated by self-regulation. To find an answer, a sample of 71 university students was surveyed about their SFCE, well-being and self-regulation. This was done in an attempt to bridge the gap of research there is on SFCE specifically. While both positive and negative consequences on well-being have been found by research, the factors determining healthy and unhealthy SFCE are not yet clear. Studies on the usage of regular social media suggest self-regulation to have determining influence on the effects on well-being, which is why it has been explored as a moderator (Reinecke et al., 2022).

Findings

While showing average scores of well-being and self-regulation, the data collected from the sample revealed low scores of SFCE. This finding was not expected, as young adolescents under the age of 34 form the largest group of SFC users according to different studies (Montag et al., 2021; Vaterlaus & Winter, 2021) and reports of the TikTok user data (Statista, 2024). Looking at previous research, it becomes evident that the majority of data there is on this matter is collected from Chinese samples, where

TikTok was first released, or samples from the USA. While 82% of the Chinese users (Montag et al., 2021) and 65% of US citizen users are under the age of 35, with the specific age range of 18-24 forming the largest subgroup (Vaterlaus & Winter, 2021), investigating research on different samples revealed a lack of research there is on the SFCE of different countries and cultures. Additionally, age groups have been categorised and researched a lot in relation to SFCE, but university students have not necessarily been studied as a group.

With this background in mind, high SFCE showed a significant relationship well-being, which is in accordance with previous research and the first hypothesis. It was expected that factors like negative body-image, low self-esteem, distraction from personal growth and a lack of positive social interactions as a result of SFCE will influence all dimensions of well-being negatively (Dudukovic et al., 2023; Lamers et al., 2011; Reinecke et al., 2022). The results show that these disadvantages overshadow the potential benefits with higher SFCE and that this also applies to the analysed sample of university students.

Against expectations, the moderation analysis proved the interaction effect of SFCE and self-regulation on well-being to be insignificant, rejecting the second hypothesis. This hypothesis was based on the promising positive effects that self-regulation showed on the relationship between regular social media use and well-being (Reinecke et al., 2022). Within this moderation analysis a strong positive relation between self-regulation and well-being was found while controlling for SFCE and the main effect remained significant but lost some amount of its magnitude while controlling for self-regulation. This suggests that self-regulation outweighs the importance of SFCE in relation to the well-being of university students. Comparing this with other research, agreement can be found, since self-regulation plays an especially important role for university students, whose everyday functioning and academic performance depend on this ability (Bücker et al., 2018; Wu, 2015).

Implications

Seeing how the dynamics between SFCE, well-being and self-regulation unfold in this specific sample reveals considerations that need to be taken into account for practical applications. It underlines that the negative consequences are applicant to university students as a target group, despite their ability to adapt to new technology (Smith et al., 2020). This is relevant to both students and educators. While trying to implement the advantages of technology use into the curricula, the challenges like attention allocation on digital devices need to be considered (Wu, 2015). In more general terms, SFC is a crucial part of the entertainment (Dudukovic et al., 2023; Menon, 2022) for university students, but also the population in general, and is for some even part of their careers (Siek & Fariz, 2023). This underlines the importance of researching and raising awareness of the consequences of SFCE, especially considering that the well-being of many might be suffering, without them realizing the cause due to processes like escapism (Rach & Peter, 2021; Young et al., 2017).

Limitations

The findings and implications of this study do not come without limitations. It was already recognized that the sample shows low SFCE, but looking at the data more specifically, it became clear that few people were engaging with content creation, which made up a substantial part of the SMUS. While those who do are obviously a lot more engaged with SFC, this skewed the responses towards the lower spectrum. Additionally, all of the data was measured using self-report surveys, which can induce a certain degree of bias into the responses due to factors like social desirability or identity conflicts (Van De Mortel, 2008). Especially in regard to SFCE, it can be difficult to estimate how many times a day or a week the specific actions in the questionnaire are performed, without using screentime based measures.

Furthermore, this study is solely able to study the relationships between the variables without taking causality into account, due to the cross-sectional survey study-design. The generalizability of the results to the population of university students is also limited by the used convenience sampling methods.

Strengths

Despite its limitations, this research shows several strengths in the area it is investigating. Firstly, it analysed how SFCE relates to well-being in the age group that is most likely to be subject of its consequences (Statista, 2024), while exploring a sample from less investigated countries. Secondly, the methodology used expands on previous screentime based measurements by using the nature of SFCE as the variable, which has been suggested by previous research (Reinecke et al., 2022). Lastly, the relationship between SFCE or social media use in general and well-being is often observed from a point of view that focuses on problematic usage behaviour and addiction (Dudukovic et al., 2023; Kırcaburun & Griffiths, 2019). Within this study SFC has instead been accepted as a part of modern everyday life and its consequences have been looked at for users who engage with it on a more average level.

