

**Zooming in on Flourishing: Investigating Laypeople's Conceptualisation of Social Well-Being over the Course of the COVID-19 Pandemic through Text-Mining**

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### Abstract

**Introduction.** A lack of qualitative research around the construct of flourishing has led to a need for qualitative studies, especially those exploring the fit between the theoretical construct of flourishing and laypeople's lived experiences. Additionally, the effect of events, such as the COVID-19 pandemic on the lived experience of this construct, has been called for. The pandemic impacted individuals' social well-being through the imposed measures. This study aims to examine the representation of social well-being and its different dimensions, as defined by Keyes, in laypeople's lived experiences of flourishing and whether this representation was affected by the onset of the COVID-19 pandemic.

**Method.** A qualitative cross-sectional between-subject design with three different samples across three separate timepoints was analysed for underlying patterns in the text-based data collected from participants, by employing a form of text-mining. A total of 218 participants answered two questions about their definition and understanding of the construct flourishing. These answers were analysed for reoccurring topics with the help of Orange3 to conduct a LDA topic modeling analysis.

**Results.** The results of the different topic models showed that four of Keyes' five dimensions of social well-being, all except *Social Actualisation*, were present in participant's answers. When comparing pre-COVID-19 data with the data collected during the COVID-19 pandemic, the dimension of *Social Contribution* decreased from three related topics to one, while the other dimensions only decreased by one topic or not at all. A decrease in the occurrence of *Social Contribution* during the pandemic might be related to the need for individuals to adapt to the socially restricting measures. Despite the COVID-19 pandemic, the reoccurring topics in laypeople's definitions of flourishing seem to mostly remain stable over time.

**Discussion.** The results of this study indicated a certain level of stability of Keyes' dimensions of social well-being and the construct of flourishing over time, as in prior studies. In order to further investigate the stability of the representation of flourishing and the dimensions of social well-being, future studies should assess the same sample across different timestamps and examine the reasoning for changes in the representation more closely.

*Keywords:* flourishing, social well-being, COVID-19, topic modeling, LDA

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**Introduction**

Ever since the beginning of the COVID-19 pandemic the interest in the construct of flourishing has grown immensely. Willen et al. (2022) observe that since then there has been a growing sense that somehow the pandemic might have interfered with people's ability to flourish. For their study Willen and colleagues asked themselves several questions related to where our understanding of flourishing comes from, and which exact academic definition shows us the ideal way to flourish. All these questions lead them to a central question, namely whether the academic definitions of flourishing overlap with the layperson's understanding of the construct in everyday life (Willen et al., 2022). This kind of research is of a timely and urgent manner, as it could directly add to the very important work that is already done in mental healthcare to date, to provide more opportunities for individuals to flourish. For that we need to broaden the type of research that is done around the construct of flourishing and investigate more options to investigate the fit between academic definitions of flourishing with laypeople's understanding of the construct from their lived experiences (Agenor et al., 2017; Willen et al., 2022). Willen and colleagues' (2022) results suggest that there might be important ways in which our academic understanding of flourishing deviates from our lived understanding of it and that they can be impacted by different circumstances and challenges.

While trying to gain insight into how challenges affect our understanding of flourishing, laypeople's experiences and definitions are of high value, as they can uncover a deeper understanding of how the theoretical concept translates to lived experiences (Hone et al., 2014). Considering this, Hefferon et al. (2017) point out that using laypeople's lived experiences to understand how flourishing is encountered in day-to-day life, can also help to explore how certain events affect the understanding of such a theoretical construct over time. Exploring this would be more challenging with quantitative data, as it does not help researchers to visualise and understand why exactly certain changes take place. Quantitative studies on the topic of flourishing help us to understand what percentage of the population is flourishing, or what the distribution is, for example, across nationalities or genders. For this reason, qualitative data can be more helpful to comprehend how challenging events impact our well-being and understanding of theoretical constructs. Qualitative studies can enable us to explain how people experience flourishing, and in what situations, and whether they are aware of what components flourishing is comprised of (Hefferon et al., 2017; VanderWeele et al., 2023).

Humans that can conquer both personal and external challenges in their social environment and feel emotionally, psychologically, and socially capable to take on such challenges, meet the criteria which Keyes (2002) uses to describe a flourishing individual (Mjøsund, 2021). Further, flourishing has been defined as an optimal state of mental health. Despite this definition (Agenor et al., 2017; Mjøsund, 2021; Keyes, 2002; Seligman, 2011), it is rather infrequent among the population. For example, barely 2 out of 10 adults in a U.S. study were classified as actually flourishing (Keyes et al., 2012). Unfortunately, much of the research on flourishing is of a quantitative nature. Therefore, it does not offer much insight into whether the theoretical understanding of flourishing translates to the contextualised lived experiences of individuals and what impact challenges have on both the understanding and the real-life experiences (Hefferon et al., 2017; Willen et al., 2022). What we know from qualitative research so far, is that there seem to be differences in the understanding and experience of flourishing across cultures, as well as different religious and philosophical backgrounds, but many things are also similar (VanderWeele et al., 2023). Additionally, we see that individuals often express that the social circumstances, that need to exist to have a high social well-being, have a big impact on their own assessment of whether they can flourish or not (Willen et al., 2022).

A more recent event that has had an impact on our well-being and, therefore, also on the potential of individuals flourishing and their understanding of it, verified by studies, was the COVID-19 pandemic. Studies in the UK found higher levels of distress and a reduced level of mental health after its outbreak (Niedzwiedz et al., 2021). In past research, measures of flourishing have proven to be stable over time, in comparison to, for example, affect. It remains unclear whether this stability can also be assigned to the theoretical definition and what kind of effect, events such as the COVID-19 pandemic, might have on the construct flourishing (Hone et al., 2014).

