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# How character strengths of autistic learners aid primary school educators in the class: An exploratory study

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**Background:** Autism spectrum disorder is one of the most common disabilities in schools, with up to 50% of such children displaying behaviours that challenge, bringing about demanding teaching circumstances and a negative impact on educators' well-being. Strength-based interventions has not formally been used in autistic classrooms in South Africa and research regarding the topic is limited.

**Aim:** To determine the effect of a strength-based intervention on educators' perception of their own well-being, self-efficacy and the behaviour of autistic learners in their class.

**Setting:** This study was carried out in one autism-specific school in Nelson Mandela Bay of South Africa that met the specific inclusion criteria.

**Methods:** This exploratory study used a pre-experimental group design with three pre-intervention -post-intervention outcome measures to determine the effect of an intervention to support educators. The researcher presented a one-day training programme on a 6-week character strength intervention to use and implement in the autistic classroom.

**Results:** A few statistically significant changes were found of learners' behaviours that challenged, but none for educators' well-being and self-efficacy. Verbal aggression significantly decreased both in frequency and severity. Behaviours that declined significantly in severity were physical aggression, disruption, destruction and manipulative, deceitful or non-compliant behaviour.

**Conclusion:** The research showed educators' stronger focus on strengths made a difference in learners' behaviour that challenge. The exploratory study shows some positive results, which indicate a larger study can be undertaken with some changes.

**Contribution:** The outcomes contribute to the character strengths and positive education theoretical frameworks and can be relevant to support autistic learners' behaviours.

**Keywords:** autism spectrum disorder; behaviour that challenge; character strengths; disabilities; self-efficacy; teachers; teaching assistants; well-being.

## Introduction

Autism spectrum disorder (ASD), with a prevalence of about 1 in 54 children by age 8 years (Centers for Disease Control and Prevention 2020), is characterised by a wide spectrum of disorders for which there are diverse views and theories. Markram and Markram (2010) propose the intense world theory of autism, describing the difficulty that the autistic learner could experience in an open educational system such as in South Africa.

According to Markram and Markram (2010), ASD is neurologically spread over different brain regions, which would lead to a unique pattern of symptoms in every child. An autistic person is stimulated by severe reactions to experiences, directing the brain to hyperpreference, leading to overstressed selectivity. Such states become stronger with every new experience and become extreme in emotionally charged experiences and trauma. Similar to the spectrum of autistic symptoms described by Markram and Markram (2010), there is also a spectrum of severity in which the syndrome manifests in the functioning of individuals (Hollander et al. 2018), ranging from those in need of high support to those in need of low support.

The behavioural difficulties that the autistic child displays in its attempts to cope with, and adjust to, the 'other' world of family, society and education have been termed the behaviour that challenges

of the autistic child or learner (McDonnell, McCreadie & Dickinson 2019). Commonly observed externalised behaviours because of the neurobiological patterns and activities of the autistic child, as stated before, are verbal or physical aggressive behaviour, difficulty adhering to rules, hyperactivity and other disrupting behaviour (Shea, Payne & Russo 2018). Autistic children are easily distracted, impulsive and anxious, have difficulty comprehending and/or organising tasks or completing tasks and frequently get stuck in routines. They also display rigid thoughts, poor theory of mind and reactions such as being perfectionistic and ritualistic (Lu et al. 2020; Mthombeni & Nwoye 2018). Behaviours such as temper tantrums, non-compliance, aggression and even self-harming are often displayed by autistic learners in a noisy, fast-paced and lively classroom (McDonnell et al. 2019).

The task of managing the autistic learner's behaviour that challenges in a controlled classroom environment, as well as providing optimal learning experiences for all the learners, causes much stress and physical and emotional exhaustion for educators (Gilmour & Wehby; 2019; Hosley, 2019). Autistic students present unique challenges to schools, and educators often find it difficult to meet their needs effectively. Pas et al. (2016), Garbacz and McIntyre (2016) and Shogren, Wehmeyer and Sigh (2017) have reported on the stress and fatigue of educators of autistic learners and advocate for special training and support that should be available to such educators.

Educators in special school settings experience autistic individuals as challenging to work with. This results in educators developing teaching and coping difficulties and the risk of burnout because of commonly experienced stress or emotional fatigue (Cappe et al. 2017; Love et al. 2020). Of concern is further that Boujut et al. (2017) and Cappe et al. (2017) found that the quality of education provided was strongly associated with teacher well-being. The lack of understanding by education officials of the nature of their work, the disabilities of students, role conflict and uncertainties in themselves add to teacher burnout in the special education setting (Cancio et al. 2018). South Africa is short of knowledge regarding ASD and supportive education for autistic learners because of the lack of autism-specific local research. Common challenges faced by autistic learners consist of problems socialising with others, communication difficulties, restricted and repetitive behaviours and sensory difficulties (Nthibeli, Griffiths & Bekker 2022). Early intervention is crucial for improving developmental outcomes, but not all parents have access to early intervention programmes (Makombe et al. 2019; Viljoen et al. 2018; Weiss, Fiske & Ferraioli 2008). Existing early interventions aim to expand skills, focusing on communication, language, socialisation, education, play and behaviour management (Bejarano-Martín et al. 2020; Steinbrenner et al. 2020). A variety of existing autism-specific treatments are available, the most widely used, summarised from the latest research results in autism early intervention, being as follows: applied behaviour analysis (ABA), alternative and augmentative communication (AAC), auditory integration training (AIT), the developmental, individual difference, relationship-based model (DIR), the early start Denver model (ESDM), the individualised education programme (IEP), psychopharmacological interventions: medication, sensory integration, social skills teaching: Carol Gray's social stories, the picture exchange communication system (PECS), and treatment and education of autistic and related communication handicapped children (TEACCH) (Bejarano-Martín et al. 2020; Francis 2005; Franz et al. 2017; Makombe et al. 2019; Steinbrenner et al. 2020; Weiss et al. 2008).

Educators in South Africa are concerned about working with autistic learners with behaviours that challenge, lack specific skills and need training. The lack of cost-effective resources in developing countries is of concern (Nthibeli et al. 2022). As school settings are often the only places of intervention for autistic learners, educators are required to focus on encouraging socially acceptable behaviours by means of interventions in order to reduce the behaviours that challenge and to enable autistic individuals to function and to eventually be included in the community (Martinez, Werch & Conroy 2016). Classroom interventions have been demonstrated to be a cost-effective and an effective way to intervene with groups simultaneously (Pas et al. 2016).

