The Youth Ecological-Resilience Scale: A Partial Validation

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Abstract

Purpose: In South Africa, the field of scale development and utilisation in social work is referred to as 'ecometrics', i.e. the measurement of ecological constructs. There is, however, a lack of ecometric tools available for use by social workers, particularly in the area of measuring strengths or resilience. Given the high vulnerability of South African youth, this paper describes the design and validation of a youth resilience measure. **Method:** The Youth Ecological-Resilience Scale (YERS), a multidimensional, summated rating scale that measures youth resilience within an ecological framework, was designed and validated with a diverse sample of 575 young people, using ecometric techniques. **Results:** The YERS shows good levels of reliability and validity. **Conclusions:** The YERS is suitable for group administration and research, and also for assessment of individuals when triangulated with other assessment methods. Several studies of youth transitions using the YERS are described, as well as suggestions for its use in social work practice.

Keywords: ecometrics, resilience, care-leaving, youth transitions; scale development

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Resilience is increasingly being recognised as an important building block in protecting young people growing up in adverse circumstances (Masten, Monn, & Supkoff, 2011). Though variously conceptualised by different authors and disciplines, resilience theory universally addresses both adversity (or vulnerability) and resilience (or protective factors). A panel of resilience experts recently debated the definition of resilience and found that "most of the proposed definitions included a concept of healthy, adaptive, or integrated positive functioning over the passage of time in the aftermath of adversity" (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014, p. 1).

Adversity is prominent in South Africa, particularly among children and youth. South African youth have the fourth highest rate of unemployment among 175 countries globally – more than half (53.6%) of 15-24 year olds were unemployed in 2013 (World Data Bank, 2015), compared with a global youth unemployment rate of 12.6% (International Labour Office, 2013, p. 7). This is compounded by the low levels of educational attainment – only half (48.9%) of 20-24 year olds had completed their secondary schooling in 2011 (Statistics SA, 2012, p. 34). The quality of educational outcomes is poor, particularly for reading and mathematics (Spaull, 2013). In addition, more than half (56%) of South African children live below the lower poverty line of R635 (approximately $41) per person per month (Hall & Sambu, 2014, p. 94).

Approximately one third (35.8%) of South Africans were under the age of 18 in 2012 (Hall, Meintjes, & Sambu, 2014, p. 90). Just a third of these (35%) live with both parents, and a further third (39%) live with their mother only. A quarter of South African children (23%) live with neither parent, a fifth (19%) are orphaned (one or both parents have died), and 7% are maternal orphans (ibid., pp. 91-92). In 2014, a little over half a million children (512,055)

were receiving the state's Foster Care Grant (Hall & Sambu, 2014, p. 97), accounting for close to 3% of all children.

Within such contexts of systemic adversity and structural inequalities – poverty, unemployment, orphanhood and poor education – resilience is much needed to assist young people in getting ahead in life. Some of the most important studies of resilience (e.g. Werner & Smith, 1982, 1992) entailed longitudinal research with infants born into similarly adverse socioeconomic conditions. Results of such studies revealed various resilience factors that enabled some of these children to rise above adversity. These findings have stimulated considerable interest in the factors that enable humans to respond constructively to life's difficulties.

Given the challenges faced by the majority of South Africa's children and youth, an important area of research is the transition of young people from childhood towards adulthood, a period that Arnett (2004, p. 4) has termed "emerging adulthood." This refers to a transitional period from the late-teens to mid-twenties, during which young people navigate the challenges of exiting childhood and establishing themselves as independent adults. It is during this period that resilience may be particularly important (Berzin, 2010), as young people lose the protection afforded by the Children's Act and the support of family and the child welfare system. They must also establish new supports and assets to enable them to face the demands of an under-resourced society.

To assist social workers and other social service professionals to support youth transitions, tools that measure resilience may be useful. Such tools would enable professionals to assess the resilience of young people, thereby identifying the unique strengths of an individual. These strengths could then be built on. Resilience tools would also enable professionals to identify particularly vulnerable youth who require additional support

and continued protection during this transitional period. And resilience tools would be useful in evaluating the impact of youth development programmes.

There are, however, few such tools available, particularly tools that have been designed and validated in South Africa. Scale development in social work in South Africa is termed “ecometrics” (Van Breda, 2010, p. 41), meaning the measurement of ecological or person-in-environment constructs. The practice of ecometrics is, however, not well-developed in South Africa, and as a result there are few social work tools available. Those that are available, such as the Hudson scales (Hudson, 1982), are focused on the measurement of psychosocial pathologies (such as depression and family conflict), not resilience.