From a theoretical perspective Keyes (2002), flourishing is comprised of three well-being components, namely emotional, psychological, and social well-being. Emotional well-being consists of an individual's perceptions of happiness, interest in life, and satisfaction with life (Keyes, 2002), while psychological well-being is divided into self-acceptance, positive relations, personal growth, purpose in life, environmental mastery, and autonomy (Keyes and Ryff, 1999, as cited in Keyes, 2002). Social well-being constitutes the dimensions social coherence, social acceptance, social actualisation, social contribution, and social integration (Keyes, 1998). A well-being component of flourishing that has been impacted by the COVID-19 pandemic and the public health measures put in place, is social well-being. Studies focusing

on social well-being, as that by Graham and Eloff (2022), observed a decline in social well-being, in perceived abilities to contribute to society, and social relationships. Other studies also detected that individuals experienced a rather sudden disruption to their social life and that this had a big impact on individuals social well-being (Esposito et al., 2021; Lesser and Nienhuis, 2020; Li et al., 2022; Ruiz-Eugenio et al., 2021; Vilar-Compte et al., 2022).

Zooming in on the different social well-being dimensions, Keyes describes five dimensions of social well-being (Keyes, 1998). The first dimension is *Social Coherence* and indicates whether an individual can make sense of what is happening around them socially. Secondly, *Social Acceptance*, which describes the positive attitude an individual has towards others while keeping in mind their challenges. Thirdly, *Social Actualisation*, the belief that the community that one is a part of within society, has potential and that this society can evolve in a positive way. The fourth dimension is *Social Contribution*, which describes the feeling an individual gets from actively contributing to a society and being valued for contributing to it. The fifth and final dimension is *Social Integration* and illustrates whether an individual has a sense of belonging within their community (Knoesen and Naudé, 2018; Westerhof and Keyes, 2010). From a theoretical perspective it is unclear how these dimensions of social well-being present themselves in laypeople's definitions of flourishing.

To date the qualitative research that has examined flourishing and its components has mainly fallen back on more conventional qualitative methods such as manually conducted content analysis that requires a self-developed coding scheme (Hefferon et al., 2017). Such methods have been used by prior studies which have used the same datasets as this study. For example, Hauschke (2021) employed manually conducted qualitative analysis methods to gain insight into so called key ingredients of flourishing. Perk (2021) investigated whether there were differences in factors included in the different well-being dimensions of flourishing before and during the COVID-19 pandemic. Esche (2023) tried to assess laypeople's opinions on flourishing with the help of a linguistic analysis tool. All three studies concluded that within their findings the definition of flourishing and its contributing factors seemed to remain stable across time, even during the COVID-19 pandemic. The linguistic analysis tool used by Esche (2023), was able to assess the datasets more in-depth and efficiently. Another automatic method that can be employed to reveal such underlying themes or topics among a large quantity of text-based data is topic modeling, a text mining method that can be used to detect relevant and reoccurring topics within a large corpus (Murakami et al., 2017).

Besides topic modeling, there are many different text mining tools, such as semantic analysis, linguistic analysis, sentiment analysis, and more (Kaur and Chopra, 2016). Topic

modeling is a machine learning technique which automatically establishes so-called topics in a dataset (Murakami et al., 2017). Topic modeling combines all data into one single corpus and is therefore an easy and less time-consuming tool for analysing large amounts of text (George and Birla, 2018). This type of text mining does not work fully automatically, as the researcher is still required to make several decisions, during pre-processing the data and after the topics have been identified. A limitation of topic modeling is that it cannot identify what the most common differences are between two or more corpora. It can only ever view all the input as one single corpus (Murakami et al., 2017). While also being more timely efficient, topic modeling can offer an insight into underlying topics in the participants' data which would be near to impossible for a human researcher. By assessing underlying topics, all the participants' answers can be compared and assessed for similarities, so called topics. The topics are then representative of the most common thematic units covered in the dataset.

### **Purpose of the Present Study**

The aim of this study is to examine how Keyes' dimensions of social well-being are represented in laypeople's definition of flourishing. In addition, this study will also assess how the representation of Keyes' dimensions of social well-being in laypeople's definition of flourishing differ before and during the COVID-19 pandemic, from 2019 to 2021? Through insights gained in research it is hypothesized that Keyes' five dimensions of social well-being are represented in the definitions of flourishing expressed by laypeople. With regard to the difference between answers given prior and during the COVID-19 pandemic, grounded in existing studies, it is expected that the definitions of the construct of flourishing remain stable across the different years.

## **Method**

### **Design**

This qualitative study used a repeated cross-sectional between-subject design with three different samples across three separate timepoints. From the different data collections, which took place in April 2019, 2020, and 2021, qualitative data was extracted from an online questionnaire and was analysed with the help of topic modeling, a text mining tool, to further examine the construct of flourishing. The qualitative data employed by this study contained one combined response to two open questions from each participant, given during one of the three timepoints. All the data collections were approved by the Ethics Committee of the Behavioural, Management and Social Sciences (BMS) Faculty at the University of Twente (190320 and 210168).

### **Participants**

The participants for the three datasets varied and were recruited in Germany by using convenience sampling (Etikan et al., 2016). Students, from the 2<sup>nd</sup> and 3<sup>rd</sup> year of their bachelor in psychology at the University of Twente, recruited the participants by reaching out to their social network via social media platforms available to them (i.e., WhatsApp, Instagram, Facebook) and through face-to-face interactions. Participants had to be a minimum of 18 years old and needed to be able to understand and write German. Additional criteria for participants, to be included in this study, were the completion of both open questions in German, as well as having completed the entirety of the questionnaire that they had received. All participants who did not meet these criteria were excluded from the datasets used in this study.

Therefore, the collection in April 2019 included 82 participants of which 54.9% were male and 45.1% were female. The mean age of this sample was 33.28 years ( $SD = 15.44$ ). In April 2020 the data collection covered 38 participants of whom 63.2% of the participants were female and 36.8% were male. The mean age of this sample was 30.61 years ( $SD = 15.12$ ). The sample from April 2021 comprised 98 participants of which 69.4% were female and 30.6% male. The mean age of the participants in April 2021 was 35.48 years ( $SD = 16.35$ ). Demographic characteristics for each sample can be found below in Table 1.

**Table 1**

*Demographic characteristics of the three samples*

	2019	2020	2021
Age, $M$ ( $SD$ )	33.28 (15.44)	30.61 (15.12)	35.48 (16.35)
Gender, $n$ (%)			
Female	37 (45.1)	24 (63.2)	68 (69.4)
Male	45 (54.9)	14 (36.8)	30 (30.6)

A one-way ANOVA disclosed no significant differences between the three samples for age,  $F(2,227) = 1.37$ ,  $p = .255$ . However, a chi-squared test of independence revealed a significant differences ( $\chi^2(2) = 11.18$ ,  $p = .004$ ), indicating that there were slightly more males ( $N = 45$ ) than females ( $N = 37$ ) in 2019 in comparison to 2020 and 2021, where almost twice as many females ( $N = 24$ ;  $N = 68$ ) took part compared to males ( $N = 14$ ;  $N = 30$ ) participants.

