Togetherness and the Belief in Oneself: Investigating Self-Efficacy within the Context of Community Resilience

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Abstract

The concept of community resilience describes the support and facilitating effects individuals can experience if they are part of a community. Despite its numerous benefits, community resilience is still surrounded by theoretical uncertainties as the relationship between the traits of community members and their perception of community resilience remains unclear. It is not entirely established which individual constructs influence the perception of community resilience. Self-efficacy refers to an individual's belief in their competence to perform behaviour. This study aimed to investigate the relationship between community resilience and self-efficacy within a university setting by answering the research question: "*Is there a difference in the levels of perceived community resilience between University of Twente (UT) students with low and high levels of perceived self-efficacy?"*. It was hypothesised that UT students with lower self-efficacy levels also perceived less community resilience. An online survey containing the Transcultural-Community Resilience Scale and General Self-Efficacy Scale was conducted with 90 UT students. Based on their General Self-Efficacy Scale scores, participants were split into a low and high self-efficacy group and their community resilience levels were compared using a *t*-test. The results indicated a significant difference between the community resilience levels of the two groups. These findings indicated that UT students with low levels of self-efficacy perceive significantly lower community resilience levels. Self-efficacy was therefore determined to be a relevant individual construct in relation to community resilience. These findings imply that the promotion of self-efficacy is a potential way to indirectly increase community resilience among students. Moreover, individual self-efficacy should be considered more thoroughly for the conceptualisation of community resilience in future research.

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There are various types of adverse events that expose populations, and ultimately their individuals, to severe strains. These include, among others, human-made catastrophes, such as accidents and wars, natural disasters and global crises. Over the years, more scientific congruence has formed regarding the persistent increase of natural disasters due to climate change which is expected to expose more people to impactful loss events in the future (Sharifi, 2016). The globalisation and interconnectedness of today's socio-ecological systems cause more populations to be affected by disruptive events like social and financial crises (Revell & Henderson, 2019). In an effort to handle such adverse events, people make use of a variety of coping strategies and support systems. Studies have identified community resilience as one of the systems people fall back on to withstand the consequences of these events (Ungar, 2011).

Community resilience and definitions

The conceptualisation and definition of community resilience depend considerably on the focus and context of the research it is used in. Throughout the years, the conceptualisation of community resilience changed from the emphasis on shock-absorption and recovery to the inclusion of numerous related elements, some of which will now be outlined (Koliou et al., 2020). Critical reviews and theoretical papers often limited community resilience to the context of natural disasters, while others included social and economic challenges (Kulig et al., 2013; Sharifi, 2016). Frameworks such as the compass of resilience also highlight the shift of focus from the mere withstanding of adverse events to the growth of communities, as it includes dimensions of the adaptive capabilities of communities and social well-being (Revell & Henderson, 2019). Another important dimension of community resilience is access to infrastructure and the capacity of resources that are necessary to secure the well-being of the communities (Ungar, 2011). Despite its complexity, consensus on some properties of community resilience was reached. Most importantly, community resilience is not the sum of its members' individual capacities for resilience, and it is also not the sum of the concepts that make up community resilience (Faulkner et al., 2018; Ungar, 2011). However, researchers have not agreed upon a distinct definition of community resilience and instead recommend approaching it as a broad concept consisting of numerous interrelated elements (Patel et al., 2017).

For this university-based study, community resilience is defined as a community's "social capital, physical infrastructure, and culturally embedded patterns of interdependence that give it the potential to recover from dramatic change, sustain its adaptability, and support new growth that integrates the lessons learned during a time of crisis" (Ungar, 2011, p. 1742). This definition was chosen because it includes physical and social resources as well as recovery in the form of adaptability and growth of communities, without limiting itself to certain types of adverse events. The determination of communities is not limited to geographic locations and degree of shared values as Sherrieb et al. (2010, as cited in Sharifi, 2016) argued that communities should be defined on a "case-by-case basis" (Sharifi, 2016 p. 630). Consequently, this study defines communities as "any group of individuals that share common interests, identify with one another, have a common culture, and participate in shared activities" (Fellin, 1995, as cited in Ungar, 2011 p. 1742). Such an inclusive definition was chosen due to the multicultural and diverse nature of universities as well as the significant amount of shared academic goals and activities of students. With these properties, universities and their student populations can be considered as communities.