Positive outcomes in educators and autistic children were found where interventions focused on improving delayed development in early learning settings (Conroy et al. 2019). Autism South Africa recommends that interventions use a 'presume competence' approach, which Jorgensen (2007:251) describes as 'the least dangerous assumption is to presume a student is competent to learn the general education curriculum and to design educational programmes and supports based on that assumption'. The presumption of competence proposes inclusion, acceptance and encouragement, especially for people with disabilities (Jorgensen, McSheehan & Sonnenmeier 2007). The approach of Autism SA towards presumed competence in autistic learners reflects the basic assumption for interventions in positive psychology, which is that it is more worthwhile to build competence than to repair deficits (Magyar-Moe 2009). The proposed intervention for educators reported on adheres to the 'presume competence' (of educators and learners) approach.

South African researchers have started to cite interventions focusing on positive behavioural intervention support (PBIS) as beneficial to support behaviours that challenge. Positive behaviour support is strongly encouraged as a necessity to move from a deficit approach to a corrective focus to manage behaviours (Dwarika 2020). There is little and inconclusive research in this area of the effectiveness of interventions specifically supporting behaviours that challenge of autistic learners (Martinez et al. 2016). The strengths perspective in autism teaching suggests beneficial outcomes for both learners and educators (Vuorinen, Erikivi & Uusitalo-Malmivaara 2019). Strength-based intervention has not formally been used in South Africa in autistic classrooms.

The term 'character strengths' is defined by Park, Peterson and Seligman (2004) as 'positive traits reflected in thoughts,

feelings and behaviours' and is considered 'being grounded in biology' (p. 603). It is also described as a 'pre-existing capacity for a particular way of behaviour thinking or feeling that is authentic and energising the user' (Linley 2008:9). Peterson and Seligman (2004) developed the values in action (VIA) classification of strengths to identify character profiles. Six sets of virtues are grouped and categorised in 24 unique character strengths. Character strength interventions aim at positive outcomes such as happiness and reducing symptoms of mental illness and prove to serve as buffers against adverse experiences in numerous settings, for instance, schooling (Niemiec 2020).

The main goal of strength interventions in school settings is to improve well-being and positive academic outcomes. Lavy (2020) reviewed several studies based on character strength interventions in schools and concluded that such interventions achieved improvements in learners' class participation, self-esteem, hopefulness, life fulfilment, determination to reach goals, positive emotions, empathy, unity in the class, self-reliance, well-being, social skills, academic performance and a decline in disruptive behaviour. Interventions also improved teacher-student relations and student resilience and, at the same time, promoted a positive school climate (Lavy 2020; Shankland & Rosset 2017). Outcomes of interventions to build children's character strengths have proposed that strengths could be an important protective factor to prevent aggressive behaviours (Kerekes et al. 2017).

Evidence-based studies have found that character strengths can be promoted in schools through training and interventions and be based on a child's right to standard education where the child's strengths are developed and utilised in the school environment (Lavy 2020). The aim is that character strengths will become part of the vocabulary of the class and will grant a positive way for educators and learners to regard each other (McQuaid & Cooperrider 2018). The intervention used in this study was based on strength-tailored interventions specifically for teachers to deliver to their learners as compiled by Niemiec (2018). The key elements of learning for character strength interventions in schools were also considered during the training and design of the intervention programme. Niemiec, Shogren and Wehmeyer (2017) explored the relevance of character strength interventions with individuals with developmental disabilities and linked these with positive behaviour support to encourage improved life outcomes.

Teacher well-being is strongly related to the quality of education (Boujut et al. 2017; Cappe et al. 2017). Rothmann (2013) found that employees, including educators, who experienced well-being or flourishing were successful, skilled, involved, motivated, effective and happy at work. However, teaching is a stressful occupation, and added to the high levels of stress that all educators experience, educators working in settings accommodating autistic learners at times experience severe levels of stress, fatigue and ill-being (Boujut et al. 2017; Cappe et al. 2017). Investing in enhancing and promoting educators' mental health is vital for their motivation, health, performance, commitment and job retention (Hofmann, Grob & Kohlmann 2020).

Teacher self-efficacy, as a core dimension of psychosocial well-being, was conceptualised according to the self-efficacy theory of Bandura (2006). Self-efficacy can motivate individuals to achieve goals, to persevere and to work efficiently and is linked to improved well-being (Bandura 2006; Wissing et al. 2014). Educators' self-efficacy has been found to be a predictor of positive outcomes in the classroom (Love et al. 2020).

Conroy et al. (2019) propose that professional development increases educators' self-efficacy. Oh and Kozub (2010) found that self-efficacy influenced how educators felt and how they responded to demanding situations and also that self-efficacy affected how educators managed behaviours of learners with disabilities in particular situations.

Research by Love et al. (2020) reports that there is an association between teacher self-efficacy and teacher confidence to teach autistic learners, being more inclined to engage with their autistic students in a positive way, lessening of stress and the educational achievements of autistic learners by reaching goals within learners' IEPs. The self-efficacy of participants teaching autistic pupils was investigated in this study.

As far as interventions aimed at supporting and equipping the educators of autistic learners are concerned, there is a paucity in South Africa. A strength-based approach has not been used with autistic learners in South Africa before and therefore an exploratory study was conducted.

This exploratory study conceptualised a critical look at the underlying theoretical concepts of a strength-based intervention and aimed to determine the effect thereof on educators' perception of their own well-being, self-efficacy and the behaviour of autistic learners in their class. After skilling the participants with the knowledge and usage of character strengths, they used these with their autistic learners, and the effects of these on the learners' behaviour that challenged and also on the well-being and self-efficacy of the educators were investigated.

# Method

## Research design

This quantitative, longitudinal study used a pre-experimental group design with a pre-test–post-test method of a school-based intervention to investigate the effect of the strength-based interventions by participants on the behaviour that challenged of autistic learners as well as on the self-reported well-being and self-efficacy of participants. As the aim was to test the feasibility of implementing a strength-based approach in an autistic classroom, only one autistic school was selected to participate in the exploratory study.