**Procedure**

To participate, a stable internet connection and an email address was necessary to receive the link to the questionnaire. The link led participants to an online questionnaire, constructed by the researchers with the help of the platform Qualtrics. Firstly, participants were informed about the purpose and requirements to participate in the study, which were a minimum age of 18 and proficiency in the German language. Participants were then asked to consent to their participation and the use of their data after participation. Before continuing to the demographic questions, they were informed about the concept of flourishing. Lastly, the participants were asked to complete 2 semi-structured interview questions about flourishing and had up to 7 days to complete these questions.

## **Material**

### ***Interview Questions***

For all three datasets participants were asked to answer the first semi-structured open-ended question: “Please describe one or more situations wherein you flourish: What do you do? What do you feel? What do you think? When you describe such situations, try to think about how you function as a person in relation to other and/or how you function as a person in relation to society?”. This question was formulated broadly, to allow participants to recall in-depth experiences when formulating their answers, which had to be between 150-800 words.

The second question participants were asked was: “Think of a person who you think represents someone in the state of flourishing. Please describe this person: Why do you think this person is flourishing? How is this person behaving? What is this person thinking or feeling? As you describe this other person, try to think about how they function as a person, how they function in relation to other people, and/or how they function in relation to society?”. For this question participants were expected to write an answer between 150-600 words.

### ***Orange3***

Orange3 is an open-source software available for Windows, Mac OS, and Linux. It runs on Python 2.6 and 2.7 and was developed in the late 1990s. Orange3 is suited for explorative and interactive data analysis and in comparison, to other software programmes, it is intended for use by both experienced users and programmers, but also by inexperienced students (Demšar et al., 2013). Orange3 has a library of hierarchically organised toolboxes comprised of data mining components. Users can conveniently create workflows with the help of the different thematic toolboxes including widgets that can be connected to one coherent workflow. One of these toolboxes is titled *Text Mining* and includes tools to perform topic modeling. A benefit of using Orange3 is the fact, that among other things, it employs forums and extensive





xxxxxxx xxxx xxxxxxxxxxx xxxxxxxx xxxxxx”. Words such as “xxxxxxx” do not exist and therefore do not convey any meaning. This entire process was done by two researchers and words were only added to the stop word list if both researchers agreed that the word did not convey any necessary meaning. Once these unnecessary words had been added to the stop word list, another word cloud was created with Orange3 to see whether any meaningless words had previously been overlooked.

**Figure 1**

*Word Clouds Before and After Pre-Processing the Sample Data from 2020 and 2021*

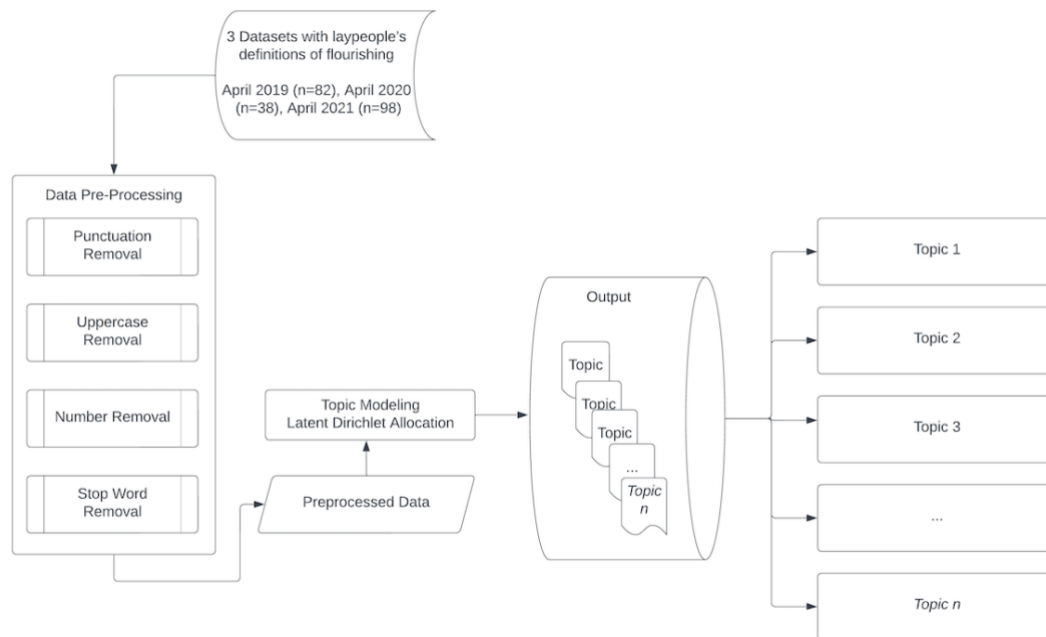


*Note.* a. Visualisation of the most frequent words in unprocessed data. b. Visualisation of most frequent terms in data after pre-processing.

After pre-processing the data, a suitable and meaningful format was established and the data was then ready to be used for the analysis steps, including topic modeling, as visualised in Figure 2. All three datasets that were used for this study, firstly 2019-2021, secondly 2019 and thirdly 2020 and 2021, were pre-processed before proceeding to use the respective datasets for the analysis steps.

**Figure 2**

*Flowchart of Data Pre-Processing and Data Analysis*



**Analysis**

**Topic Modeling – Latent Dirichlet Allocation.** A topic model with Latent Dirichlet Allocation (LDA), was used to identify underlying topics in the qualitative data. The number of topics can be determined by the researcher. To establish the most suitable number of topics for the model, the coherence score of each number of topics can be used. The coherence score measures the similarity of the words within a topic of a topic model (Zvornicanin, 2021). No strict guidelines exist for identifying whether a specific coherence score is good or bad. Therefore, it can help to use the elbow technique in order to determine the most suitable number of topics, i.e., the most suitable topic model. For this the coherence scores of the different numbers of topics are plotted in a graph, with the number of topics on the x-axis and the corresponding coherence score (Khalid and Wade, 2020). The elbow of the plot is then identified to determine the ideal number of topics i.e., the number of topics that yields the best interpretable topics (Syed and Spruit, 2017). The elbow of the plot is the point at which the slope does not increase to a significant degree and begins to stabilise with an increasing number of topics.