Community resilience properties

Like community resilience itself, its positive properties are multifaceted, thus first general benefits of community resilience will be presented followed by benefits in university settings. Since the 2010s, community resilience is often divided into psychological and socio-economical concepts given that access to resources such as infrastructure and external support offers scientific insights. The access of communities to these resources can provide greater predictive power of a community's performance during adverse events than traits of individuals since most individuals are unable to outperform their communities (Eachus, 2014; Faulkner et al., 2018; Koliou et al., 2020; Ungar, 2011). Moreover, measuring community resilience in populations can also be used predictively to identify groups of individuals or subpopulations, which are expected not to do well when facing adverse events in the future (Rothbaum et al., 2021; Sharifi, 2016). This can be essential for marginalised groups, such as minorities or transgender communities, as their often-low sense of community increases their vulnerability (Rothbaum et al., 2021). Given such drawbacks, it comes as no surprise that there are initiatives to address low perceptions of community resilience. While it is common for community resilience to be promoted in various

public institutions to improve responses to risks and challenges, this is not a common practice for academic institutions, like universities (Faulkner et al., 2018).

Despite, the above-mentioned benefits being already applicable to universities, community resilience can be particularly beneficial for university students, as it improves the performance of young people under stress (Ungar, 2011). Students are at risk of suffering from the negative effects of stress, as their studies increase their exposure to stressors such as concerns about academic performance, post-graduation uncertainty and the pressure to succeed at universities (Beiter et al., 2015). University studies found that more than 70 per cent of students indicated to suffer from stress-related psychological symptoms, such as anxiety and depression, while more students sought out university counselling (Beiter et al., 2015; Saleh et al., 2017). For the benefit of students, community resilience can not only facilitate more positive responses to adverse events but also to common stressors in one's professional and personal life (Faulkner et al., 2018). Additionally, a literature review linked community resilience to improved adaptability and highlighted a positive relationship between community resilience and growth following stressful events (Eachus, 2014). Given students' potential exposure to stressors and the frequency of collective goals and shared activities among them, these properties make community resilience a relevant concept for academic settings such as universities (Kulig et al., 2013). Based on its positive properties, community resilience among students offers the potential to improve the students' response to stressors associated with academic pressure and adverse events in their lives. Investigating the levels of community resilience in a student population can create a clear picture of the way students perceive community resilience and identify specific groups of students which are prone to lower levels of community resilience.

Recommendations from the field and gaps in research

Community resilience is a relatively recent concept and many aspects of it have not yet been studied despite its recent surge in scientific interest. First, researchers call for more small-scale studies with smaller populations since communities vary in size, are not bound to geographic locations, such as states or cities, and allow individuals to be part of multiple communities at the same time (Koliou et al., 2020; Mulligan et al., 2016; Revell & Henderson, 2019). Second, more theoretical work on the individual constructs that make up community resilience is recommended, as individual resilience is interdependent with other coping strategies and cannot be easily linked

to community resilience without unexpected or even contradictory results (Faulkner et al., 2018; Kulig et al., 2013; Sharifi, 2016). By determining these individual constructs, our understanding of community resilience can be expanded beyond the emphasis on summing up individual resilience. As a result of their literature review, Koliou et al. (2020) suggested empirical studies to identify and investigate attributes of community members related to community resilience as a new direction for research. Kulig et al. (2013) stated that "determining the links between individual and community levels of resilience has the potential to forward our theoretical understanding" (p. 773). Combined with their proposal that some factors of community resilience are linked to collective efficacy, the investigation of individual efficacy in relation to small communities could generate valuable insights (Kulig et al., 2013). The University of Twente (UT) student population is a particularly suitable community for such investigations due to its multicultural properties and small size.

Self-efficacy and its properties

As previously mentioned, community resilience is more than the sum of individual resilience, instead, it is a complex concept with many contributors, such as individual efficacy (Kulig et al., 2013). To utilise a well-established terminology for individual efficacy, the concept of Albert Bandura's self-efficacy was selected (Bandura, 1977). Self-efficacy was hypothesised to be a contributing factor to community resilience and offers a measurable conceptualisation of an individual's perceived ability to cope with adversities and demands (Eachus, 2014; Schwarzer & Jerusalem, 1995). Self-efficacy has been consistently associated with well-being, positive psychological health and active approach coping (Chandra et al., 2010; Priesack & Alcock, 2015; Romppel et al., 2013; Rothbaum et al., 2021). Previous research found that individual self-efficacy can increase the efficacy feelings within a community. This in turn can prepare communities to address future adversities, which is one of the many aspects of Community resilience (Chandra et al., 2010; Faulkner et al., 2018). However, the role of individual self-efficacy was not directly applied to a complete community resilience framework and instead only to individual resilience, where a positive relationship was found (Priesack & Alcock, 2015).