## Participants and setting

Permission to conduct the study was obtained from the South African educational authority, and ethical approval was obtained from the South African university involved. The study population was comprised of 26 female participants ($N$ = 26), who were primary school educators working with autistic learners in a school for autistic learners in Gqeberha (formerly Port Elizabeth), a coastal city in South Africa. An opportunistic sample of educators meeting the inclusion criteria working with autistic learners was selected, and Autism Eastern Cape provided a list of schools and acted as gatekeepers to recruit participants. The participating school was the first school willing to participate in the research. The participants' ages ranged from 21 to 59 years. The staff sample had diverse cultural and ethnic representatives, of whom 14 were black people (54%), 4 were brown people (15%) and 8 were white people (31%). Four of the official South Africa languages were represented in the participants, with 5 English (19%), 7 Afrikaans (27%), 13 Xhosa (50%) and 1 Sotho-speaking (4%) participant. Participants were all English literate and consisted of educators with professional qualifications and unqualified support staff. In terms of educational qualifications, 2 participants had less than a high school degree (8%), 10 participants had completed high school (20%), 2 participants had a college qualification (8%) and 8 participants held university degrees (31%). Four had higher degrees in education (15%). Participants had experience working with autistic students for 3 years to 15 and more years.

### Outcome measures

Five data collection tools were used and contained demographic information, measures of behaviours that challenged, teachers' self-efficacy, the well-being of teachers and staff feedback. Three were published outcome measures, used to determine the pre-intervention–post-intervention effects, and two were self-compiled by the researcher and completed once-off by participants. The instruments were pilot-tested with a group ($n$ = 4) of staff members working with learners with ASD to examine their face validity and language appropriateness. A demographic questionnaire was developed to enquire about the participants' age, gender, race, language, marital status, education, employment level and autism teaching experience.

The *Short Behaviours that Challenge Checklist* (SBTCC) (Deveau, pers. commun., 12 December 2018) was used by participants to track and measure the severity and frequency of behaviour that challenged (11 items) before and after the intervention. The Challenging Behaviour Interview showed acceptable reliability (Part I kappa = 0.67 and 0.86; Part II kappa = 0.48 and 0.76) when administrated to children and adults with intellectual disabilities. The SBTCC uses a Likert-type scale to measure the frequency of the behaviour, ranging from 1 (*never*) to 7 (*more than hourly*), and also the severity of the behaviour, on a scale ranging from 1 (*minimal impact or harm*) to 5 (*extreme impact or harm*). Participants used the checklist to track and measure the behaviour of participating learners, for example, verbal aggression, physical aggression and self-injurious behaviour.

The *Difficult Behaviour Self-Efficacy Scale* (DBSE) of Hastings and Brown (2002) was created to measure perceived self-efficacy of educators in relation to behaviours that challenged of learners. Participants assessed their self-efficacy on a seven-point scale evaluating five efficacy items of control, satisfaction in managing behaviours that challenged, staff's opinion that they had a positive effect on the behaviours that challenged, and how difficult the staff found it to work with behaviours that challenged of learners in their care, for example, 'How confident are you in dealing with the behaviours that challenge of the autistic child/children you care for?' The five questions were scored from 1 (*not at all confident*) to 7 (*very confident*). Alpha reliability estimates for the DBSE scored high for internal consistency ($\alpha$ = 0.89) as reported by Hastings and Brown (2002) in a study with special educators.

The *Mental Health Continuum – Short Form* (MHC-SF) by Keyes (2006) measures emotional well-being, social well-being and psychological well-being as facets of mental health. A total score for the MHC, as well as subscales, can be calculated. The questionnaire contains 14 items, and responses are indicated on a scale that ranges from 0 (*never*) as languishing mental health to 5 (*every day*) as flourishing for each facet of well-being (Keyes 2009). Participants were asked to indicate how they felt during the past month, for example, 'How often did you feel happy?' and 'How often did you feel that your life has a sense of direction or meaning to it?' The MHC-SF was validated in South Africa and demonstrated its usefulness in measuring the outcome of interventions to promote well-being within groups (Wissing et al. 2014). Keyes provides evidence of good reliability and validity of the MHC-SF, and this was also shown for a South African sample (Keyes et al. 2008). The internal reliability for the South African population (Setswana speaking) of the MHC-SF scale was 0.74 (Keyes et al. 2008).

Subsequent to the completion of the 6-week strength interventions, in order to obtain participants' reflective feedback on the feasibility of the intervention, participants completed 12 questions on their overall evaluation of the effect the intervention had had on the learners in their class and on themselves.

The self-report questionnaire compiled by the researcher focused on whether or not participants perceived the character strength approach with learners to be easy to implement and how useful the intervention was in the classroom (McGill et al. 2018; Deveau, pers. commun., 23 January 2020). Items were responded to on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*) by the staff members.

### Strength-based intervention programme

A 1-day staff development workshop was presented by the researcher to participants aimed at helping autistic children in developing their character strengths. The intervention was based on strength-tailored interventions for school

engagement as compiled by Niemiec (2018). This package was developed by Niemiec (2018) specifically for teachers to deliver to their learners. The key elements of learning for character strength interventions in schools were also considered during the training and design of the intervention programme. As summarised by Lavy (2020), these are as follows: provide the academic information, for example, identify what strengths are; provide strengths language; acknowledge character strengths in recognition of character strengths in yourself and others (strength spotting); promote active use of strengths (use strengths in a new way); and encourage reflection on one's own or others' strengths.

The training was presented through PowerPoint slides, video clips, practical exercises and demonstrations to address the aspects of character strengths.

The classroom-based training day covered the following: overview of the research, introduction to behaviour difficulties and tracking behaviour that challenged in the class, introduction to strengths, benefits of using strengths and practical exercises. Participants were specifically trained and supported to use the 6-week character strength intervention and training manual during this 1-day workshop, before implementing it in the classroom.

On completion, every participant received a certificate of attendance, the character strength intervention manual, colour printed character strength posters and a booklet consisting of a range of activities for each character strength intervention.

Following the classroom-based training, the participants implemented the strength-based interventions with children on a weekly basis for 6 weeks. The 6-week intervention included the following: *Week 1: Strength spotting*, to introduce the vocabulary of strengths and create awareness with the learners to get them engaged; *Week 2: Use learners' signature strengths in new ways each day*, to expand the knowledge and use of learners' best strengths; *Week 3: Stories and character strengths*, to develop the language of character strengths and become more comfortable sharing good and positive stories with others; *Week 4: Role models*, to improve understanding of one's character by recognising strengths in one's role model or hero; *Week 5: Three positive things*, enhancing gratitude by reflecting on the good things that happened during the week; and *Week 6: Three humerous things*, to boost humour and enhance social relationships.