Once the most suitable number of topics has been determined for the topic model, both researchers of this study, individually assessed the topics and labelled each of the topics based on their content. They then compared their labels to each other’s and agreed on a final label for

each topic. Once a final label had been established for each topic, the representation of Keyes’ dimensions of social well-being among the newly labelled topics was assessed by each of the researchers individually. The definitions of the social well-being dimensions that were used can be found below in Table 2. Lastly, the researchers compared their interpretations to establish a final representation based on mutual agreement. Two researchers were employed for this process to ensure the interrater agreement of the final representations because exploring the data for already existing concepts in the labelled categories can lead to confirmation bias (McDonald et al., 2019). On average this process indicated an interrater agreement of 76.18%.

**Table 2**  
*Keyes’ Social Well-Being Dimensions with Definitions (Keyes, 1998)*

Name of Dimension	Definition of Dimension
Social Coherence	“Being able to make meaning of what is happening in society”
Social Acceptance	“A positive attitude toward others while acknowledging their difficulties”
Social Actualisation	“The belief that the community has potential and can evolve positively”
Social Contribution	“The feeling that one’s activities contribute to and are valued by society”
Social Integration	“A sense of belonging to a community”

To analyse the difference in topics used before and during the COVID-19 pandemic, for the second research question, the same data analysis process was conducted, but on two datasets separately. Firstly, for the data from 2019, to establish the representation of the social well-being dimensions in definitions before the beginning of the COVID-19 pandemic. Secondly, for the data from 2020 and 2021, to establish the representation of the social well-being dimensions in definitions during the COVID-19 pandemic. Then the two final representations, that both researchers agreed on, the one from 2019 and the other from 2020-2021, were compared to each other to establish whether there was a change in the representation of the social well-being dimensions from before to during the COVID-19 pandemic.

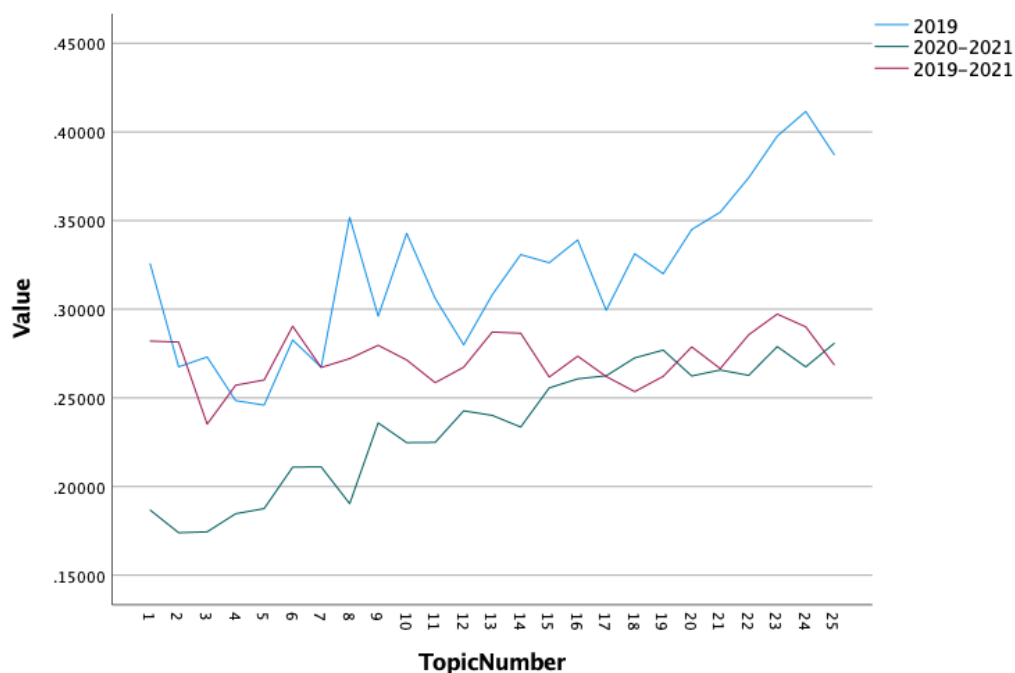
**Results**

The results of the LDA analyses are presented in three different topic models, which can be found in Table 3 and Appendix A and B. At first the model performance of each of the

three topic models (2019-2021, 2019, and 2020-2021) was assessed. While assessing the elbow of each plot of the coherence scores, it was not possible to identify a clear elbow of each plot and therefore no specific topic number could be chosen based on the coherence scores of each topic model (see Figure 3). As the representation of Keyes dimensions of social well-being is meant to be assessed with the help of the topic models, a theory-based approach was chosen to determine the number of topics instead. As there are three well-being components, namely emotional, psychological, and social well-being, and these are again divided into 14 dimensions (Schotanus-Dijkstra et al., 2016) and participants were not requested to talk about one of the dimensions specifically, 14 was selected as a suitable number of topics for each of the topic models. When assessing topic models with different topic numbers, a higher number of topics presented more diversity among the less common words between topics and established clearer contrasts and similarities between the topics.

**Figure 3**

*Plot of Coherence Scores for Topic Numbers (N=1 to N=25) of all Topic Models*



The topic model of the data from 2019-2021 was assessed by both researchers and the final model suggests that participants of this study most commonly mention the themes listed in Table 3, when explaining the concept of flourishing. Out of these 14 topics two were related to *Social Contribution*, one to *Social Integration*, one to *Social Acceptance*, and one to *Social Coherence*.