According to Bandura, two of the four major sources of self-efficacy are social modelling, the increase in one's perceived capabilities as a result of observing others completing tasks, and social persuasion, the increase in one's perceived capabilities due to encouragement from others

(Bandura, 1977; Riopel, 2022). This emphasis on social facilitation gives further reason to investigate the relationship between individual self-efficacy and a social concept like community resilience. UT students can for example greatly benefit from the consistently found advantages of self-efficacy and the assessment of the self-efficacy levels of the UT student population can therefore be used to determine whether self-efficacy is sufficiently present. Combined with the assessment of community resilience levels of UT students, a detailed overview of their perceived ability to deal with stressors and adverse events is created. These insights can then determine the need to promote these concepts at academic institutions, like the UT, in the future.

Research question and alternative hypothesis

This study aims to contribute to growing research on the concept of community resilience, by employing empirical research to investigate the relationship between perceived community resilience and self-efficacy in the student population of the UT. To investigate this relationship the following research question was developed: *Is there a difference in the levels of perceived community resilience between UT students with low and high levels of perceived self-efficacy?* The alternative hypothesis states that there is a difference in the levels of perceived community resilience between UT students with low and high levels of self-efficacy.

Methods

This quantitative analytical cross-sectional survey was part of a larger study to gain insight into the relationship between community resilience and self-efficacy. Two scales were combined into an online questionnaire which was administered to a sample of the UT student population to measure the two respective concepts. The resulting data from this online survey was used to analyse the given hypothesis in order to answer the developed research question.

Participants

To be eligible for this study, participants needed to be students at the UT and be at least 18 years old. Convenience sampling and snowball sampling were used to collect a non-probability sample of 133 participants, as UT students had unequal chances to participate in the study. Various recruitment strategies were employed to collect the UT student sample. Students were asked via WhatsApp (https://www.whatsapp.com) to fill out the survey and the study was listed in the test subject pool of the SONA website (https://www.sona-systems.com). The study was advertised through flyers and business cards which were distributed throughout the UT campus. UT students

were also directly approached on campus and asked to participate in the study, by providing them with QR codes to access the survey at any time they wish. Due to the incompletion of the survey and the withdrawal of their informed consent, 32 participants were excluded. Other exclusion criteria were two test-items which determined whether participants read the questions carefully and answered the test-items correctly. This led to the exclusion of 11 participants, which reduced the final sample to 90 participants. The participants' ages ranged from 18 to 30 years (M_{age} = 21.2, SD_{age} = 1.9). While completing the survey, 60 participants identified themselves as female and 30 as male. All participants gave written informed consent prior to their voluntary participation. The study was approved by the Ethical Committee of the Behavioural, Management and Social Sciences (BMS) Faculty / Domain Humanities & Social Sciences of the UT and was conducted in accordance with their ethical guidelines.

Materials

Transcultural-Community Resilience Scale

To measure perceived community resilience, the Transcultural-Community Resilience Scale (T-CRS) was selected due to the excellent internal consistency it demonstrated within this study (Cronbach's alpha = .93), its "good construct validity", as reported by Cénat et al. (2021, p. 1), and its broad definition of the community resilience it measures. Moreover, the good transcultural qualities of the T-CRS suited the sample of students from the multicultural and multinational student population of the UT. Due to these population characteristics, the English version of the T-CRS was administered to the entire sample. The used T-CRS version consisted of 28 items which were regrouped in three subscales which demonstrated the following Cronbach's alphas in this study. First, the community strengths and support subscale (Cronbach's alpha = .89) which included 14 items, second, the community trust and faith subscale (Cronbach's alpha = .88) which included nine items and lastly, the community values subscale (Cronbach's alpha = .72) which included five items. To make the T-CRS more applicable to the university focus of this study, the word "university" was added before every mention of "community" within T-CRS items. An example of the adapted items was "If anything were to happen to me, I know I could count on my university community." (see Appendix A for the full adapted T-CRS). All items were answered with a five-point Likert scale ranging from 1 to 5, the lowest score 1 represented "Totally disagree" while the highest score 5 represented "Totally agree". No items required reverse coding. The lowest

possible score of the entire T-CRS was 28 while the highest possible score was 140 and the mean score of the T-CRS was 84. Higher scores on the T-CRS corresponded to higher levels of perceived community resilience.