Trained educators included character strengths in adapted Life Skills (personal and social well-being) lessons for 30–45 min per week in the classroom. Learners or educators not participating in the study just continued with the normal curriculum and not with the adapted one that included strengths as part of Life Skills.

## Data collection

Recruitment, obtaining informed consent and practical arrangements were done mostly by the principal and assistant (as ethically required). Demographic data were collected from the participants, and they completed the SBTCC (Deveau, pers. commun., 12 December 2018) 2 weeks before the intervention started to track and measure the behaviour of 35 autistic learners (the severity and frequency of the behaviour). This created the baseline for behaviour measurement. Thereafter, participants completed the SBTCC weekly, after each new strength intervention had been introduced, for 6 weeks. Subsequently, participants were visited by the researcher weekly to collect the behaviour tracking information and to offer support, where needed. After 6 weeks of implementing the character strength interventions, a post–post data collection was done a month later to determine the long-lasting effect. The participants also completed two brief scales about their self-efficacy and well-being before the intervention and again after the 6-week intervention. The first scale was the DBSE (Hastings & Brown 2002), which measured their perceived self-efficacy in dealing with behaviours that challenged. The second scale was the *Mental Health Questionnaire* (Keyes 2006), with questions that focused on how participants had been feeling and how often they had felt that way during the preceding month (for example, happy or satisfied with life).

After 6 weeks of implementing the character strength interventions, participants reported on the autistic learners' behaviour that challenged, and their well-being and self-efficacy were measured again using the same scales. Lastly, participants completed a staff feedback tick list (12 statements) to indicate how useful the sessions were and how they were perceived by the participants who implemented them.

## Data analysis

A hierarchical linear analysis that calculated frequency and severity was used to obtain the statistical results (Hancock & Mueller 2010). In multilevel research, where measures are repeated over time, estimations of relatedness of data nested in each participant and in the group can be assessed. Hierarchical linear modelling (HLM) is an intricate method of estimating the unknown parameters. This framework helps to simultaneously analyse change within and between grouped data (Hancock & Mueller 2010). For this study, HLM was done.

Traditional non-parametric tests were used, and descriptive statistics were calculated by using the SPSS 26 software package to create outlines and manage statistical analyses. In SPSS, Cronbach's alpha is used as an indicator of reliability. The *p*-value measures the statistical significance (the difference between means) of results, the probability that change was detected in the data (Ellis & Steyn 2003). Cohen's *d*-index of effect size (ES) was calculated using standard deviations for this specific study (Ellis & Steyn 2003). Effect size identifies how significant the practical outcomes of research are. Interpretation guidelines for Cohen's *d*-values (Ellis & Steyn 2003) were followed; that is, $d > 0.2$ was regarded as a small effect (no practically significant difference), $d > 0.5$ as a medium effect (practically visible difference) and $d > 0.8$ as a large effect (practically significant difference).

## Ethical considerations

Ethical clearance to conduct this study was obtained from the North-West University Health Research Ethics Committee (NWU-HREC) (No. NWU-00450-19-A1).

# Results

Firstly, the participants' well-being and self-efficacy before and after the intervention are reported. Secondly, participants' perceptions of the effect the intervention had on learners' behaviour that challenged are described. Lastly, participants' feedback after the intervention on whether learners responded well and whether participants found using a strength-based approach with learners easy and useful in the classroom is reported. All scales used (SBTCC, DBSE and MHF-SF) showed acceptable reliability ($\alpha > 0.8$). The Cronbach's alpha was comparable to that obtained by the scale authors (Hastings & Brown 2002; Keyes 2006; Vanono & McGill 2007).

## Participants' self-reported well-being

Findings of participants' perception of the three self-completed MHC-SF subscales of emotional well-being (hedonic), social well-being and psychological well-being in pre- and post-measurements are shown in Table 1. The results indicated to what extent the participants' perceptions of their well-being changed after conducting a strength-based intervention in class.

An overall MHC-SF score (range 0 – 70) was calculated for the well-being of the total group, in which higher scores showed higher levels of mental health (Keyes 2009). Subscale scores ranged from 0 to 15 for emotional (hedonic) well-being (EW), from 0 to 25 for social well-being (SW) and from 0 to 30 for psychological well-being (PW).

Participants reported being either moderately mentally healthy or mentally well (flourishing) (Keyes 2006). The total group mental health score ($M = 53.50$) showed that 28.6% of participants were moderately mentally healthy and 71.4% of participants were mentally well before the intervention. The measurements after the intervention ($M = 53.06$) indicated no statistically or practically significant differences ($p = 0.75$; ES = 0.06) from well-being at baseline, meaning that the total group reported no significant increase in their well-being. The findings did, however, show that, although not significantly, there was a shift in the percentage after the intervention from 71.4% of total well-being of participants to 78.6% of participants who were mentally well or flourished.

## Participants' perceived self-efficacy

The results, based on the scores of the DBSE, indicated the participants' perceived self-efficacy in relation to behaviours that challenged. The average scores for each item are shown in Table 2.

Although not statistically significant, the participants' total self-efficacy in dealing with behaviours that challenged increased from $M = 5.44$ to $M = 5.57$. The post-intervention scores on items 1, 4 and 5 seemed to support this, with a small practical effect found for item 4.

## Behaviours that challenge of autistic learners

The SBTCC results as measured before (once), during (weekly for 6 weeks) and after the intervention (once), in order to examine whether behaviours that challenged had been reduced in the classroom over time, can be seen in Table 3. The scores reflect the aggregated scores for $n = 35$ autistic learners reported by $n = 26$ participants.

**TABLE 1:** Pre- and post-intervention Mental Health Continuum – Short Form three subscale index of positive mental health ($N = 26$).

| Subscales | Pre-intervention | | Post-intervention | | Moderately mentally healthy | | Mentally flourishing | | *p* | ES |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SE | Mean | SE | Pre (%) | Post (%) | Pre (%) | Post (%) | | |
| MHC total | 53.50 | 1.57 | 53.06 | 1.55 | 28.6 | 21.4 | 71.4 | 78.6 | 0.75 | 0.06 |
| MHC EW | 12.04 | 0.38 | 12.11 | 0.38 | - | - | - | - | 0.86 | 0.04 |
| MHC SW | 16.50 | 0.81 | 16.22 | 0.80 | - | - | - | - | 0.71 | 0.07 |
| MHC PW | 25.16 | 0.77 | 25.04 | 0.76 | - | - | - | - | 0.84 | 0.03 |

*Source*: McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L. et al., 2018, 'Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: A cluster randomized controlled trial of setting-wide positive behaviour support', *Research in Developmental Disabilities* 81, 143–154. https://doi.org/10.1016/j.ridd.2018.04.020

SE, standard error; ES, Effective size; MHC-SF, Mental Health Continuum – Short Form; EW, emotional well-being; SW, social well-being; PW, psychological well-being; Cohen's *d*: small effect: $d > 0.2$; medium effect: $d > 0.5$; large effect: $d > 0.8$.