The purpose of this paper, therefore, is to provide an account of the design and validation of a new South African scale, called the Youth Ecological-Resilience Scale (YERS), which measures a range of resilience factors. The scale was designed for use with youth transitioning from childhood to adulthood, and in particular with young people transitioning out of alternative care (i.e. residential and foster care) towards independent living, but may have wider applications. It is located within an ecological framework, addressing both personal and environmental constructs, as well as aspects of the transactions between person and environment. The YERS is not included in this paper, due to its length, but can be requested from the author. Resilience theory is briefly reviewed to provide the theoretical framework within which the scale was designed. Thereafter the scale design and validation methodology and then results are presented. The paper concludes with an overview of current research being conducted with the YERS and recommendations for its utilisation in practice.

Resilience Theory: A Brief Overview

Resilience theory emerged within the context of research on the vulnerability of young people growing up in adverse circumstances (Masten, 2001). Important among these early studies was the longitudinal Kauai study of babies born into difficult social and genetic environments who were the tracked over several decades (Werner & Smith, 1982, 1992). These and other longitudinal studies (Werner, 2013) have contributed tremendously to our recognition that adverse environments do not inevitably lead to psychosocial dysfunction. In addition, they have assisted in identifying factors that enable some individuals to rise above their adverse circumstances, even when others succumb. It is this capacity that is termed 'resilience'.

This research on children led to a burgeoning of research on resilience, resulting in the identification of a range of resilience factors that have been the focus of ongoing research in various contexts. These include the sense of coherence, hardiness, learned resourcefulness, self-efficacy and locus of control (Van Breda, 2001). These studies focused on individuals and located resilience resources within the individual, as intrapsychic factors.

Other researchers, particularly social workers, such as Hamilton McCubbin (e.g. McCubbin, Thompson, & McCubbin, 1996) and Froma Walsh (e.g. Walsh, 2006), advanced the development of family resilience theory and measurement. They worked to identify the factors in families that facilitate systems-level adaptation in the face of adversity. Resilience theory has also been applied in a variety of other contexts, such as the resilience of organisations (e.g. Van Breda, 2016), communities (e.g. Ronan & Johnston, 2005), economics (e.g. Briguglio, Cordina, Farrugia, & Vella, 2009) and genetics (e.g. Rutter, 2003).

The term resilience is used to refer both to the processes and capacities that strengthen individuals (or other systems) and to the positive outcomes in the face of adversity shown by some individuals (or other systems). This distinction is summarised as process versus

outcome (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). Regarding resilience as an outcome, a person is deemed to be ‘resilient’ or as ‘having resilience’ when they are able to demonstrate positive adaptation despite facing significant adversity. Here resilience is defined as well-being, psychosocial functioning, academic competence, economic independence, etc. Regarding resilience as a process, resilience refers to the factors that enable some people to rise above adversity, and includes those mentioned previously: sense of coherence, learned resourcefulness, etc. An artificial distinction is sometimes drawn between these two constructions of resilience. Van Breda (2015, p. 2) has suggested that they are closely related:

> Resilience can thus be thought of as a process of resiling that leads to a resilience outcome. Much empirical research on resilience has started with an outcome view of resilience (identifying those individuals who have overcome adversity) and then moved towards a process view (identifying the resilience or protective mechanisms that differentiate more resilient from less resilient individuals).

This study gives primacy to resilience as a process. It draws on previous research that has identified various process factors that facilitate resilient outcomes among vulnerable children and youth, particularly young people transitioning out of residential or foster care. The YERS thus measures resilience factors or processes. The scale will be used, among other things, to differentiate between young people who transition more effectively into young adulthood and those who do not, that is, between more and less resilient young people.

The YERS is particularly influenced by the ecological approach to resilience, which has recently gained prominence thanks to the work of Michael Ungar (2012, p. 17):

> Where there is potential for exposure to significant adversity, resilience is both the capacity of individuals to *navigate* their way to the psychological, social, cultural, and physical resources that build and sustain their well-being, and their individual and collective capacity to *negotiate* for these resources to be provided and experienced in culturally meaningful ways.

Ungar emphasises that resilience is not primarily a set of intrapsychic or personal processes or capabilities. It is, rather, something located in the transactions between people and their social environments. He thus centres his construction of resilience on the capacities of individuals to identify and mobilise (or, in his terms, to navigate to and negotiate for) resources in the social environment. Resilience is thus located neither within individuals or nor within environments, but rather in the interface between these, that is, in the person-in-environment (PIE).

