

# **Chapter Ten: High Levels of Adaptability, Proactivity and Resilience as Skills aligned with the Sustainable Development Goals in Early Childhood Education**

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## **Introduction**

Early childhood education (ECE) encompasses the education of children from birth to around age 9. In the South African context, young children attend playgroups, nursery schools, and preschools until the age when formal schooling becomes compulsory at five or six (Department of Basic Education, n.d.). At this age, they enter the foundation phase, consisting of Grades R (reception year), 1, 2, and 3. During the first nine years, children reach a variety of developmental milestones and learn new skills (Schwartz and Palviainen 2016). Teachers in the field of ECE are not only responsible for supporting children to reach these age-appropriate milestones and promote cognitive development, but also provide them with nurturing care, guide them in terms of social skills and emotional well-being and gain an understanding and knowledge about the world around them. This requires 'high-quality teacher-child interactions' (Blewitt et al. 2020: 2) and quality education. Blewitt et al. (2020) also point out that teachers need support and professional development opportunities to enable them for the task. In the context of sustainable development goals (SDGs), teachers should be equipped to integrate the concepts of sustainability into their teaching practices.

Agenda 2030 emphasises the importance of early childhood education (Britto et al. 2017; Samuelsson and Park 2017), and education of sustainability in this phase (Rodrigo et al. 2021; Samuelsson and Park 2017). For early learners to become global citizens and learn sustainability,

teachers must have a broad understanding of SDGs (Chapman and O’Gorman 2022). This makes teacher educators responsible for teaching SDGs to pre-service teachers and modelling classroom practices that are aligned with SDGs. More research in terms of sustainability in ECE is necessary, as sustainability is impacted by various systems such as interpersonal relationships and interaction with the environment (Davis and Elliott 2024). However, in the global effort to advance sustainable development, early childhood education requires further research to foster more consistent understandings of the topic (Engdahl and Furu 2022). Teacher education in the field of higher education, which plays a pivotal role in teacher training and leveraging SDGs, is also less researched and regarded as an emerging, yet less obvious profession (Høydalsvik 2019). To enhance teaching practices aligned with the SDGs, this chapter aims to explore the skills that teacher educators need to advance sustainable development in early childhood education.

## **Teaching SDGs**

The United Nations proposed seventeen SDGs to reach the target as set out in Agenda 2030, which includes, but is not limited to, health and well-being (SDG 3) and quality education (SDG 4) (United Nations 2015). Reaching these SDGs requires knowledge, understanding and appropriate teaching practices, led by research and social responsibility towards preserving the planet. Implementing SDGs into teaching practices is not an easy task, as differences in worldviews, the interconnectedness of the different goals and complexity thereof pose different challenges (Filho et al. 2019). To leverage the SDGs, a top-down or bottom-up approach can be followed (Mazon et al. 2020). Following a top-down approach, higher education policy (Mazon et al. 2020) must motivate the promotion of SDGs in higher education institutions. On the next level, teacher educators are positioned to share their knowledge, values and skills with the student teachers through their teaching practices. Furthermore, teachers can promote SDGs by modelling behaviour that is aligned with the SDGs, such as providing examples of how the promotion of well-being and quality education is present in ECE (higher education) classrooms.

To gain a better understanding of the knowledge, skills, values and perceptions that are essential in teacher education in ECE, within the context of SDGs, questions can be asked, such as “which skills, related to the promotion of sustainability, are evident within higher education institutions in South Africa?” This can be done by exploring teacher educators’ current knowledge, values, skills and perceptions in terms of SDGs. Previous literature that focuses on teacher educators’ values and skills in terms of SDGs highlights the importance of social cohesion (Galtseva et al. 2020; Nakidien et al. 2021), ‘patience, empathy, tolerance’ (Nketsia et al. 2020: 62), ‘citizenship’ (Nakidien et al. 2021: 6), as well as environmental and economic values (Galtseva et al. 2020). It is argued that if teacher educators portray values and skills such as these during classroom and education practices, and the necessary skills and knowledge regarding SDGs are added into the curriculum content, future teachers could gain the necessary knowledge and teaching practices to integrate it into their own early childhood pedagogies. Following a bottom-up approach, student teachers can bring their own insights about SDGs into higher education institutions for further development within social contexts (Mazon et al. 2020) and further development by teacher educators, for instance, by integrating the student teachers’ knowledge and ideas into teaching practices and on- and off-campus projects, creating different learning opportunities. The question that arises from the above-mentioned literature is: Which skills and interventions are necessary to promote professionalism in the context of the SDGs within ECE departments in higher education institutions?