**TABLE 2:** Participants' perceived self-efficacy in relation to behaviours that challenge.

| Variable | The Difficult Behaviour Self-Efficacy Scale | Pre-intervention | | Post-intervention | | ES | *p* |
|---|---|---|---|---|---|---|---|
| | | Mean | SE | Mean | SE | | |
| 1 | Confidence in dealing with the behaviours that challenge | 5.61 | 0.22 | 5.82 | 0.22 | 0.19 | 0.28 |
| 2 | Control when dealing with the behaviours that challenge | 5.04 | 0.23 | 5.07 | 0.23 | 0.03 | 0.90 |
| 3 | Satisfaction in dealing with behaviours that challenge | 5.54 | 0.24 | 5.43 | 0.24 | 0.08 | 0.76 |
| 4 | A perception that they have a positive impact on the behaviours that challenge with which they deal | 5.79 | 0.11 | 6.04 | 0.11 | 0.24+ | 0.15 |
| 5 | A rating of how difficult they find it to work with behaviours that challenge | 5.25 | 0.25 | 5.50 | 0.25 | 0.19 | 0.28 |
| **Total** | - | **5.44** | **0.17** | **5.57** | **0.014** | **0.14** | **0.33** |

*Source*: McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L. et al., 2018, 'Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: A cluster randomized controlled trial of setting-wide positive behaviour support', *Research in Developmental Disabilities* 81, 143–154. https://doi.org/10.1016/j.ridd.2018.04.020

Note: $P < 0.05$; self-efficacy ranging from 1 (*not at all*) to 7 (*very much*); Cohen's *d*: small effect: +, $d > 0.2$; medium effect: ++, $d > 0.5$; large effect: +++, $d > 0.8$.

SE, standard error; ES, effect size.

**TABLE 3:** Short behaviours that challenge checklist observations of frequency and severity of learner behaviours during, pre- and post-intervention.

| Behaviours | Time | Frequency covariance parameters | | | Effect sizes | Severity covariance parameters | | | Effect sizes |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | MSE | *p* | | Mean | MSE | *p* | |
| B1 Self-injury | Pre | 1.14 | 0.08 | 0.27 | | 1.14 | 0.04 | 0.19 | |
| | Week 1 | 1.03 | | | 0.37+ | 1.06 | | | 0.30+ |
| | Week 2 | 1.03 | | | 0.38+ | 1.02 | | | 0.44+ |
| | Week 3 | 1.14 | | | 0.02 | 1.08 | | | 0.24+ |
| | Week 4 | 1.00 | | | 0.45+ | 1.02 | | | 0.45+ |
| | Week 5 | 1.01 | | | 0.42+ | 1.02 | | | 0.44+ |
| | Week 6 | 1.01 | | | 0.42+ | 1.03 | | | 0.43+ |
| | Post | 1.06 | | | 0.28+ | 1.03 | | | 0.41+ |
| B2 Physical aggression | Pre | 1.31 | 0.18 | 0.08 | | 1.31 | 0.08 | 0.00** | |
| | Week 1 | 1.10 | | | 0.42+ | 1.09 | | | 0.62++ |
| | Week 2 | 1.15 | | | 0.33+ | 1.10 | | | 0.60++ |
| | Week 3 | 1.18 | | | 0.27+ | 1.10 | | | 0.59++ |
| | Week 4 | 1.01 | | | 0.60++ | 1.01 | | | 0.84+++ |
| | Week 5 | 1.08 | | | 0.46+ | 1.05 | | | 0.74++ |
| | Week 6 | 1.01 | | | 0.59++ | 1.02 | | | 0.83+++ |
| | Post | 1.06 | | | 0.50++ | 1.03 | | | 0.80+++ |
| B3 Verbal aggression | Pre | 1.77 | 0.48 | 0.00** | | 1.43 | 0.16 | 0.02* | |
| | Week 1 | 1.26 | | | 0.61++ | 1.24 | | | 0.36+ |
| | Week 2 | 1.26 | | | 0.61++ | 1.12 | | | 0.61++ |
| | Week 3 | 1.55 | | | 0.27+ | 1.24 | | | 0.37+ |
| | Week 4 | 1.11 | | | 0.79++ | 1.18 | | | 0.49+ |
| | Week 5 | 1.13 | | | 0.77++ | 1.14 | | | 0.57++ |
| | Week 6 | 1.10 | | | 0.81+++ | 1.11 | | | 0.64++ |
| | Post | 1.20 | | | 0.69++ | 1.11 | | | 0.62++ |
| B4 Disruption or destruction | Pre | 0.23 | 0.13 | 0.25 | | 1.37 | 0.10 | 0.03* | |
| | Week 1 | 1.26 | | | 0.05 | 1.21 | | | 0.24+ |
| | Week 2 | 1.28 | | | 0.08 | 1.18 | | | 0.29+ |
| | Week 3 | 1.12 | | | 0.18 | 1.16 | | | 0.31+ |
| | Week 4 | 1.12 | | | 0.17 | 1.12 | | | 0.37+ |
| | Week 5 | 1.12 | | | 0.17 | 1.12 | | | 0.37+ |
| | Week 6 | 1.09 | | | 0.23+ | 1.11 | | | 0.40+ |
| | Post | 1.09 | | | 0.24+ | 1.14 | | | 0.34+ |
| B5 Stereotyped behaviour | Pre | 2.46 | 1.20 | 0.65 | | 1.63 | 0.47 | 0.41 | |
| | Week 2 | 2.05 | | | 0.20+ | 1.25 | | | 0.40+ |
| | Week 3 | 2.21 | | | 0.12 | 1.40 | | | 0.24+ |
| B6 Inappropriate sexual behaviour | Pre | 1.09 | 0.03 | 0.18 | | 1.06 | 0.01 | 0.23 | |
| | Week 1 | 0.97 | | | 0.66++ | 1.00 | | | 0.51++ |
| | Week 2 | 1.04 | | | 0.26+ | 1.04 | | | 0.15 |
| | Week 3 | 1.03 | | | 0.29+ | 1.00 | | | 0.51++ |
| | Week 4 | 1.00 | | | 0.49+ | 1.00 | | | 0.51++ |
| | Week 5 | 1.00 | | | 0.49+ | 1.00 | | | 0.51++ |
| | Week 6 | 1.00 | | | 0.47+ | 1.00 | | | 0.51++ |
| | Post | 1.00 | | | 0.47+ | 1.00 | | | 0.51++ |
| B7 Smearing or urination | Pre | 0.98 | 0.02 | 0.81 | | 1.00 | 0.01 | 0.54 | |
| | Week 1 | 1.00 | | | 0.22+ | 1.03 | | | 0.36+ |
| | Week 2 | 1.00 | | | 0.22+ | 1.00 | | | 0.00 |
| | Week 3 | 1.03 | | | 0.48+ | 1.03 | | | 0.38+ |
| | Week 4 | 1.00 | | | 0.22+ | 1.00 | | | 0.00 |
| | Week 5 | 1.00 | | | 0.22+ | 1.00 | | | 0.00 |
| | Week 6 | 1.00 | | | 0.22+ | 1.00 | | | 0.00 |
| | Post | 1.00 | | | 0.22+ | 1.00 | | | 0.00 |
| B8 Stealing | Pre | 1.03 | 0.02 | 0.81 | | 1.20 | 0.08 | 0.28 | |
| | Week 1 | 1.00 | | | 0.14 | 1.09 | | | 0.22+ |
| | Week 2 | 1.03 | | | 0.00 | 1.09 | | | 0.22+ |
| | Week 3 | 1.03 | | | 0.00 | 0.99 | | | 0.40+ |
| | Week 4 | 1.03 | | | 0.01 | 1.06 | | | 0.28+ |
| | Week 5 | 1.03 | | | 0.01 | 1.06 | | | 0.27+ |
| | Week 6 | 1.03 | | | 0.02 | 1.07 | | | 0.26+ |
| | Post | 1.06 | | | 0.12 | 1.09 | | | 0.22+ |