Future recommendations

Future research should try to build on these strengths and to optimize the design of this study. Necessary steps could include the creation of an approach that combines measuring SFCE in terms of mental occupation and combining it with screen-time based measures to increase the reliability. Furthermore, the way the SFCE scores turned out supports the proposal that previous researchers made, to draw a difference between active and passive SFCE (Montag et al., 2021). There was a high discrepancy between how much of the SFCE scores came from questions about the creation of and commenting on content, compared to questions about the passive consumption. A first step in the direction of researching this requires the creation of scales that are able to measure active and passive SFCE distinctively.

This study provides an initial exploration of the complex dynamics between SFCE, self-regulation and well-being. The relationship between these variables should be subject of future, improved research. It should be a goal to investigate whether the low scores of SFCE found in the sample are a result of differences in cultural or educational background, as opposed to chance. Subsequent research is encouraged to delve deeper into the roles of potential other moderating variables to comprehensively understand how SFCE interacts with abilities or personality traits to impact well-being among university students and other groups.

Conclusion

In conclusion, self-regulation does not appear to influence the relationship between SFCE and the well-being of university students. However, it is insightful to see how the well-being of a group that shows low SFCE and is expected to be robust to its consequences (Smith et al., 2020) is negatively related to it. Next to the importance of self-regulation for the functioning of students, this study shows that the challenges, like attention allocation, that the implementation of technology into the educational space brings need to be acknowledged and addressed. In general, this study can be viewed as a step of raising awareness and trying to keep up with the development of SFC. Following this goal is necessary to allow a new generation of academics to grow and bring service to the world without being distracted and hindered by the negative consequences of SFCE.

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APPENDIX A

SFCE, Well-Being and Self-Regulation

Start of Block: Information

Information **Healthy and Unhealthy Engagement with Short-Form Content - The Role of Self-Regulation.**
Investigator: Lino Vogtmeier

Introduction:
You are being invited to participate in a research study. This information sheet will provide you with all the necessary details about the study to help you decide if you would like to participate. Please read this document carefully.

Nature and Purpose of the Investigation:
The purpose of this research is to investigate what determines healthy and unhealthy engagement with short-form content (TikTok, Instagram-Reels, YouTube Shorts) for university students.

Incentives for Participation:
It might be interesting to reflect on your engagement with short-form content and your mental well-being. If you sign up for this study via SONA, you will receive 0.25 Credits.

Voluntariness of Participation and Right to Withdraw:
Participation in this study is completely voluntary. You are free to decline to participate, and your decision to participate or not will not affect your current or future relationship with the investigator or any affiliated institution. If you choose to participate, you may withdraw from the study at any time without any negative consequences, but SONA credits will only be awarded upon completion of the survey.

Confidentiality and Data Collection:
All information collected during the study will be stored securely on password-protected computers and kept strictly confidential. Your personal information will be accessible only to the investigator and people related to the research (e.g. supervisors) and will not be disclosed to any third party without your written consent. Data collected during this study may be used in future research studies.

Contact Person(s):
If you have any questions or concerns about this study, please feel free to contact the investigator at 'l.c.j.vogtmeier@student.utwente.nl'. If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher, please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl.

End of Block: Information

Start of Block: Consent

Consent **Consent Form**

Please read carefully and tick the appropriate box afterwards.

Taking part in the study

I have read and understood the study information dated 2024 or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

I understand that taking part in the study involves filling out a survey questionnaire as a participant.

Use of the information in the study

I understand that information I provide will be used for research.

I understand that personal information collected about me that can identify me will not be shared beyond the study team.

Future use and reuse of the information by others

I give permission for the survey data that I provide to be archived anonymously so it can be used for future research and learning.

- ○ Yes (1)
- ○ No (2)

End of Block: Consent

Start of Block: Demographics

Age How old are you in years?

_____

Gender How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

Nationality What is your nationality?

- ○ Dutch (1)
- ○ German (2)
- ○ Other (please specify) (3) _____

University Do you currently study at a university or a university of applied science?

- ○ Yes (1)
- ○ No (2)

Mental Illness Are you currently diagnosed with a mental illness?