**Table 3**

*14 Topics generated from the Dataset including Participants' Answers from 2019-2021*

Topic Number and Words	Label of Topic	Associated Dimension of Social Well-Being
1: time, look forward to sth., important, happy, world, to live/life, private, personally, to see, language	Self-expression and Self-awareness	-
2: happy, nature, to live/life, work, joy, time, friends, family, to experience sth., across from	Reconnecting with Others and Nature	-
3: happy, simple, music, happiness, to travel, to transfer, shower, moment, across from, themes	Seeking and Cherishing Experiences	-
4: joy, to sing, happy, vision, society, theme, to help, centre, moment, emotions	Connecting and Contributing to the World and Society	Social Contribution
5: society, work, fun, time, happy, family, simple, to live/life, probably/well-being, friends	Competence /Environmental Mastery	-
6: simple, thoughts, moment, to experience, happy, manner, sport, positive, society, to live/life	Positive Focus through Active Body and Mind	-
7: to live/life, work, to experience, friends, family, joy, positive, mother, simple, thoughts	Care and Guidance as Social Contribution	Social Acceptance
8: time, work, to live/life, positive, family, important, manner, happy, simple, friends	Meaning in Life	-

Topic Number and Words	Label of Topic	Associated Dimension of Social Well-Being
9: work, happy, across from, to live/life, to experience, time, thoughts, behaviour, knowledge, boss	An Appreciative and Supportive Work Environment	Social Contribution
10: happy, to live/life, simple, time, family, being content, important, together, work, surroundings	Feeling of Emotional Safety, Security, and Acceptance	Social Integration
11: simple, happy, to try, grandfather, to help, positive, to live/life, joy, society, manner	Living and Teaching Resilience	-
12: to live/life, society, work, being content, surroundings, happy, simple, joy, family, important	Being Fulfilled by One's Relations	-
13: happy, intentional, friends, time, work, society, to say, simple, to live/life, to function	Social Awareness and Functioning	Social Coherence
14: to live/life, time, important, happy, fun, simple, society, positive, everyday life, children	Appreciation of Simplicity of Life	-

Social contribution is reflected by the topic *Connecting and Contributing to the World and Society*. With words such as *to sing* and *vision*, participants described actions through which the world could be a better place. In addition, they explained that they enjoy taking part in such actions and that they help them feel more connected with others and the society they live in. The described actions varied frequently from actions on an emotional level, such as sharing a feeling with a friend, to more physical activities such as singing or discussing topics with others. In addition, the topic *An Appreciative and Supportive Work Environment* also reflects Keyes' dimension of social contribution, because the feeling that one's actions contribute to society in a valuable way is central to this topic and the dimension. For this topic,

participants mostly talked about their work environment, as words such as *work* and *boss* were used more often than in other topics. Participants highlighted the kind of work environment that helps them thrive and flourish, which is a supportive environment that makes them feel like their work valuably contributes to team efforts. They illustrated that being recognised by their boss for their work helped them to stay motivated.

Social integration is represented by the topic *Feeling of Emotional Safety, Security, and Acceptance*. In this topic the participants described a feeling of belonging to a community. Words such as *being content*, *surroundings*, and *together* were used by participants to describe that ultimately, they felt safe and at peace when they were at home. They illustrated that home is a place where they would have quality time with their family. Furthermore, participants explained that the feeling of being at home gave them a sense of belonging and being in the right place. Many participants expressed that this feeling of belonging is a main source of joy and happiness for them. In addition, they explained that a safe environment enables them to embrace life in such a way that they can flourish. This topic reflects Keyes' dimension social integration because both describe the sense of belonging to a community or a place.

Social acceptance is reflected in the topic *Care and Guidance as Social Contribution* and describes a specific type of person that contributes to society nearly entirely through being an open-minded and caring person. The person that was described by participants could best be compared to the personality of a caring and loving mother. Not only was the word *mother* used more frequently in this topic, but participants often described that this person who is flourishing can also be a role model for others and guide them through life. Additionally other important traits of such a person, as explained by participants, are being able to actively listen to others, help them with their struggles and being able to keep everything organised, while not losing track of one's own tasks while making everything look effortless. Social acceptance and this topic are related to each other because both are described as having a positive attitude towards others and being able to not judge them for any struggles, but to support them instead.

Social coherence, one of Keyes' dimensions of social well-being, is connected to topic *Social Awareness and Functioning* and refers to how participants and others function within a social context. They are connected because they both refer to people being able to understand what happens in society, and to make meaning of those happenings. Additionally, participants mentioned that they needed to build up a certain level of awareness of others and their behaviour, to be able to make sense of their social functioning. The awareness that participants described, did not only support their understanding of others' behaviour, but many participants explained that it also helped them to be more aware of their own functioning within society.



Participants also mentioned that this awareness lead them to completing tasks with more intention. Therefore, words such as *intentional* and *to function* stood out among the words listed in this topic.

Social actualisation was not accurately represented by any of the 14 topics in this model. It is defined as the belief in a community’s potential and that this potential helps the community to develop in a positive manner. Participants rarely thought about a community as a whole. If they did, then this was related to how they as an individual contributed to a community or that they felt that they were an invaluable part of their community.

**Table 4**

*Comparison of Topics Related to Social Well-being Dimensions in 2019 and 2020/21*

Social Well-being Dimension	Topics from 2019	Topics from 2020 and 2021
Social Coherence	1: Awareness of Societal Calling	1: Global Awareness & Solutions Directed towards Joy of All
Social Acceptance	1: Mindful & Kind Connections	1: Being Kind & Present with Friends 2: Inspiring & Supporting Others through Positivity
Social Actualisation	-	-
Social Contribution	1: Social Contribution as Strength Resource 2: Taking an Active Role in Society 3: Creating Positive Impact in the World	1: Appreciation of Other’s Contribution & Awareness of Responsibilities towards them
Social Integration	1: Enjoying Quality Time with Others	1: Self-connection & Connection to Society 2: Reciprocated Connections & Closeness

The number of representations of social coherence, namely one, and of Social Actualisation, which is none, did not change when comparing the year 2019 to the years 2020 and 2021 (see Table 4). Both social acceptance and social Integration grew in representation, from one connected topic each in 2019 to two connected topics each in 2020 and 2021. On the other hand, the representation of the dimension social contribution decreased from 2019, with three associated topics, to only one associated topic in 2020 and 2021. Both complete topic models can be found in Appendix B and C.