In light of this, the YERS constructs were selected to fall into three concentric circles, corresponding to the P, I and E of the person-in-environment (PIE) framework, as illustrated in Figure 1. All of the resilience factors included in YERS have theoretically justified and/or empirically demonstrated ability to differentiate between individuals with more positive and less positive adaptational outcomes in the face of adversity, and in particular in relation to the challenges of youth transitions and care-leaving. A presentation of this evidence is, however, beyond the scope of this paper.

<INSERT FIGURE 1 HERE>

The inner circle comprises individual resilience factors, corresponding to the ‘person’ in the PIE, drawing on the more traditional resilience factors. The individual factors included in the original YERS design are: positive learning experience, high self-expectations, ‘bouncebackability’, optimism, self-esteem, distress tolerance, spirituality, locus of control

and delayed gratification (the last two of which were deleted from the final YERS). Based on resilience theory, young people who have high levels of these individual resilience constructs will be able to draw on these internal strengths to facilitate their adaption to the demands of the adversity they face.

The outer circle comprises social environmental resilience factors, corresponding to the 'environment' in the PIE. These factors are divided into two subgroups, viz. relational and environmental factors. Almost all resilience studies point to the centrality of relationships in the resilience of human beings, and particularly vulnerable children. The environmental factors refer to some of the other resources that Ungar mentions in his definition above. The relational factors included in the original YERS design are: relationships with family, friends, teachers, the community, role models, lovers and work colleagues (the last of which was deleted from the final YERS). The environmental factors are: community safety, family financial security and social activities.

The middle or in-between circle comprises factors at the interface between person and environment, corresponding to the 'in' in the PIE. These refer to the 'navigate' and 'negotiate' in Ungar's definition, that is, to the transactions that enable people to identify and mobilise external resources. While these are characteristics or activities of the individual young person, they are directed towards engaging with and influencing the environment, rather than the self (as in the case of the individual factors in the inner circle). The transactional factors included in the original YERS design are: interdependent problem-solving, self-efficacy, resourcefulness, team work, empathy, conflict resolution and generosity (the last two of which were deleted from the final YERS).

These resilience factors have demonstrated value in facilitating positive adaptation in response to adversity and are aligned with one of the most recent constructions of resilience theory (viz. Ungar's social ecologies of resilience). It is hoped that they will provide a

comprehensive framework for assessing the resilience of young people who are approaching a youth transition, particularly the transition from care into independent living.

Methodology

Introduction

The scale design and validation methodology described by Van Breda (2010), which was developed in South Africa and based on the work of Faul (1995) and Hudson (1982), was utilised. However, due to time and funding constraints, the multicultural validation of the instrument that Van Breda (2010) details was not done. The scale was designed in a partnership between the author and Girls and Boys Town (GBT), a child protection NGO that, among other services, provides residential care to vulnerable girls and boys. The scale was designed in 2012 as part of a larger research project on young people transitioning out of residential care towards independent living. It was intended to measure the resilience of young people as they were about to disengage from care, and to be used to predict positive transitional outcomes at annual intervals thereafter, as part of an ongoing longitudinal study on care-leaving (Van Breda & Dickens, 2015).

The Research Problem

The first step of a scale design project is to identify the research problem and the desired study end results (Van Breda, 2010, p. 86). The problem in this case was to develop a tool to measure the resilience of young South African people about to leave residential care and transition towards independent living. In particular, the problem was to identify resilience factors relevant to this particular transition, rather than resilience in general. Furthermore, because of the practice-orientation of GBT and the author, the resilience factors needed to have practice implications; in other words, we wanted to identify resilience factors that we could develop in young people. For example, since problem-solving is a resilience factor that

has been shown to be an effective component of resilience and was something that can be developed in young people, it was included in the scale.

Theory Formulation

Van Breda (2010) argues that ecometric tools should be located within a clearly articulated theoretical framework, leading to the identification of relevant constructs or operational assessment areas. Resilience was selected as the most appropriate theoretical framework, with a strong emphasis on an ecological perspective. This framework was outlined in the previous section on resilience theory and illustrated in Figure 1.