Table 3 continues on the next page →

**TABLE 3 (Continues...):** Short behaviours that challenge checklist observations of frequency and severity of learner behaviours during, pre- and post-intervention.

| Behaviours | Time | Frequency covariance parameters | | | Effect sizes | Severity covariance parameters | | | Effect sizes |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | MSE | *p* | | Mean | MSE | *p* | |
| B9 Manipulative, deceitful and/or non-compliant behaviour | Pre | 1.43 | 0.28 | 0.87 | | 1.31 | 0.09 | 0.02* | |
| | Week 2 | 1.33 | | | 0.10 | 1.02 | | | 0.48+ |
| | Week 4 | 1.33 | | | 0.10 | 1.15 | | | 0.27+ |
| | Week 5 | 1.24 | | | 0.19 | 1.14 | | | 0.29+ |
| | Week 6 | 1.27 | | | 0.16 | 1.18 | | | 0.21+ |
| | Post | 1.26 | | | 0.17 | 1.14 | | | 0.28+ |
| B10 Absconding | Pre | 1.31 | 0.25 | 0.59 | | 1.31 | 0.15 | 0.32 | |
| | Week 1 | 1.24 | | | 0.12 | 1.09 | | | 0.35+ |
| | Week 2 | 1.20 | | | 0.17 | 1.16 | | | 0.23+ |
| | Week 3 | 1.21 | | | 0.16 | 1.11 | | | 0.32+ |
| | Week 4 | 1.13 | | | 0.28+ | 1.15 | | | 0.26+ |
| | Week 5 | 1.05 | | | 0.42+ | 1.13 | | | 0.28+ |
| | Week 6 | 1.13 | | | 0.29+ | 1.16 | | | 0.23+ |
| | Post | 1.14 | | | 0.27+ | 1.23 | | | 0.13 |
| B11 Other behaviour | Pre | 1.54 | 1.42 | 0.52 | | 1.20 | 0.70 | 0.08 | |
| | Week 2 | 1.35 | | | 0.09 | 0.80 | | | 0.27+ |
| | Post | 1.11 | | | 0.21+ | 0.91 | | | 0.19 |

*Source*: McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L. et al., 2018, 'Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: A cluster randomized controlled trial of setting-wide positive behaviour support', *Research in Developmental Disabilities* 81, 143–154. https://doi.org/10.1016/j.ridd.2018.04.020

Note: Because of the length of Table 3, only significant *ES* scores are included; Cohen's *d*: +, r > 0.20: small effect; ++, *r* > 0.50: medium effect; +++, *r* > 0.80: large effect.

MSE, mean squared error.

*, $p < 0.05$; **, $p < 0.01$.

From Table 3, it is evident that there were one statistically significant change in frequency and four statistically significant changes in severity of behaviour that challenged was observed over time. Verbal aggression significantly decreased both in frequency ($p = 0.00$) and severity ($p = 0.02$). Behaviours that declined significantly in severity were physical aggression ($p = 0.00$), disruption, destruction ($p = 0.03$) and manipulative, deceitful or non-compliant behaviour ($p = 0.02$). The frequency of physically aggressive behaviour also lessened, but the change was measured as just above being significant ($p = 0.08$); however, it would still be an interesting influence to examine further. The results were generally significant on a practical level (ranging from ES = 0.20 to ES = 0.84 for both frequency and severity). The results indicated that the intervention had noticeable effects on behaviours that challenged. Significant *ES* scores were included for medium and large practical effects.

For the first item, self-injurious behaviour, the effect sizes were observed as small to almost moderate in range ($d = -0.37$ to $d = -0.45$) for frequency and severity. The most apparent effect was observed in frequency and severity in week 4 ($d = -0.45$). There was an immediate impact noticed on the frequency of physical aggression ($d = -0.42$) and a moderate effect on the way the severity ($d = -0.62$) of this behaviour was perceived. The severity of physical aggression was largely changed in week 4 (−0.84), with the largest decrease. The impact of the intervention on physical aggression lasted (unlike self-injury) and was prominently visible even after the intervention had been stopped and when the post-intervention data were collected, with improvements in severity ($d = -0.80$) and frequency ($d = -0.50$) of behaviour clearly noted. The severity of verbal aggressiveness also consistently decreased more visibly from week 4 ($\bar{x} = 1.18$; $d = 0.49$) to reach the most effective impact in week 6 ($\bar{x} = 1.11$; $d = 0.64$). The general observation of challenging behaviours decreased. The severity of sexually inappropriate behaviour remained almost stable ($\bar{X} = 1.00$; $d = 0.51$) over time after the first decrease in week 1 ($\bar{X} = 1.00$; $d = 0.51$), with moderate effect.