General Self-Efficacy Scale

The General Self-Efficacy Scale (GSE) was used to measure the perceived self-efficacy of the participants due to its satisfactory Cronbach's alpha value in international samples which lay between .76 and .90 while also providing an internal consistency range of alphas between .75 and .94 (Schwarzer & Jerusalem, 1995; Romppel et al., 2013). During this study, the GSE Cronbach's alpha value was .84. Again, only the English version of the GSE was administered to the entire sample (see Appendix B). The used GSE version consisted of 10 items and no adaptations to the scale were made. An example item was “I can solve most problems if I invest the necessary effort.” and all items are answered via a four-point Likert scale. It ranged from 1 which indicated “Not at all true” to 4 which indicated “Exactly true”. No items were required to be reverse coded. The lowest possible score on the GSE was 10 while the highest possible score was 40 and the mean score of the GSE was 25. For the GSE, higher scores corresponded to higher levels of perceived self-efficacy.

Survey setup

Both scales were integrated into the larger online survey and published using the website Qualtrics (https://www.qualitrics.com). Then the finished survey was also published on SONA (https://www.sona-systems.com). The survey began with an information sheet on the nature and purpose of the research (see Appendix C), followed by an informed consent form (see Appendix D) and items to gather demographic information (see Appendix E). Next to general information such as age or gender, the number of weekly visits to the UT campus and the academic year of participants were assessed. To enrich the data, two open questions were added to explore the participants' sense of community at the UT.

Procedure

The study opened with the information sheet, after which the participants were required to give their informed consent to be able to proceed with the survey. If their consent was given, the demographic and university-related items were presented followed by the scales. The T-CRS was the first scale participants were asked to fill out and it was followed by the two optional open

questions. Next, a place attachment scale with 13 items was presented, followed by an open question about perceived attachment to UT. Then an 18-item scale measuring psychological well-being followed and as the next scale of the survey, the GSE was presented. Participants were then asked if they studied at the UT while Covid-19 measures were implemented, if they answered “no” the survey ended. If they answered “yes”, a 27-item uncertainty scale was presented to measure their uncertainty during the time of the Covid-19 measures. An open question then inquired about the reasons why uncertainty was experienced. As the last scale of the survey, the uncertainty scale was presented again to measure uncertainty during the last month. The survey ended with an open question inquiring about the reasons why uncertainty was experienced at this moment. As compensation for their participation, students were rewarded with 0.25 SONA credits, if they chose to complete the study on SONA instead of Qualtrics. UT students who were approached on campus received free chocolate in exchange for their assurance to fill out the survey. The survey was officially published on April 17, 2023, and the data collection was terminated on May 5, 2023.

Data analysis

For the statistical and descriptive analysis of the data, the software *R Studio* (Version 1.3.1073) was utilised. The participant responses were retrieved from Qualtrics (https://www.qualitrics.com) and turned into the data set. Based on the previously mentioned exclusion criteria, participants were removed from the data set. Then test items, unrelated scales and optional open questions were excluded from the statistical analysis. Demographic information such as the self-identified gender and age of the participants was summarised, including means and standard deviations.

For each participant, the mean scores of the T-CRS and GSE were calculated along with the means for the subscales of the T-CRS. To split the sample according to the research question, participants were split into two groups corresponding to their GSE mean scores. The split was made along the median of GSE mean scores. Participants with GSE mean scores below and equal to the median were assigned to the 'Low GSE group' while those with GSE mean scores above the median were assigned to the 'High GSE group'. After the model for the analysis was created, the assumption of independence was inspected using a scatterplot depicting the distribution of the residuals. For the assumption of linearity, the participant' mean scores of GSE and T-CRS were plotted against each other with the addition of a regression line. The assumption of equal variances was inspected

with a boxplot and residual plot. This assumption was then statistically tested using an *F*-test. In addition to inspection via a histogram, the assumption of normality was tested by conducting a Shapiro-Wilk test for the Low and High GSE group.

To test for differences in levels of community resilience between the Low and High GSE group, the parametric independent *t*-test was used. Since two comparative groups were created, a *t*-test was chosen for this type of research, despite the potential ambiguity of the data which was caused by the usage of a five-point Likert scale within the T-CRS. Said ambiguity was caused by debates among researchers questioning whether data produced by Likert scales should be regarded as interval or ordinal because ordinal data threatened the assumption of normality (Norman, 2010). Parametric methods, such as the *t*-test, should be used if no assumptions are violated. However, tests conducted by researchers have shown that Likert scales produce approximately normally distributed data if a sample size of at least five is given and similar results were obtained by *t*-tests with at least 15 measurements per group (Grech & Calleja, 2018; Norman, 2010). Moreover, Norman (2010) argued that parametric methods could be applied to Likert scales despite violations of the assumptions and still provide acceptable results compared to non-parametric methods.