A literature review on young people leaving alternative care was conducted, yielding well over two hundred articles and reports. A content analysis of factors found or thought to be relevant to the care-leaving transition was conducted on these papers, generating a list of possible resilience variables. These were supplemented with our own ideas, based on the experience of working with young people leaving care, and moderated by the feasibility of measuring these constructs in a quantitative scale. Ultimately 26 resilience constructs were identified. In addition, four constructs were designed but not validated, as they were specific to the GBT care-leavers, viz. relationships with GBT staff; experiences of being in GBT; feelings about leaving GBT; and feelings about contacting GBT staff after leaving GBT.

Scale Design

Once the constructs have been identified and defined within the broader theoretical framework, work can begin on designing the scale (Van Breda, 2010). The research team spent several months designing the items for the YERS. In some cases, we drew on existing scales published in journal articles or compendiums of measuring tools, making adjustments to some items and deleting others, until we had a relatively small number of items under each construct that we regarded as having content validity and cultural and contextual relevance. We endeavoured to keep all items short and simple. All items were formulated as statements

to be scored on a five-point Likert scale (strongly disagree, disagree, uncertain, agree, strongly agree).

Determining the reading level of a scale is always useful, particularly when the scale is intended for use by children. The YERS was designed for young people aged 14 to 21 years. Therefore, we decided that the scale needed to be easily understood by someone with a Grade 8 education. We used Fry's (1977) readability graph, which considers word and sentence length in determining the required level of education to understand the text. Using a sample of 500 words from the validated scale, it was found that for every 100 words there were 10.4 sentences and 144.2 syllables, yielding a reading level of Grade 6. This is well below the target of Grade 8. Thus the YERS should be readily understood by high school children.

Validation Sample

Validation studies call for fairly large (450-550 individuals) samples that do not have to be representative of the population, but do need to be heterogeneous (Van Breda, 2010). Convenience sampling was thus used to recruit a diverse sample of young people in the age range of 14 to 21 in the second half of 2013. Seven sites agreed to participate in the study (Van Breda, 2015), viz. two child and youth care centres (n=65), three public high schools (n=295) and two private but low or no fee high schools (n=215). These sites were located in three provinces (Western Cape, Kwazulu-Natal and Gauteng). Sites provided between 17 and 186 participants each, yielding a total sample (excluding insufficiently completed questionnaires) of 575 participants, slightly in excess of the recommended upper limit of required sample size. Youth from GBT who completed the scale as part of the larger study on youth transitioning out of care were included as one of the sites, as they met the sampling criteria and were the primary purpose for the design of the scale.

As reported in Van Breda (2015, p. 4):

The sample of 575 participants had an average age of 16.8 years, with ages ranging from 13 to 21. The majority of participants (84%) were aged 15-18 years. Participants were drawn from Grades 7 to 12, with the majority (83%) in Grades 10-12. The sample was skewed towards females: 58% girls and 42% boys. The majority (59%) of participants were black Africans, followed by 26% coloured (mixed race), 10% white and 5% Indian.

Ethical approval for the study was provided by the University of Johannesburg's Faculty of Humanities Ethics Committee (26 May 2013). Sites were approached to participate in the study. If they agreed, the principal or director signed a consent form. The sites themselves recruited participants who met our sampling guidelines to protect their children's privacy and anonymity. Children were recruited in grades and provided with an information letter and consent form to take home. Children who obtained parental consent and gave their own consent participated in the study. When participants were aged 18 or older, they gave their own consent. Data collection was handled by the sites, using documentation provided by the author, and then couriered back to the author. Consent forms and questionnaires were kept separate so that the anonymity of questionnaires was secured. Site-specific reports were provided to each of the sites several months later, providing them with details on the resilience of their children in comparison to the rest of the validation sample. Guidelines were provided to the sites for supporting areas of significant resilience and for strengthening areas of lower resilience.

Data Validation Pack

The 178 items of the original scale were packaged together with three other scales. (1) The Impression Management Index (IMI) (Van Breda & Potgieter, 2007), a locally-developed

measure of social desirability, was included to determine to what extent social desirability was at play in the study and to eliminate items that elicited high levels of impression management. (2) The short version of the Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003; Windle, Bennett, & Noyes, 2011), a global measure of resilience, was included for concurrent validation. This tool has robust measurement properties and has been used successfully in a previous study in South Africa (Bruwer, Emsley, Kidd, Lochner, & Seedat, 2008). (3) The Multidimensional Scale of Perceived Social Support (MSPSS) (Bruwer et al., 2008) was also included for concurrent validation. This scale, developed in the 1980s, was recently validated with a sample of over 500 high school students in Cape Town. The scale comprises 12 items, grouped in three constructs (support from friends, family and significant others), and has good measurement properties.