## Perceived effects of intervention on autistic learner behaviour

The data of the self-report questionnaire were only collected after the intervention, as opinions concerned the changes or possible benefits post-intervention, but it must be cautioned that participants' impressions might be subjective. The scores provided by participants (Table 4) regarding the perceived benefits for learners of the character strength interventions were high overall (i.e. ratings ranged from 3.00 [*neutral*] to 5.00 [*strongly agree*]). Participants mostly agreed with observing improvement in the learners' well-being ($M = 4.32$), learners having a better range of activities ($M = 4.35$), learners getting on better with classmates and friends ($M = 4.21$), better communication ($M = 4.18$), improvements in the environment ($M = 4.29$) and improvements in behaviour ($M = 4.11$) of the learners in the class. Finally, participants reported that, overall ($M = 4.18$), the interventions had led to improvement in the quality of the learners' class mood.

## Effect of intervention on participants

The participants mostly reported (Table 5) that the intervention had had a positive effect on them personally ($M = 4.49$). The participants agreed ($M = 4.46$) that they had found the intervention enjoyable, that the intervention had been easy to implement ($M = 4.25$), that the intervention had helped participants to become more skilled ($M = 4.54$)

**TABLE 4:** Participants' reflective feedback regarding the feasibility of the intervention for learners.

| Questions on overall evaluation | Mean | SD |
|---|---|---|
| Improved their well-being | 4.32 | 0.55 |
| Led to them having a better range of activities | 4.35 | 0.56 |
| Led to them getting on better with classmates and friends | 4.21 | 0.69 |
| Led to them communicating better | 4.18 | 0.67 |
| Led to improvements in their environment | 4.29 | 0.60 |
| Led to improvements in their behaviour | 4.11 | 0.79 |
| Overall, led to improvements in the quality of their class mood | 4.18 | 0.61 |
| **Group mean** | **4.23** | - |

*Source*: McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L. et al., 2018, 'Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: A cluster randomized controlled trial of setting-wide positive behaviour support', *Research in Developmental Disabilities* 81, 143–154. https://doi.org/10.1016/j.ridd.2018.04.020

Note: Items were responded to on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

SD, standard deviation.

**TABLE 5:** Participants' reflective feedback regarding the feasibility of the intervention for themselves $N = 26$.

| Outcome of overall evaluation | Mean | SD |
|---|---|---|
| Was enjoyable | 4.46 | 0.51 |
| Was easy to implement | 4.25 | 0.75 |
| Helped me become more skilled | 4.54 | 0.58 |
| Improved the way I perceive the learners and their strengths | 4.68 | 0.61 |
| Overall, improved the quality of my working life | 4.50 | 0.64 |
| **Group mean** | **4.49** | - |

*Source*: McGill, P., Vanono, L., Clover, W., Smyth, E., Cooper, V., Hopkins, L. et al., 2018, 'Reducing challenging behaviour of adults with intellectual disabilities in supported accommodation: A cluster randomized controlled trial of setting-wide positive behaviour support', *Research in Developmental Disabilities* 81, 143–154. https://doi.org/10.1016/j.ridd.2018.04.020

Note: Items were responded to on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

SD, standard deviation.

and that it had improved the way they perceived the learners and their strengths ($M = 4.68$). Participants perceived the intervention as having improved their quality of work with their learners overall ($M = 4.50$).

## Discussion

In this exploratory research, a character strength intervention for participants to use in class with autistic learners was presented to 26 participants. Subsequently, the effect of the intervention on autistic learners' behaviour that challenged and on the self-reported well-being and self-efficacy of the educators was investigated.

The main result was that a few *statistically significant* changes were found between baseline or pre-intervention and later post-intervention assessments of learners' behaviours that challenged, but none for participants' well-being and self-efficacy. *Significant practical effect sizes*, ranging from a small to a large practical effect, were found for behaviours that challenged of learners and for the self-efficacy of participants after implementation of the character strength intervention.

Durlak (2009) equates practical significance to clinical significance for studies done in teaching, clinical and other behavioural contexts, such as this study. Effect size (*ES*) or practical significance has value in describing the magnitude and direction or strength of the difference between two groups, measures or variables. In this study, the effect size determines the practical impact of findings of an intervention. Interestingly, authors such as Durlak (2009) and Neill (2008) argue that when there is no interest in generalising the results, there is no need for significance testing. The overall results of the study indicated the following:

The scales (SBTCC, DBSE and MHC-SF) used in the research were reliable ($\alpha > 0.80$). The Cronbach's alpha indices obtained corresponded to those found by the scale authors (Hastings & Brown 2002; Keyes 2006; Vanono & McGill 2007). The current study, thus, supported the internal consistency of the measures as reported by the authors, but also for use in a South African context. It is recommended that the DBSE be validated for research in South Africa.

Although not significant, the general psychosocial well-being of participants, including their emotional, psychological and social well-being, indicated that some participants reported moderate wellness, while others reported high levels of well-being or flourishing (70%) during pre-intervention assessment. After the intervention, fewer participants reported moderate well-being (21%), but more reported flourishing (79%). It is possible that the use of the intervention might have instilled perceptions of new or improved coping, problem-solving and competence abilities in the participants that were not measured by the MHC scale, but were manifested in perceptions of doing better and feeling less stressed in performing teaching tasks with autistic learners (Skinner & Edge 2002).

The self-efficacy of teaching participants also showed an increasing post-intervention trend, although not significant. This finding corresponds to that of Savolainen et al. (2012) with South African educators who reported increased self-efficacy beliefs in dealing with learners' behaviours that challenged. On the perception that they could positively influence their learners' behaviour that challenged, a small practical effect (ES = 0.24) was found. A perception of self-efficacy is strongly associated with a perception of autonomy (Wehmeyer, Little & Sergeant 2009) and self-regulation (Maddux 2012).

The results pertaining to the learners' behaviours that challenged as measured before, during and after the intervention, in order to examine whether behaviours that challenged were reduced in the classroom over time, produced interesting insights. The direction of the *ES* findings was mostly towards a decrease in behaviour that challenged. The decrease in the *frequency of behaviour* that challenged occurred more in verbal aggression (B3, $p = 0.00$) than in physical aggression (B2), while the opposite occurred in *severity of behaviour* that challenged (physical aggression, $p = 0.00$; verbal aggression, $p = 0.02$). Both significant *p*-values and effect sizes showed this trend.