Results

Investigation of the data

The median of GSE mean scores was 3, which assigned 46 participants with GSE mean scores of 3 and below to the Low GSE group ($M_{\text{Low GSE}} = 2.7$). Consequently, 44 participants with GSE mean scores above 3 were assigned to the High GSE group ($M_{\text{High GSE}} = 3.4$). Among the total sample of UT students, the mean score of the T-CRS was 3.5 and the mean score of the GSE was 3.0 (Table 1). Following the examination and statistical testing procedures, it was concluded that all four assumptions were met.

Table 1

Descriptive statistics of the GSE, T-CRS and its' subscales

	Low GSE group		High GSE group		Total sample	
	M	*SD*	*M*	*SD*	*M*	*SD*
GSE	2.7	0.3	3.4	0.3	3.0	0.4
T-CRS	3.3	0.6	3.6	0.5	3.5	0.5
Community strengths and support subscale	3.4	0.6	3.7	0.6	3.6	0.6
Community trust and faith subscale	3.3	0.7	3.6	0.6	3.4	0.6
Community values subscale	3.1	0.7	3.3	0.7	3.2	0.7

Independent *t*-test

The results of the independent *t*-test have shown that participants in the Low GSE group ($M_{\text{Low T-CRS}} = 3.3$) scored significantly lower T-CRS mean scores than participants of the High GSE group ($M_{\text{High T-CRS}} = 3.6$), $t(85.14) = 3.03$, $p = .003$. Therefore, the alternative hypothesis was accepted. Participants in the Low GSE group, also scored significantly lower T-CRS mean scores on the community strengths and support subscale, and on the community trust and faith subscale compared to the High GSE group (see Table 2). However, not all subscales of the T-CRS produced significant differences between the two groups. On the community values subscale, participants in the Low GSE group ($M_{\text{Low CV}} = 3.1$) did not score significantly different T-CRS mean scores compared to participants of the High GSE group ($M_{\text{High CV}} = 3.3$), $t(87.98) = 1.67$, $p = .098$.

Table 2

Results of the t-test for the T-CRS and its' subscales

	t-value	*df*	*p*-value	95% CI
Community strengths and support subscale	2.76	87.75	.007	[0.10, 0.59]
Community trust and faith subscale	2.85	87.04	.006	[0.11, 0.63]
Community values subscale	1.67	87.98	.098	[-0.05, 0.53]
T-CRS	3.03	85.14	.003	[0.11, 0.55]

Discussion

Interpretation of Results

The results of this study provide supporting evidence that there is a difference in the levels of perceived community-resilience between UT students with low and high levels of perceived self-efficacy. Within this survey, the results indicate that UT students with low levels of self-efficacy also perceived significantly lower levels of community resilience compared to UT students with higher levels of self-efficacy. These differences based on self-efficacy levels were found on the community strengths and support subscale, and on the community trust and faith subscale. In contrast, UT students scored similar results on the community values subscale regardless of their self-efficacy levels, as no significant differences were found.

These findings are in line with the alternative hypothesis that UT students with lower levels of self-efficacy report significantly lower levels of perceived community resilience compared to UT students with higher levels of self-efficacy. As expected, a group difference between the community resilience levels of students based on levels of individual self-efficacy was discovered within the sample, similar to the findings of Priesack and Alcock (2015) which were not directly applied to a complete community resilience framework. According to these findings, the degree to which the elements of community resilience occur depends, at least to a certain extent, on the self-efficacy beliefs of the individual. Consequently, it should be considered to integrate individual self-efficacy beliefs into theories and conceptualisations of community resilience. However, contrary

to the alternative hypothesis, similar scores on the community values subscale were found for all levels of self-efficacy with no presence of statistical significance. This pattern suggests that, in multicultural settings such as universities, UT students identify with the values of their university community to an average degree regardless of their self-efficacy. While a difference between the two GSE groups on this subscale was hypothesised, it should be noted that this study followed Sharifi's (2016) recommendations and deliberately avoided the degree of shared values as an indicator of community. Instead, an inclusive definition of communities was chosen which focused on shared activities and the results of the subscales represent this choice (Fellin, 1995, as cited in Ungar, 2011). This pattern should therefore not be seen as a counterpoint to the hypothesis itself, but rather as the outcome of this study's theoretical framework and methodology.