Data Analysis

Data analysis took place in the first half of 2014. Data were captured into an MS Access database to decrease data capturing errors. One tenth of the capturing was verified against the original questionnaires and, given the very few numbers of errors, the capturing was regarded as sound. Data were then analysed in SPSS (v22) using the procedures set out in Van Breda (2010): Cronbach's Alpha was used to calculate internal consistency, a measure of reliability. The Standard Error of Measurement (SEM) was calculated as the standard deviation of the scale score multiplied by the square root of 1 minus Cronbach's alpha. Hudson's method of multiple group confirmatory factor analysis was applied, which involves calculating Pearson's product moment correlations between each item and every other scale total and the corrected item-total correlation with the item's own scale total (the mean of the latter serves as the construct validity coefficient). Factor loadings for items should be above .40 and should be higher for the item's own scale than all other scales.

An iterative process of analysis of reliability and validity was conducted. At the end of each iteration, up to one or two items were deleted from each subscale, after which the analysis was repeated. Only small changes are recommended per iteration, because of the ripple effect that each change causes, not only within the individual scale from which the item was deleted, but also in that scale's relationship with the other scales. Thus, the elimination of poorly performing items is a cautious process of identifying and selectively removing the most poorly performing items. In the process, whole scales may also be deleted when they prove to lack the measurement properties necessary for reliability and validity.

Using a combination of item analysis, reliability analysis and multiple group confirmatory factor analysis (Nunnally & Bernstein, 1994), the following tests were performed to determine which items to remove: items with low variance; items with means close to the extreme (i.e. far from the mean); items with high levels of omission; items that detracted from (or did not add to) the reliability (using Cronbach's alpha) of the remaining items; items with low corrected item-total correlations; items that correlated more highly with another scale than their own scale; items that had strong correlations with other scales; and items that correlated highly with the IMI. Through this process, the scale was reduced in four iterations from 26 constructs and 178 items to 21 constructs and 117 items.

The names and definitions of these 21 constructs are provided in Table 1.

<Insert Table 1 here>

Results

Table 2 provides details of the reliability of the validated version of the scale.

<Insert Table 2 here>

All of the scales had an alpha coefficient of at least .70, which is the widely accepted minimum standard for the reliability of scales used for group research (Nunnally & Bernstein, 1994, p. 265). Nine of the 21 scales exceeded a reliability of .80, which can be regarded as

very good, though a reliability of .90 is required for scales used in individual, high stakes settings (ibid.) – only one scale (role model relationships) met the .90 standard. Thus is can be concluded that all the scales are sufficiently reliable for group research, but that the 12 scales with reliabilities under .80 should not be used in isolation to inform decisions about individuals.

The SEM scores ranged from 5.1 to 12.2, with a mean of 8.6. SEM is a measure of the degree of error within a scale score, and provides an estimate of the potential gap between a true score and an observed score. In practice, SEM can be used to determine whether a change in a person's score can be attributed to real changes in the construct or merely to measurement error in the scale. Thus, if a scale has an SEM of 5, and a person's resilience increases by 4 points, this should be regarded as a reflection of measurement error rather than improvement in functioning. By contrast, if a person's score increases by 6 or 7 points, that would constitute evidence of a 'real' or practical improvement in the construct (Bloom, Fischer, & Orme, 2006, p. 74). Consequently, low SEMs are desirable. The preferred SEM standard is below 5% (Faul, 1995). None of the scales met this criterion – nor did those of the comparison scales. This means larger differences in the scores of individuals over time would need to be seen before one could conclude that the individual has shown a significant improvement in resilience. In conclusion, the SEM is higher than desired for all the scales, resulting in less precision in the measurement of the resilience of individuals.

The validity results of the validation, using multiple group confirmatory factor analysis, are presented in Table 3.

<Insert Table 3 here>

Factorial validity requires higher correlations between items and their own scale totals (corrected for the item-self correlation) than for the correlations between items and other scales. In other words, each item should measure what it is supposed to measure more

strongly than any other construct. The values in the Construct Validity column (which is the mean corrected item-total correlation or ITC) are in all cases much higher than the values in the next column, which represents the mean correlations with other scales (this is the correlation of each item with the other 20 scales). The lowest construct validity coefficient was .483, while the highest mean correlation between the items and the other constructs was .182, providing evidence of the factorial or construct validity of the YERS.