When comparing both representations of social coherence, it stood out that the related topic of 2019 focuses mostly on the awareness of the individual and their societal calling. The related topic of 2020 and 2021 referred to a more global level of awareness and how to find solutions that benefit all, instead of only the individual. The topics related to social acceptance from both cohorts focused on building mindful connection with others and approaching them with kindness. The second topic in the cohort of 2020 and 2021 focused more on supporting and inspiring others in our environment, mostly through positivity. The representation of the dimension social integration in 2019 referred to spending quality time with others in our surroundings. While in 2020 and 2021 the topics representing social integration focused more on the connection of the individual with the self and their connection towards society. Additionally, the other topic connected to social integration focuses on the give and take of social relationships and emphasised the degree of closeness that these relationships develop. The three related topics of social contribution from 2019 focused on taking an active role in society, taking strength out of actively participating in society, and how taking an active role can create positive impact. In comparison, the one topic that represents social contribution from the 2020 and 2021 cohort, focused more on appreciating other contributions to society and being aware of what the individual's responsibility is towards others in the environment.

### **Discussion**

By using LDA, a topic modeling tool, this study aimed to examine the representation of Keyes' social well-being dimensions in laypeople's lived experiences of flourishing and whether this representation changed when comparing definitions from before the COVID-19 pandemic to ones during the pandemic. The results indicated that four of Keyes' five dimensions of social well-being were represented in laypeople's definitions of flourishing, namely social coherence, social acceptance, social contribution, and social integration. When comparing topics from before the COVID-19 pandemic to those during the COVID-19 pandemic, the dimension social contribution changed the most in comparison to the other dimensions of social well-being. Before the pandemic, three topics were related to this category,

while in the topic model for during the COVID-19 pandemic, only one topic represented the dimension of social contribution.

### **Main Findings**

Laypeople's lived experiences of flourishing, when assessed for underlying topics, did not include the component of social actualisation. This means that none of the topics in the previously described topic models related to the definition of social actualisation which is: "The belief that the community has potential and can evolve positively" (Keyes, 1998). Prior research indicates that the experience of social actualisation is dependent on other factors especially an individual's age (Keyes, 1998; Keyes and Shapiro, 2004). Keyes and Shapiro (2004) found that social actualisation was the highest amongst adults around the age of 45 to 54. They title this period of an individual's life as the peak of their midlife. Adults who are not in the peak of their midlife might not experience social actualisation as much as older adults. Additionally, social actualisation does not only require an understanding of society, but it requires trust in society and its potential (Rollero and De Piccoli, 2010). The mean age of the three samples used in this study was between 30 and 36 years of age, which would not qualify as peak midlife based on Keyes and Shapiro (2004). Therefore, it may be possible that social actualisation was not represented by any topics found in individuals lived experiences, due to the age distribution of the samples used in this study.

When comparing the topic models for the circumstances before the COVID-19 pandemic and those during the COVID-19 pandemic, it stood out that the dimension social contribution changed more drastically than the other dimensions. Individuals can experience social contribution when they are able to contribute to society and receive recognition for it, such as in their job, voluntary work, or through interactions with friends and family (Keyes, 1998; Keyes and Shapiro, 2004). From previous research that has been executed during the pandemic, it can be concluded that the possibilities of contributing to society and feeling valued for it, were rather limited due to the sudden and very drastic reduction of social contact (Liu et al., 2021). This is further illustrated by other studies, that not only observed a decline in social well-being in general, but especially in the perceived abilities to contribute to society (Graham and Eloff, 2022). As individuals had less chances to be able to experience social contribution during the COVID-19 pandemic, it may have led to this dimension being less well represented in participant's lived experiences of flourishing.

Lastly, the topics across the different topic models presented in the results, included many reoccurring topics and themes with slight variations depending on the model, and suggested that overall, most participants among the three different samples seem to have had a

similar understanding and experience of the construct of flourishing, indicating a certain stability. Prior studies have researched how stable well-being is, for example, Wettstein et al. (2015) who assessed well-being across a span of four years for individuals approaching the end of their life. They found that well-being in general and its indicators remain stable across time. The idea of stability of constructs surrounding our well-being is not of recent origin. In 1971 Brickman and Campbell proposed the idea of the hedonic treadmill, which illustrates that happiness is also affected by bad and good events, but that individuals are able to quickly adapt back to their prior level of happiness and it therefore remains stable over time (as cited by Diener et al., 2006). Even with the COVID-19 pandemic affecting individual's level of well-being and their ability to navigate society, individuals lived experiences suggest that this did not affect their overall experience of flourishing (Esche, 2023; Hauschke, 2021; Perk, 2021). Important to highlight is, that this conclusion also strengthens the fit between the theoretical understanding of flourishing from a research perspective with the lived experiences and understandings of flourishing that laypeople go through (Hefferon et al., 2017; VanderWeele et al., 2023; Willen et al., 2022).

### **Strengths and Limitations**

A main strength of this study was that its design allowed insight into laypeople's definitions and interpretations of flourishing and how this concept translates to their own daily life. In this regard, the method of topic modeling, and more specifically LDA, was useful in identifying topics and their occurrence among different samples across the years. This method offers a more time-efficient method for researchers to assess a large corpus of text-based data for underlying latent themes (Xing et al., 2020). LDA is especially adept at detecting nuances in vast amounts of text-based data that would be impossible to detect as a single researcher (George and Birla, 2018). Additionally, the interrater agreement of the topic labels and the representation of the dimensions is classified as good, increasing the accurateness of the findings in this study (Fleiss et al., 2013).

The results of this study should be interpreted in light of its limitations. A limitation was the output of the topic models, as not only was each topic only a list of ten words but additionally, just as when analysing the datasets, Orange3 did not differentiate between lower and higher case writing and supplied all words within a topic in lower case writing. To make sense of the topics and assign a suitable interpretation and label to a topic, the researchers had to assess randomly picked sentences in the datasets to explore the meanings of the words listed in the topics. The meaning of each word listed in a topic is critical when trying to make sense of a topic as a whole. The lowercase writing was especially confining when words, for example,

could be used as both a noun or a verb, such as the word “leben” which can mean “to live” or also “the life” when translated into English, depending on where it is placed in a sentence. This led to the occasional need for labels to be broader, which made it more difficult to see whether they aligned with Keyes’ dimensions of social well-being. Furthermore, the topics themselves were also often broader, especially when using all three datasets together. Broader topics increased the difficulty of finding a suitable label that still aligned with the meaning of the individual words and examples of their use. The specificity of topics was higher, and therefore, also easier to label, when the datasets for individual years were used for the LDA. This issue is rather common with LDA, as topics can often overlap and might not always be mutually independent of each other (Xing et al., 2020). In the case of this study the issue stemmed from the mismatch of the structure of the datasets and the LDA method.