Implications of theories and practise

Following the call of Koliou et al. (2020) for smaller-scale empirical studies, this study aimed to identify a new construct which would be associated with community resilience. The presented data points towards individual self-efficacy as such an associated construct, given the discovered group difference with regard to community resilience. These results are in line with previous research that investigated the relationship between self-efficacy and community resilience indirectly through the effect of individual self-efficacy on the efficacy of a community, which is an aspect of community resilience (Chandra et al., 2010; Faulkner et al., 2018). While the emphasis on social facilitation in Bandura's conception of self-efficacy established how social processes influence an individual's self-efficacy beliefs, the results of this study built on these findings (Bandura, 1977; Riopel, 2022). By showing how self-efficacy beliefs can affect an individual's community resilience perceptions, it was in turn demonstrated how an individual construct influences the appraisal of a social process, in this case, community resilience. It is, therefore, reasonable to state that this study successfully determined another link between individual properties and community resilience, while contributing to the growing body of theoretical insights on these constructs (Kulig et al., 2013). Despite most individuals not being able to exceed the performance of their communities, this study's results imply that individual constructs, such as self-efficacy, could be used to facilitate feelings of community resilience to utilise its numerous benefits more widely spread (Ungar, 2011). Moreover, self-efficacy beliefs could become a new dimension of community resilience frameworks, such as the compass of resilience, to accommodate for these

new insights (Revell & Henderson, 2019). This study can also be seen as an encouragement for further theoretical research into individual constructs and their effect on community resilience since the contradictory outcomes associated with research on community resilience can be avoided by using a substantiated theoretical framework (Faulkner et al., 2018, Kulig et al., 2013). By dissecting community resilience into elements that require personal incentives, like utilising physical infrastructure, theories and models can be used to identify individual resources that affect the incentive of community members, like self-efficacy and outcome expectations (Bandura, 1986; Ungar, 2011).

By combining the assessment of self-efficacy beliefs and community resilience, the findings contributed to a detailed overview of UT students' perceived ability to deal with stressors and adverse events. On average, the sampled UT students have high beliefs in their own abilities while their beliefs in the support and resilience they receive from their university community are only moderately above average. Given the previously outlined benefits of community resilience in university settings and the moderate results found among UT students, this study reinforces the recommendations of researchers for the promotion of community resilience at more public institutions, especially universities (Faulkner et al., 2018). Furthermore, based on the discovered group difference in this sample, the facilitation of self-efficacy is a potential way to increase community resilience indirectly. By promoting self-efficacy beliefs at universities, students could then not only benefit from increased beliefs in their own abilities but also contribute to increased community resilience levels among the entire student population. However, this newly discovered group difference, also exposes a new threat for students, as students with low self-efficacy are more likely to experience lower levels of community resilience. Students are at risk to suffer from increased stress symptoms, which underlines their need for the numerous benefits of self-efficacy and community resilience (Saleh et al., 2017). The inability to draw upon the benefits of these concepts is impairing their academic performance and can further increase their exposure to stress since concerns about academic success are one of the main stressors for students (Beiter et al., 2015). Likewise, this inability would also impair their capability to cope with adversities outside of their university life.

Limitations and strengths

Even though the presented evidence supports the alternative hypothesis, several limitations must be recognised for the interpretation of said evidence. The first limitation concerns the generalisability of this study's results. For the recruitment process, non-probabilistic sampling methods were used to achieve the highest number of participants possible. By utilising convenience sampling and snowball sampling, not all students of the UT had equal chances to participate in the study which decreased the extent to which the sample represents the UT student population. This, in turn, reduced the generalisability of the results and the accuracy with which inferences can be made about the entire UT student population. The second limitation concerns the administration of the GSE within this study, contrary to the recommendations of the creators, the GSE was not mixed into the pool of survey items and instead presented as a block of 10 items, which can affect the reliability and validity of the self-efficacy measures (Schwarzer & Jerusalem, 1995). The third limitation concerns the theoretical framework of this study, due to the large predictive power of a community's access to required resources. While the T-CRS contains some items to measure said access, their weighting is different from the emphasis of other community resilience conceptualisations which could qualify it as a potential confounding variable (Eachus, 2014; Faulkner et al., 2018; Koliou et al., 2020; Ungar, 2011). Community resilience has not been researched as much as similar areas of psychology and combined with its lack of a distinct definition, there is an increased risk of confounding variables.

Despite these limitations, this study contributed to the theoretical understanding of community resilience and identified an individual concept which was linked to a significant group difference with community resilience. The produced data and conclusions are in line with existing theories and can provide guidance for future research on this topic. Based on the numerous benefits of community resilience and the predicted increase of people being affected by adverse events in the future, more research on self-efficacy within the context of community resilience can be justified to produce results with increased generalisability.