The third column presents the number of items that correlate more highly with another scale than with their own scale. Only one of the 117 items had a higher correlation with another scale than its own scale, viz. an item in the scale for Self-Esteem. This item (item 113: “On the whole, I am satisfied with myself.”) had an ITC of .456 and correlated with Self-Efficacy at .459. The very small difference means the item appears to measure both constructs. The item was retained, rather than discarded, because it speaks to self-esteem (thus has content validity) and was necessary to retain the overall coherence and reliability of the self-esteem scale.

In addition to the requirement for higher ITCs than correlations with other constructs, factorial validity also requires that each ITC be .45 or higher (Van Breda, 2010, p. 173). This standard can, however, be dropped to as low as .20 for broader constructs (Clark & Watson, 1998, p. 231). Because the current scale started with small numbers of items, the required standard was reduced slightly from .45 to .40. The ITC<.40 column in Table 3 shows that only three of the 117 items had an ITC of less than .40. These ranged from .348 to .394. While they do reduce the validity of these three scales slightly, their retention resulted in a better scale than their omission and the content of these items was judged by the team to be relevant to the constructs. They were thus retained.

The mean ITC constitutes a coefficient of construct validity, and should be .60 or higher (Nurius & Hudson, 1993, p. 217). This standard is, however, most applicable to scales

intended for individual or high stakes use, which was the not the case here. The standard was thus reduced to .50. This decision is supported by the fact that neither of the comparison scales exceeded .60. Based on the reduced standard, 19 of the 21 scales demonstrated adequate construct validity, eight of which exceed the .60 standard. Two scales (positive learning experience and distress tolerance) obtained construct validity coefficients in the .48-.49 range. These were retained, despite not meeting this criterion, because they met all of the other construct (factorial) validity criteria and because they addressed resilience themes we considered vital, but they should be used with caution.

Research Using the YERS

The YERS is currently being utilised in a number of research projects that will contribute towards further validation and assessment of its real-world utility. All of these studies are interested in youth transitions, focused on young people in the age range of 14 to early twenties, and designed to identify factors that facilitate better adjustment into the demands of young adulthood.

The primary study for which the YERS was developed is the longitudinal study of young people leaving the care of GBT. This study is in its fourth year – 36-month follow-up data was collected from the first cohort of care-leavers at the end of 2015. The purpose of the study is to identify the resilience factors that best predict positive transitional outcomes among young people leaving residential care.

Preliminary analysis of the 12-month outcome data (Van Breda & Dickens, 2015) indicates the primary importance of role model relationships, which significantly predicts diligence in education among those who are studying; being engaged in employment, education or training; having a basic level of financial security; and reporting physical and psychological health. Other resilience variables that were meaningful predictors of independent living outcomes are family financial security, team work and self-esteem. To a

lesser extent, the four other relationships (with peers, teachers, lovers and family), as well as optimism and spiritual life orientation, also contributed to better 12-month outcomes among care-leavers.

In relation to Figure 1, significant resilience factors appear in all three circles, including both subsections of the environmental factors. This suggests that a comprehensive, ecological perspective on resilience is an appropriate theoretical framework for understanding, measuring and facilitating youth resilience. These are useful findings, as they point first to the importance of relationships, which confirms almost all resilience research – that a significant relationship is an important protector against adversity. The finding that a role model (someone other than parent, teacher or employer) is the most salient relationship is particularly interesting. This relationship is one that can be cultivated in the lives of young people and lends support to the growing interest in mentoring for young people leaving care (e.g. Mendes, 2009; Pinkerton, 2011). Similarly, team work speaks to interpersonal relations and the capacity to cooperate, which is an important life skill. Self-esteem, optimism and spirituality are all personal resilience factors that are best nurtured in the relationship between a care-giver and a child.

The YERS has also been used in another study of young people matriculating from high school, with a view to measuring their independent living outcomes one year later. All of these young people were living with their family while at school, thus providing a contrast with the GBT study's focus on those in alternative care. These data have not yet been analysed, but it has been found that the resilience profile of these participants is considerably weaker than those of the GBT participants (Van Breda, 2015).

This last study was conducted at a suburban school – what in South Africa is referred to as a 'former Model C school', viz. a relatively well resourced, public school previously reserved for white learners, but now racially integrated. Two further studies are in progress,

to replicate this research in a township school (i.e. a school in a socio-economically depressed urban setting) and a rural school (i.e. a deep rural school with little or no infrastructure). It is expected that these three diverse sites will generate useful comparative data about resilience and its contribution to independent living, thereby integrating socioeconomic factors into the resilience model.