Additionally, the reliability of the results is impacted by the fact that some of the participants’ answers were incomplete, but it is unclear whether this was because the answer was cut off as soon as the participant had reached the word limit or if this had another reason. Word frequencies and, therefore, their representation within the topic models, might have been negatively impacted by the fact that many participants made minor spelling mistakes or forgot to finish words, which Orange3 was not able to recognise or correct, but a human interpreter was able to see what the participant was aiming to write. Lastly, this study is not representative for how precisely the participant’s understanding of flourishing was affected by the COVID-19 pandemic and the related public health measures, as the participant samples of each data collection were different and were also of different sizes and different distributions of characteristics, such as age and gender. This restricts the generalisability of the results gathered from this study.

### **Future Research**

To be able to better assess the impact of crisis circumstances on laypeople’s understanding of the concept of flourishing, it would be wise for future research to assess the same sample of participants across different timestamps, to derive clearer indications of how events such as the COVID-19 pandemic affect the individual’s understanding of flourishing, with the help of a longitudinal study design. Additionally, for this kind of research to be beneficial for developing possible interventions designed to help laypeople flourish, the investigation of possible reasons for the absence of the social well-being dimension *Social Actualisation* is required. Therefore, it may be necessary to further assess the connection between the presence or absence of social well-being dimensions in lived experiences and the participant’s characteristics such as age, occupational status, or prior education, as these seem

to have shown a connection to different dimensions in prior research (Keyes and Shapiro, 2004). Considering more recent lines of research that have linked the experience of higher levels of social well-being to higher levels of personality traits, such as extraversion and agreeableness, for example (Joshi, 2022), it may also be of interest to assess the link between personality traits and the presence or absence of social well-being dimensions in lived experiences. Furthermore, the question then remains, whether the absence of a dimension among laypeople's definitions, aligns with the level that they experience this dimension. Therefore, like Hone et al. (2014), more research on laypeople's understanding of the concept of flourishing is recommended. In addition, one could investigate within such a sample, whether the fact that a participant is actually flourishing or not, based on scores of the Mental Health Continuum Short Form (MHC-SF) (Lamers et al., 2011), aids them in understanding the concept of flourishing, and which areas of life, as well as which dimensions of well-being, its presence is dependent on. Such studies would further aid the research of the fit between the theoretical definition of flourishing, as well as its well-being components, and the lived experiences of flourishing shared by individuals.

### **Conclusion**

In conclusion, four out of five of Keyes' dimensions of social well-being were represented in laypeople's definitions of flourishing. Additionally, the results of this study show that generally, the concept of flourishing is a predominantly stable construct over time. From this study it can also be concluded that laypeople, when compared to research experts on flourishing, do present a similar understanding of the concept flourishing. The exact impact of the COVID-19 pandemic on the representation of Keyes' social well-being dimensions on an individual level remains unclear, as this study did not follow the personal impacts of such events on an individual, due to the study design including three different samples. But this study does indicate that the conditions of the pandemic did somehow impact participants' understanding of the *Social Contribution* dimension, in general. The impact of the COVID-19 pandemic on an individual's representation of Keyes' dimensions of social well-being will therefore need to be further investigated. This study also demonstrates that the method of topic modeling, specifically LDA, can be of immense help to researchers in this exploration as it allows them to assess a vastly larger amount of data in less time and in greater depth, than with more conventional qualitative methods, despite its shortcomings. Furthermore, it is necessary to ensure a fit between the data and LDA. With a growing and more extensive research base on flourishing and its three well-being components (emotional, social, and psychological well-

being), we can further support the understanding of the construct itself and how this understanding can aid the occurrence of flourishing states within society.

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**Appendix A**  
**Stop Word List**

ab	auch	bzw	denen	dem
aber	auf	d.h	denn	demzufolge
alle	aufgrund	da	der	den
allem	aus	dabei	deren	denen
allen	außerdem	dafür	des	denn
aller	befindet	daher	dessen	der
allerdings	bei	damit	desto	deren
als	beide	danach	dafür	des
also	beim	dann	daher	dessen
am	beispielsweise	dar	damit	desto
an	bereits	daran	danach	die
andere	besonders	darauf	dann	dies
anderem	besteht	daraus	dar	diese
anderen	bestimmte	darf	daran	diesem
anderer	bestimmten	darstellt	darauf	diesen
andernfalls	bestimmter	darüber	daraus	dieser
anders	bevor	das	darf	dieses
andersherum	bietet	dass	darstellt	doch
anfangs	bis	davon	darüber	dort
anhand	bleiben	dazu	das	durch
anschließend	bringen	dem	dass	ebenfalls
ansonsten	bringt	demzufolge	davon	eher
anstatt	bsp	den	dazu	eigenen
eigentlich	folgendes	heutigen	jeder	liegt
ein	folgt	hier	jedes	machen
eine	für	hierbei	jedoch	macht
einem	ganz	hierfür	jetzt	mal
einen	gegen	hin	jeweilige	man
einer	gehen	hingegen	jeweiligen	mehr
eines	gemacht	hinzu	jeweils	mehrere
einigen	genannte	hoch	kam	mensch
einiges	genannten	ihn	kann	menschen
einmal	gerade	ihr	keine	meine
einzelnen	gerne	ihre	kommen	meinem
entscheidend	gibt	ihren	kommt	meisten
entweder	gilt	ihrer	können	mich
er	gleich	im	konnte	mit
erstmals	gleichen	immer	könnte	mithilfe
es	gleichzeitig	immerhin	konnten	mittels
etc	habe	in	lassen	möchte
etwas	haben	indem	lässt	möglich
euch	hält	insgesamt	lautet	möglichst
flourishing	hat	ist	lediglich	momentan
folgende	hatte	ja	leider	muss
folgendem	hätte	je	letztendlich	müssen
folgenden	hauptsächlich	jede	letztere	musste
folgender	her	jedem	letzteres	nach