Recommendations for future research

In terms of future research, it would be beneficial to verify and, if applicable, extend the current findings of this study. Based on the limitations caused by convenience sampling in the sampling process of this study, it is recommended to conduct empirical studies using probabilistic

random sampling methods to examine the validity of the results of this study. In these studies, the performance of the T-CRS could then also be compared to other community resilience instruments to determine suitable instruments for future studies within university settings (Sharifi, 2016). More foundational work on the investigation of the relationship between self-efficacy and community resilience is also recommended. Factor analyses and correlational analyses of the different dimensions of self-efficacy, and related constructs, could generate new insights into this relationship, while also providing the opportunity to discover new relevant constructs. Constructs such as outcome expectations and attitudes are cognitive factors of Bandura's social cognitive theory and could be suitable for these types of studies since self-efficacy belongs to the behavioural factors of this theory which successfully produced significant results in this study (Bandura, 1986, 1989; DeFreitas, 2012). Based on the findings of Ungar (2011), exploratory research on the effects of a community's access to resources on individual self-efficacy beliefs could provide new insights. Due to the predictive power of the accessibility of resources, its effects on student self-efficacy and academic performance offer another direction for quantitative and qualitative research (Kulig et al., 2013, Priesack & Alcock, 2015). Next, qualitative interview studies with students could outline how students perceive their university communities and how they appraise the qualities of these communities. Following this avenue of research can lead to the discovery of potential mediators and moderators between individuals and their perception of community resilience. Lastly, qualitative research with students can uncover aspects of university life which influence their self-efficacy beliefs. The identification of these institutional aspects and their effect on self-efficacy can reveal possible means to facilitate self-efficacy which in turn could improve community resilience at universities.

Conclusion

This university study successfully addresses some of the theoretical uncertainty surrounding community resilience by establishing a potential link between individual constructs, in this case, self-efficacy, and perceptions of community resilience. In the sample, a significant group difference between the community resilience levels of students with low and high levels of self-efficacy was found, which led to the acceptance of the alternative hypothesis. These findings are in line with the results of similar studies which investigated the effect of self-efficacy on community resilience indirectly, but due to the use of convenience sampling during the recruitment

process, the generalisability is limited (Chandra et al., 2010; Faulkner et al., 2018; Priesack & Alcock, 2015). Despite its limitations, the results of this study, and its implications, contribute to the growing body of theoretical research on the concept of community resilience. First, individual self-efficacy beliefs could be integrated more deeply into theories and conceptualisations of community resilience. Second, while self-efficacy and community resilience offer many benefits for at-risk groups of stress like students, the promotion of self-efficacy at university could indirectly also increase the community resilience perceptions of students among their peers (Beiter et al., 2015; Saleh et al., 2017). Third, this study showcases that the difficulties associated with research on community resilience can be addressed by using an adequate theoretical framework and methodology which could encourage future research. These implications contribute to the justification of future research on community resilience, as more qualitative and quantitative research is needed to expand upon the findings of this study. More research within a university context on self-efficacy and community resilience is recommended to facilitate the benefits of these concepts for students. Lastly, the in-depth investigation of the effects of self-efficacy, and related constructs, on community resilience perceptions could facilitate our understanding of the relationship between individual constructs and community resilience.

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Appendix A

The Adapted Transcultural-Community Resilience Scale

We all belong to communities we identify with on different levels and the first scale of the survey concerns the University of Twente (UT) community. The UT community includes students and student groups (e.g., study associations, sport/cultural associations, activist groups, student report) and also institutional staff (e.g., teachers, study advisors, student services, doctors). Please think of the UT community and rate the following statement according to how much you agree or disagree with them:

Totally Disagree —— Disagree —— Neither Agree or Disagree —— Agree —— Totally Agree

•—— **1** ———————— **2** ———————— **3** ———————— **4** ———————— **5** ——•

1. If anything were to happen to me, I know I could count on my university community.
2. In the event of a catastrophic event (natural disaster, war, etc.), I know that I could count on my university community to cope with the event and move forward.
3. When I go through hard times, there are people in my university community I can talk to.
4. The relationships I maintain in my university community help me cope with problems that happen to me or that may happen.
5. One of my strengths when facing adversity is knowing that I can count on one or more members of my university community.
6. The members of my university community know they can count on me when problems arise.
7. I am willing to help members of my university community who are facing difficulties.
8. I get involved in activities in my university community.
9. My cultural traditions and spiritual and/or religious and/or my values help me cope with difficulties.
10. Activities in my university community help me create bonds with people.
11. My university community helps me adapt in the event of important life changes or difficulties.
12. Being able to count on my university community in the event of difficulties is very reassuring to me.