The YERS is also currently being used in a study on young people's transition into university life, with a sample of second and third year undergraduate students. While this is a cross-sectional study, not longitudinal, it is hoped that the data will shed light on the kinds of resiliencies that assist students in the often-difficult transition into an urban university.

Finally, the data generated through the validation study was used to conduct a comparison of youth resilience across the seven sites that participated in the validation (Van Breda, 2015). The results yielded a number of counterintuitive findings, such as the higher resilience of those from under-resourced settings compared with those from relatively well-resourced settings. This suggests the possible contribution of teachers and the education system to protecting children in impoverished and socially vulnerable communities through the development of resilience. In addition, the variety of resilience profiles across the sites suggested that different types of resilience may be more or less useful in different settings.

All of these studies are interested in youth transitions, focused on young people in the age range of 14 to early twenties, and designed to identify factors that facilitate better adjustment into the demands of young adulthood.

Discussion and Implications for Practice

Measurement tools that have been developed within local, cultural contexts, that have a solid theoretical basis and that demonstrate sound measurement properties are much in need. All too often, measurement tools are imported from other countries, notably the USA, and utilised uncritically. The Youth Ecological-Resilience Scale (YERS) is a locally designed and

validated tool that demonstrates good measurement properties and that is located within the most recent resilience theory to emerge in social work. As such, it is tool that may meet the needs of South African researchers and practitioners interested in resilience.

The YERS may prove useful in the assessment of vulnerable children, to identify areas of greater and lesser resilience, provided any decisions made are based on triangulated evidence. That is, decisions about individuals should not be based solely on the results of the YERS, because of the limitations of the scale's reliability. Instead, users should supplement the YERS with additional evidence from other sources, such as qualitative accounts from the young person or her/his caregivers and the practitioner's own observations. For groups of young people, e.g. a group of children in a foster family, the YERS may prove useful and the limitations of reliability would be somewhat buffered by the focus on the group's resilience profile.

The YERS may, in this way, prompt the design and provision of social work interventions, particularly those that are aligned with resilience theory. Most significant of these is the strengths perspective (Saleebey, 2013), which champions human strengths, assets and resilience. In addition, the YERS may also guide interventions to strengthen aspects of a young person's resilience profile that are lacking. For example, if role model relationships are found to be an important predictor of positive transitional outcomes, youths can be assisted to identify and cultivate a relationship with a role model, in order to bolster their resilience.

The YERS can also be used for programme evaluation (Bloom et al., 2006). Pre and post intervention assessments of resilience can be conducted to determine the effectiveness of a youth development or resilience building intervention. The SEM can be used to identify significant improvements, even in individuals. The YERS has been structured in such a way that the 21 subscales can be broken apart and used selectively. Thus, for example, only the

five interactional subscales could be used in an intervention specifically designed to develop the transactional aspects of resilience.

Further validation of the YERS is required, however. Further validation of its measurement properties may be required to determine to what extent the reported levels of reliability are consistent across populations. Further design, by adding new items to less well performing subscales, may be required to strengthen the measurement properties of the YERS. The development of clinical cutting scores through a known-groups validation will significantly enhance its clinical utilisation. Though the scale was validated with a culturally diverse sample, it would benefit from a cross-cultural validation. And consideration should be given to translating it into some of the indigenous languages used in South Africa.

In conclusion, the YERS is a tool that is strongly rooted in an ecological theory of resilience, and designed and validated for use with young people in South Africa. The validation results, together with the ongoing use of the scale in research, suggest that this is a tool that could have valuable research and practice application.

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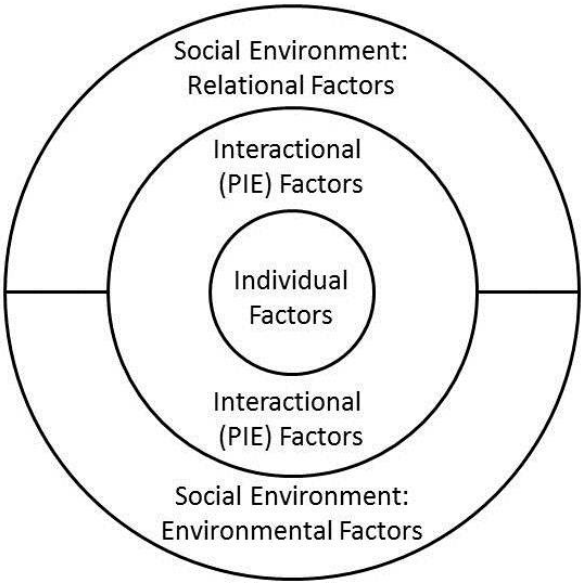

Figure 1. Person-in-Environment Framework for the YERS

Table 1. Scale Titles and Operational Definitions.