Thereafter, effect sizes showed that, both in frequency and severity of behaviour, a similar decrease was observed in inappropriate sexual behaviour (B6) and self-injury (B1). A greater decrease in the severity of behaviour that challenged was observed in disruption and destruction (B4, $p = 0.03$), in

stealing (B8), in absconding (B10), in manipulative, deceitful and non-compliant behaviour (B9, $p = 0.02$), in stereotyped behaviour (B5) and also in other behaviour (B11) than in the frequency of such behaviour. The frequency of behaviour of urination and smearing (B7), however, increased, albeit to a smaller degree than in B3, B2, B6 and B1 described earlier. The same behaviour also increased in severity, but less so. The reason for this occurrence is not clear, considering the decreasing trend in behaviour for most other behaviours.

The statistical (*p*-values) and practical (effect sizes) results indicated a trend towards a decrease in the severity of behaviour that challenged, more so than in the frequency of such behaviour. As no comparable research findings could be found in the literature with which to interpret the findings on changed severity and frequency in behaviour that challenged, the results could not be interpreted further. However, remembering that the frequency of behaviour often has to do with developed habits, it may be that it will take more time and even more experience of the character strengths skills to change such habitual reactive behaviour in autistic learners (Pas et al. 2016). This idea is linked to the finding of Kerekes et al. (2017) that character strengths could serve as an inhibitor of aggressive behaviour.

A particularly interesting occurrence was the decrease in the frequency and severity of behaviour that challenged manifesting strongest in weeks 4, 5 and 6 of the intervention for all groups of learners, as reported by the participants. The participants recognised the potential gained by experience is a possible explanation.

Furthermore, the self-report results of participants for the effect of the intervention on learners and on themselves showed that the majority of them strongly deemed the intervention to be successful and of value. As far as the effect of the intervention on the observed behaviour of the autistic learners was concerned, the participants reported ($M = 4.23$) beneficial outcomes in the activities, class relationships, communication, environment, behaviour and well-being of learners. Regarding the effect that the intervention had had on themselves, the participants ($M = 4.48$) reported that the intervention had been enjoyable, had been easy to use, had given them skills, had improved their views of learners and had improved their teaching task overall. The findings of beneficial outcomes of the intervention for the learners and participants remind one of the important roles that educators play in the teaching outcomes of autistic learners (Love et al. 2020; Van Der Steen et al. 2021). It is difficult to change autistic behaviours, and the intervention was not designed for autistic learners (Pas et al. 2016). These preliminary results lay the foundation for future research.

In conclusion, the findings discussed earlier indicated trends that the character strength interventions of educators with autistic learners had positive effects on educators' general well-being and their sense of self-efficacy in dealing with learners' behaviours that challenged. The autistic learners showed a significant decrease in verbal aggression both in frequency and severity and in the severity of physical aggression, disruption, destruction and manipulative, deceitful or non-compliant behaviour. The frequency of physically aggressive behaviour also lessened behaviours that challenged. Educators evaluated the outcome of the intervention as salutary for the learners and participants. The DSM-5 (American Psychiatric Association 2013) definition of ASD as a disorder with behaviours of social and communication difficulties and repetitive and rigid behaviours came to mind from the results, as well as understanding the challenges that teaching such youth posed. Durlak (2009) argues that behaviour of a pathological nature is the most difficult to change, and therefore, any finding of clinical or practical effect should be seen as a meaningful change that has taken place in either the context or the person's experience of the context. Unfortunately, no other findings could be found with which to compare the findings of this study, as is strongly suggested by Durlak (2009). Challenging behaviours are considered one of the most significant barriers to the participation of children with ASD in inclusive general education settings, social relationships and the community, according to Martinez (2016). Therefore, the conclusion is that the practical decreases in eight of the groups of behaviours that challenged of autistic learners (with significant changes in four groups) could be seen as meaningful changes (because of the intervention) that occurred in either the learning context or the experience of autistic learners that had equally meaningful effects on their behaviour that challenged. This study proved that the strength-based approach had value and could be used when certain changes are made.

## Implications and limitations

It is recommended that the character strength intervention programme be used in the future. Furthermore, a plethora of interventions are available to assist the autistic youth in general, but few for educators to implement in their classrooms that would enhance their own feelings of well-being and self-efficacy. Autistic learners understand and communicate in a distinctive way and comprehend information differently. Nthibeli et al. (2022) stress that the strategy of focusing on the strengths of autistic learners has positive results. Social stories were used the most as school-based interventions to support behaviours in reviewed studies (Martinez 2016). The character strength intervention can be combined with visuals and social stories to improve its value and to make it more autism specific.

The development of education policy and programmes to promote the strengths approach of positive education and to equip educators with strength-promoting skills is recommended (Niemiec et al. 2017). The intervention introduced in this study is unique and can be developed, presented and validated for use with South African autistic learners, in line with other existing behaviour support classroom programmes. Niemiec et al. (2017) also suggests that ways to make this intervention more concrete and to use evidence-based approaches for the specific field should be explored further.

Because of the nature of an explorative study, a small sample was used in this research, and therefore, the character

strength interventions should be replicated in larger groups of educators of autistic learners and over a longer period of time. The few significant findings were a limitation, and larger samples could improve on that. A control group was not used in this study; therefore, future validation research with the proposed intervention and including a control group for comparison and validation purposes (to avoid confirmation bias) is recommended.

Van Schalkwyk and Wissing (2013) argue that the effectiveness of an intervention may well be reliant on the duration of the programme and that improved well-being is attained mainly after a period of time. It is important to recommend smaller group trainings, more training sessions and ongoing support for educators in implementing the programme and that the intervention must be continued over a longer period of time. This is also to ensure that the skill of using strengths becomes part of teacher training and that teachers can practise skills taught with their peers (Merriman, Burke & O'Reilly 2020).

In future, mixed-method studies are required with qualitative documentation to describe participants' and autistic learners' experiences.

In conclusion, the results of this study show positive results and indicated that a larger feasibility study of character strength–based interventions can be undertaken as part of the school curriculum for autistic learners.

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### Data availability

The data that support the findings of this study are not openly available due to confidentiality and are available from the corresponding author, C.S., upon reasonable request.

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The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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