- ○ Yes (1)
- ○ No (2)

End of Block: Demographics

Start of Block: Excluded

Exclusion Unfortunately, you do not meet the requirements to fill out this survey. Thank you for your time and your understanding.

End of Block: Excluded

Start of Block: Mental Well-Being

Info Please answer the following questions 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:

Q1 happy

- ○ Never (1)
- ○ Once or twice (2)
- ○ About once a week (3)
- ○ 2 or 3 times a week (4)
- ○ Almost every day (5)
- ○ Every day (6)

Q2 interested in life

Q3 satisfied with life

Q4 that you had something important to contribute to society

Q5 that you belonged to a community (like a social group, or your neighborhood)

Q6 that our society is becoming a better place for people like you

Q7 that people are basically good

Q8 that the way our society works makes sense to you

Q9 that you liked most parts of your personality

Q10 good at managing the responsibilities of your daily life

Q11 that you had warm and trusting relationships with others

Q12 that you had experiences that challenged you to grow and become a better person

Q13 confident to think or express your own ideas and opinions

Q14 that your life has a sense of direction or meaning to it

End of Block: Mental Well-Being

Start of Block: SFCE

Info **Read Carefully:**
Please indicate how frequently you have engaged in each of the following activities **in the past week** (7 days). Please **only include** activities that occurred related to or during the use of TikTok, Instagram Reels and/or YouTube Shorts. Do **NOT include** activities that are related to other apps (facebook etc.) or different features within them (like other functions than Reels on Instagram). Activities that include visiting profiles need to have happened as a result of or with the intention of watching their short-form content or related statistics.

Q15 Made/shared a post about something positive that was personally about me

- ○ Never (1)
- ○ 1-2 times per week (2)
- ○ 3-4 times per week (3)
- ○ 5-6 times per week (4)
- ○ Once daily (5)
- ○ 2-5 times daily (6)
- ○ 6-9 times daily (7)
- ○ 10-13 times daily (8)
- ○ Hourly or more (9)

Q16 Looked at how many people liked, commented on, shared my content, or followed me

Q17 Read comments to my own content

Q18 Edited and/or deleted my own short-form content

Q19 Played with photo filtering/photo editing

Q20 Compared my body or appearance to others'

Q21 Compared my life or experiences to others'

Q22 Reminisced about the past

Q23 Made/shared a post about something negative that was personally about me

Q24 Made/shared a post about something negative that was NOT personally about me

Q25 Commented unsupportively or disliked/"reacted" unsupportively on others' post(s)

Q26 Sought out content that I morally or ethically disagree with

Q27 Scrolled aimlessly through my feed(s)

Q28 Looked at others' content

Q29 Navigated to others' profiles (e.g. friends or friends of friends)

Q30 Navigated to others' page who I do not know (e.g. influencers or other famous people)

Q31 Watched videos such as memes, news content, how-tos/recipes, etc.

End of Block: SFCE

Start of Block: Self-Regulation

Info **New Instruction:**
Please answer the following questions by checking the response that best describes how you are. The questions are **not** related to short-form content anymore, but to how you are as a person in general. Remember, there are no right or wrong answers.

Q32 I usually keep track of my progress towards my goals.

- Strongly Disagree (1)
- Disagree (2)
- Uncertain or Unsure (3)
- Agree (4)
- Strongly Agree (5)

Q33 I have trouble making up my mind about things.

Q34 I get easily distracted from my plans.

Q35 I don't notice the effects of my actions until it is too late.

Q36 I am able to accomplish goals I set for myself.

Q37 I put off making decisions.

Q38 It's hard for me to notice when I've "had enough" (alcohol, food, sweets).

Q39 If I wanted to change, I am confident that I could do it.

Q40 When it comes to deciding about a change, I feel overwhelmed by the choices.

Q41 I have trouble following through with things once I've made up my mind to do something.

Q42 I don't seem to learn from my mistakes.

Q43 I can stick to a plan that's working well.

Q44 I usually only have to make a mistake one time in order to learn from it.

Q45 I have personal standards, and try to live up to them.

Q46 As soon as I see a problem or challenge, I start looking for all possible solutions.

Q47 I have a hard time setting goals for myself.

Q48 I have a lot of willpower.

Q49 When I’m trying to change something, I pay a lot of attention to how I’m doing.

Q50 I have trouble making plans to help me reach my goals.

Q51 I am able to resist temptation.

Q52 I set goals for myself and keep track of my progress.

Q53 Most of the time I don’t pay attention to what I’m doing.

Q54 I tend to keep doing the same thing, even when it doesn’t work.