nachdem	seine	trotz	weiteren	wurden
nächsten	seinem	über	weiterer	z.b
nahezu	seinen	überhaupt	weiteres	z.b.
nämlich	sich	um	weiterhin	ziemlich
natürlich	sicherlich	und	welche	zu
neue	sie	uns	welchen	zuerst
neuen	siehe	unter	welcher	zum
nicht	sind	usw	welches	zur
nichts	so	viel	wenn	zusätzlich
noch	sobald	viele	wer	zuvor
nun	sofern	vielen	werden	zwar
nur	solche	völlig	wesentlich	zwecks
ob	solchen	vom	wichtige	z
obwohl	soll	von	wichtigsten	b
oder	sollen	vor	wie	i
oftmals	sollte	vorerst	wieder	e
ohne	sollten	vorher	wiederum	gefühle
per	somit	während	will	fühlen
personen	sondern	war	wir	gefühl
person	sorgt	wäre	wird	fühlt
sämtliche	sowie	waren	wirklich	fühle
scheint	sowohl	warum	wo	denke
schon	später	was	wobei	beispiel
sehr	sprich	weil	worden	gute
sein	statt	weitere	wurde	gehe
abgesehen	zustand	besten	stehen	
fällt	sehen	leute	woche	
merke	guten	große	verbringen	
denken	aufblühen	meist	all	
denkt	blühe	sicher	passiert	
denke	vielleicht	generell	lage	
trotzdem	weniger	innehat	beschreiben	
manchmal	meisten	weise	bekomme	
tut	meistens	seit	neben	
dadurch	lebt	lange	erst	
nimmt	häufig	sei	sogar	
finde	sachen	grund	leisten	
dinge	genau	zwei	sache	
tag	sieht	paar	jemand	
situationen	empfinde	geht	momente	
situation	momenten	wenig		
gut	bezug	volle		
weiß	kenne	erkenne		
oft	heute	gar		
glaube	jahren	jemanden		
selber	dingen	eigene		
tun	fast	fall		
mache	klar	dennoch		
erlebt	selten	stets		

**Appendix B**

**Topic Model of Dataset with Participant Answers from 2019**

Topic Number and Words	Label of Topic	Associated Dimension of Social Well-Being
1: Language, happiness, look forward to sth., teacher, side, to experience, big, strong, short, soul	Awareness of Societal Calling	Social Coherence
2: happy, simple, grandfather, to eat, to change, to live/life, together, small, joy, negative	Generational Resilience and Positivity	-
3: work, happy, important, surrounding, family, time, to live/life, everyday life, across from, society	Social Contribution as Strength Resource	Social Contribution
4: to live/life, work, time, happy, world, family, society, important, simple, fun	Enjoying the Simplicity of the World	-
5: important, to live/life, to experience, simple, time, work, family, friends, especially, result	Environmental Mastery	-
6: to live/life, work, positive, better, time, woman, happy, mother, important, everyday life	Maternal Care as an Inspiration	-
7: time, absolutely, work, society, interested, themes, surrounding, alone, important, plan	Curiosity in Life	-



Topic Number and Words	Label of Topic	Associated Dimension of Social Well-Being
8: to live/life, being content, studies, to study, to try, goals, dreams, months, friend, tomorrow/morning	Turning Dreams into Reality	-
9: happy, society, simple, to say, role, surrounding, problems, to look forward to sth., friends, correct	Taking an Active Role in Society	Social Contribution
10: happy, society, to experience, time, family, being content, friends, thoughts, work, fun	Enjoying Quality Time with Others	Social Integration
11: fun, world, happy, commitment, to commit to sth., shop, positive, surrounding, to run, sincere	Creating Positive Impact on the World	Social Contribution
12: happy, family, woman, work, surrounding, positive, smile/to smile, daughter, positive, society	Infectious Positivity	-
13: private, time, important, relation, requirements, personal, occupational, manner, tasks, friends	Work-life Balance	-
14: happy, to live/life, to experience, across from, to behave, important, friendly, tasks, problems, work	Mindful and Kind Connections	Social Acceptance

**Appendix C**

**Topic Model of Dataset with Participant Answers from 2020-2021**

Topic Number and Label	Words of Topic	Associated Dimension of Social Well-Being
1: happy, time, manner, across from, work, friends, allowed to, meet, simple, tasks	Staying true to yourself in meaningful connections with people	-
2: to live/life, simple, positive, alone, right, manage, God, thoughts, beautiful, time	Self-determined way of living	-
3: to live/life, joy, to experience, everyday life, society, consciously, connection, fun, thoughts, time	Living with intention	-
4: work, fun, society, to live/life, joy, happy, important, working, time, across from	Appreciation of others contribution and awareness of responsibilities towards them	Social Contribution
5: to live/life, to experience, time, society, simply, friends, everyday life, children, joy, friends	Being kind and present with friends and family	Social Acceptance
6: children, to live/life, happy, money, plays, role, time, simple, satisfied, society	Self-connection and connection to society	Social Integration
7: goals, to live/life, work, fully, to experience, everyday life,	Enthusiasm as a driving force	-

Topic Number and Label	Words of Topic	Associated Dimension of Social Well-Being
	occurs/appears, enthusiasm, family, irrelevant	
8:	to live/life, society, functioning, moment, time, fellow human beings, positive, joy, simple, positive	Inspiring and supporting others through positivity Social Acceptance
9:	to live/life, positive, simple, positive, society, joy, satisfied, new, nature, singing	Appreciation & curiosity of life -
10:	happy, time, to live/life, love, together, work, right, moment, years, simple	Reciprocated connections and closeness Social Integration
11:	happy, simple, to live/life, nature, time, water, better, take, everyday life, see	Appreciation of beauty as a source of strength -
12:	simple, positive, to live/life, work, good, nature, tried, positive, give, woman/wife	Resilience through positivity and open-mindedness -
13:	happy, society, friend/girlfriend, simple, heavy/heaviness, lightness/ease, important, heavy, to live/life, functioning	Growth through gratefulness -
14:	happy, to live/life, tried, time, friends, world,	Global awareness & solutions directed towards joy of all Social Coherence

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Topic Number and Label	Words of Topic	Associated Dimension of Social Well-Being
friend/girlfriend, happiness, across from, say		

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