13. In my university community, we always find a way to laugh and distract ourselves, even in difficult times.
14. In my university community, there is at least one person who can help me find concrete solutions when I face difficulties.
15. When I go through difficult times, there are institutions in my university community and/or my city that are there to help me.
16. If I were to fall ill, I know that I can turn to the healthcare institutions of the University of Twente (the campus doctor's offices) to receive the adequate care.
17. I trust the health care staff at the University of Twente (the staff members of the doctor's offices) to provide me with adequate care.
X. It is important to pay attention when giving your answers. Please indicate "totally agree" if you read this.
18. I trust the social services available in my university community.
19. I have enough information to know which university institutions to turn to in the event of difficulties.
20. In my university community, there are strong traditions of mutual support.
21. My university community makes efforts to integrate all its members and make them stronger.
22. My university community enables its different members to build strong bonds with each other.
23. Mutual support is one of the values held by my university community.
24. In my university community, sharing is a very important value.
25. I am proud to be a member of my university community.
26. I share the values of my university community.
27. Participating in my university community's activities is important to me.
28. I feel connected to my university community and to its values.

Appendix B

The General Self-Efficacy Scale

You now move on to the next scale about self-efficacy. A general sense of perceived self-efficacy is the belief that you can perform tasks, overcome challenges and cope with stressful life events. Please indicate how much the following items apply to yourself:

Not true at all —————— Hardly true —————— Moderately true —————— Exactly true

•—— **1** ———————————— **2** ———————————— **3** ———————————— **4** ——•

1. I can always manage to solve difficult problems if I try hard enough.
2. If someone opposes me, I can find the means and ways to get what I want.
3. It is easy for me to stick to my aims and accomplish my goals.
4. I am confident that I could deal efficiently with unexpected events.
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
6. I can solve most problems if I invest the necessary effort.
7. I can remain calm when facing difficulties because I can rely on my coping abilities.
8. When I am confronted with a problem, I can usually find several solutions.
9. If I am in trouble, I can usually think of a solution.
10. I can usually handle whatever comes my way.

Appendix C

Study Information Sheet

Dear participant,

With our study we want to extend our understanding of community resilience, by conducting a survey on the perceived community resilience of students at the University of Twente (UT) and related concepts. We therefore kindly ask you to fill out the survey only if you are a student at the UT.

Community resilience can be seen as the support one receives from the people and institutions around them, to deal with and overcome negative events in order to enable returning to one's normal life.

In our efforts to expand the theoretical background of community resilience, we introduced four concepts into this context. The four concepts are place-attachment, self-efficacy, well-being and uncertainty, which will all respectively be measured.

We appreciate your time and effort to participate in our study in an honest way,

Alexander Langermann,
Ann Ottl,
Sophie Hetche.

Appendix D

Informed Consent Form

Informed consent

Before you continue, we would like you to carefully read the following consent form and answer according to your preference.

You have read and understood the study information and understand the study involves completing several questionnaires. This will take you approximately 30 min. Your participation in this study is entirely voluntary and you are free to withdraw from the study at any time without consequences or giving any reason.

Further, it is clear to you that:

- Your data will be used for the Bachelor theses of the three researchers named above.
- All the data that is generated when you complete this survey (e.g., demographics and scale answers) will be treated confidential, stored adequately, and will not be used to try to identify you.
- Should you withdraw from the study, your data will be permanently deleted.
- Your data that was generated through this survey can be archived and used for future research.

If you have any questions or concern or decide to cancel your participation after you completed the questionnaire, the researchers can be contacted via one of the following email addresses:

[Email Address redacted]
[Email Address redacted]
[Email Address redacted]

Have you understood the provided information and consent to take part in this study? Please tick the appropriate box.

Appendix E

Demographic Items

Before the survey starts, please fill out your demographic information.

How old are you?

What gender do you identify as?

- female
- male
- other, please specify
- prefer not to say

What is your country of origin?

Where do you currently live?

- UT campus
- Enschede
- Other, please specify

Since which year are you living there?

How often are you at the UT within one week?

- ◯ 2 times or less
- ◯ up to 3 times
- ◯ up to 6 times
- ◯ everyday

In what year of your studies are you?

- ◯ Bachelor year 1
- ◯ Bachelor year 2
- ◯ Bachelor year 3
- ◯ Master year 1
- ◯ Master year 2
- ◯ other (please indicate either Bachelor, Master, PhD, and year)

What do you study?

How did you learn about this survey?

- ◯ Sona website
- ◯ I was asked to participate in person.
- ◯ I was asked to participate over text (ex. through a group message).
- ◯ Social media
- ◯ other, please specify