Q55 I can usually find several different possibilities when I want to change something.

Q56 Once I have a goal, I can usually plan how to reach it.

Q57 If I make a resolution to change something, I pay a lot of attention to how I’m doing.

Q58 Often I don’t notice what I’m doing until someone calls it to my attention.

Q59 I usually think before I act.

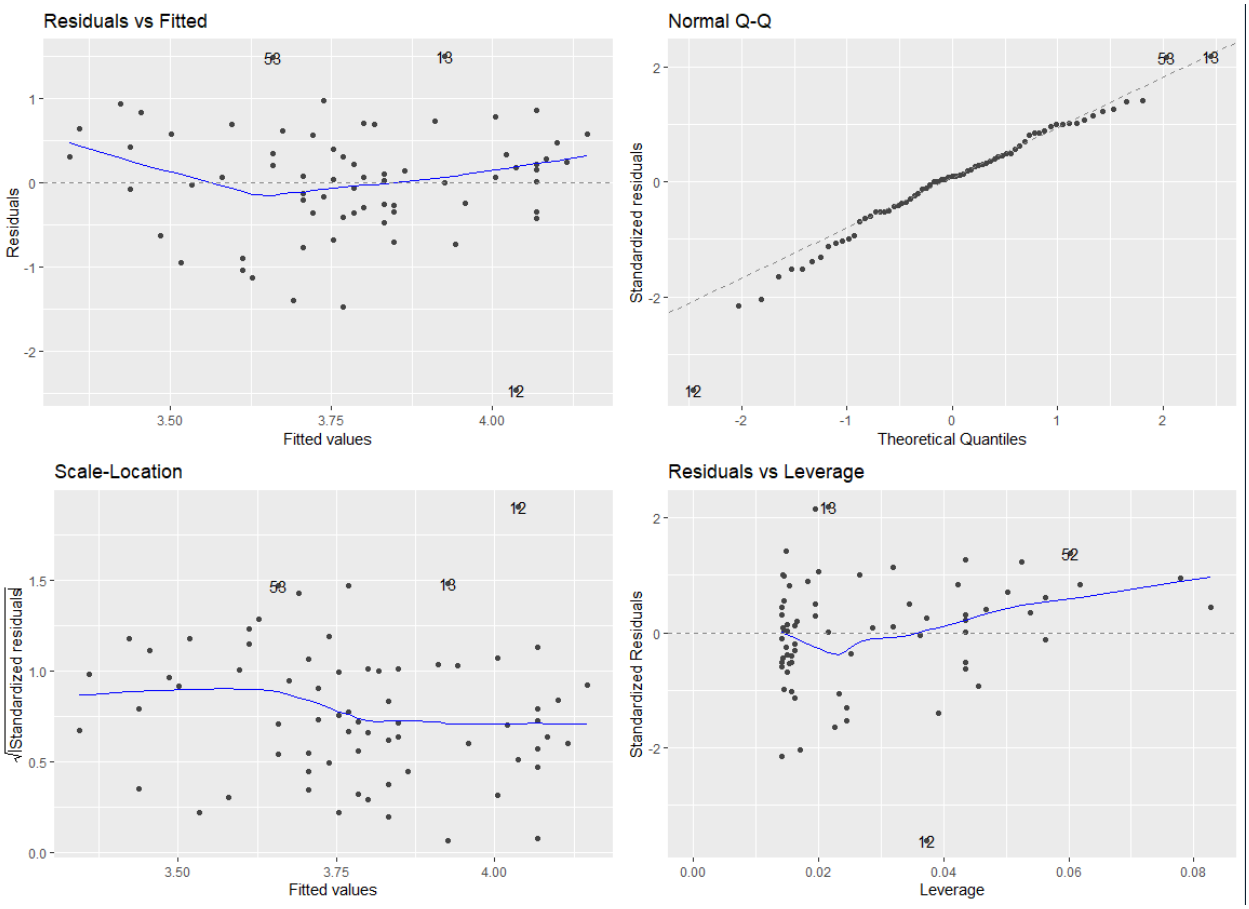
Q60 I learn from my mistakes.

Q61 I know how I want to be.

Q62 I give up quickly.

End of Block: Self-Regulation

APPENDIX B


Residuals vs Fitted
Residuals
Fitted values
Normal Q-Q
Standardized residuals
Theoretical Quantiles
Scale-Location
√|Standardized residuals|
Fitted values
Residuals vs Leverage
Standardized Residuals
Leverage