Scale Title	**Operational Definition**
Family Relationships	Relationships with family members are experienced as caring and supportive.
Friends Relationships	Relationships with friends are experienced as pro-social, caring and supportive.
Teacher Relationships	A relationship with at least one teacher who is experienced as caring and encouraging.
Community Relationships	A reciprocally supportive and caring relationship between the youth and community.
Role Model Relationships	A relationship with at least one adult (other than parents, teachers or employers) who is experienced as caring and encouraging.
Love Relationships	A romantic relationship that is experienced as intimate and characterised by mutual understanding.
Community Safety	The perception of the community as being safe in terms of low crime/drugs and high in safety and security.
Family Financial Security	The family has sufficient money to cover their needs and does not worry or argue about money.
Social Activities	Regular participation in pro-social group activities.
Interdependent Problem-Solving	A preference for an interdependent approach to problem-solving.

Scale Title	**Operational Definition**
Self-Efficacy	The belief in one's ability to organize and execute the courses of action required to manage prospective situations.
Resourcefulness	A belief in one's ability to perform difficult tasks with limited resources.
Team Work	A perceived ability to work productively with others in a team.
Empathy	Feeling with and caring for the well-being of other people.
Positive Learning Experience	An orientation to learning characterised by low anxiety and high attention.
High Self-Expectations	High expectation of self to work hard and achieve the best results.
Bouncebackability	A general belief in one's ability to 'bounce back' after difficult times.
Optimism	A general expectation that good things will happen in the future.
Self-Esteem	A general feeling of self-worth and self-acceptance.
Distress Tolerance	The perceived capacity to withstand negative psychological states.
Spirituality	A global orientation towards personal spirituality.

Table 2. Reliability.

Scale Title	Items	Mean	Cronbach	SEM
Family Relationships	5	74.5	.816	8.1
Friends Relationships	6	71.4	.783	7.5
Teacher Relationships	6	77.1	.829	7.4
Community Relationships	5	58.1	.834	9.1
Role Model Relationships	6	78.3	.908	6.6
Love Relationships	5	75.7	.809	8.7
Community Safety	4	46.6	.766	11.8
Family Financial Security	4	59.9	.711	12.2
Social Activities	6	50.3	.775	10.9
Interdependent Problem-Solving	5	45.8	.747	10.3
Self-Efficacy	7	72.6	.775	6.6
Resourcefulness	7	69.4	.791	6.4
Team Work	5	78.3	.833	6.5
Empathy	8	75.9	.888	5.1
Positive Learning Experience	5	40.5	.723	11.1
High Self-Expectations	5	67.2	.787	8.7
Bouncebackability	5	55.4	.751	10.1
Optimism	4	76.9	.741	8.8
Self-Esteem	8	62.7	.807	8.0
Distress Tolerance	5	35.7	.735	9.6
Spirituality	6	68.2	.870	7.6
MSPSS	12	72.6	.884	5.3

Scale Title	Items	Mean	Cronbach	SEM
CD-RISC	10	69.8	.828	6.8

Table 3. Validity.

Scale Title	Construct Validity	Mean Other Correlations	Other > ITC	ITC < .40
Family Relationships	.616	.151	0	0
Friends Relationships	.532	.114	0	1
Teacher Relationships	.604	.138	0	0
Community Relationships	.637	.136	0	0
Role Model Relationships	.751	.167	0	0
Love Relationships	.603	.090	0	0
Community Safety	.570	.073	0	0
Family Financial Security	.500	.093	0	0
Social Activities	.525	.130	0	0
Interdependent Problem-Solving	.513	.088	0	0
Self-Efficacy	.503	.171	0	0
Resourcefulness	.531	.182	0	0
Team Work	.633	.169	0	0
Empathy	.668	.108	0	0
Positive Learning Experience	.483	.103	0	0
High Self-Expectations	.576	.148	0	0
Bouncebackability	.517	.104	0	1
Optimism	.538	.169	0	0
Self-Esteem	.521	.179	1	1
Distress Tolerance	.498	-.003	0	0
Spirituality	.671	.101	0	0

Scale Title	Construct Validity	Mean Other Correlations	Other > ITC	ITC < .40
MSPSS	.586			
CD-RISC	.515			