## Learning theories

According to different learning theorists, a variety of factors have an influence on the learning process. While there are a variety of learning theories, for this chapter, experiential learning, social learning, self-directed learning and the transformative learning process in the context of the SDGs will be briefly referred to.

**Experiential learning:** Individuals learn through their environment and the experience within it. Experiential learning can be defined as

learning knowledge, values, skills and perceptions by being involved in an experience (Jarvis et al. 2003). The outcome of the experience is not significant, but what is, is a sense of awareness about the individual experience and the process that was followed (Peterson and Kolb 2017) for it to be a learning experience. Through this state of awareness within the situation, accompanied by self-reflection, new perceptions and values are created (Kolb 1984), leading to changed behaviour. This is a process that encapsulates all areas of being, which leads us to adapt to our environment (Kolb 1984), to grow (Peterson and Kolb 2017) and become a true version of ourselves (Jarvis et al. 2003). Considering learning and teaching SDGs, two processes are at play. Teacher educators should model values and skills that strengthen SDGs and create experiences for student teachers that are motivating to transform their thinking, values and perceptions in favour of SDGs. Furthermore, student teachers should be especially aware of their experiences, which requires the ability of self-reflection and use the opportunity to gain knowledge from their experiences within the learning environment.

**Social learning:** As mentioned earlier, learning is not an individual journey. We learn in and from social contexts (Jarvis et al. 2003). Individuals learn through observing other people, who function as models for behaviour, which we, consciously or unconsciously, repeat (Bandura 1969). Thus, if teacher educators and student teachers are exposed to a social environment which promotes SDGs, the social interaction and social modelling of behaviour can serve as a learning opportunity and motivation to practice sustainable behaviour. Higher education institutions, therefore, should foster a social environment in line with the SDGs.

**Self-directed learning:** Self-directed learning puts more responsibility on the individual teacher educator who needs to be open to new information and knowledge (Tough 1989), being able to adopt it into their teaching practices (Oltra-Badenes et al. 2023) and include it in the curriculum (García-González et al. 2020). This process may require mentorship (Knowles 2003; Tough 1989) from colleagues and participation in professional development activities. The teacher educator, thus, has a responsibility towards the transformation process to become more sustainable in their professional and teaching practices. On the other hand, student teachers

should be developed to have the skill to develop themselves further in an ever-changing world, adding knowledge to the areas in which they need further professional development (Petersen et al. 2020).

**Transformational learning:** When a teacher educator gains new knowledge or insights into SDGs and acts on it, transformational learning takes place. These changes can circle into changing the social system (Mezirow 1993). This transformational process is built on experience and self-reflection (Bates 2016; Mezirow 1993), as discussed earlier. In short, gaining knowledge and understanding and adapting values, skills and perceptions requires various role-players; however, it is mostly the responsibility and willingness of the individual to transform.

From the above-mentioned literature, it seems necessary that the current ECE teacher educators' values, skills, perceptions and awareness, literature and resources in terms of SDGs, are explored and highlighted. This will lead to a better understanding of what is needed to create change, sustain or mediate teacher educators' perceptions and professionalism towards Agenda 2030 and SDGs. Knowledge building in this regard will contribute to strengthening the top-down approach to implementing the SDGs into higher education teaching practices and curricula.

The current study aims to strengthen and expand the research on ECE teacher educators working in support of SDGs and Agenda 2030. The rationale for this aim is that ECE and teacher educators are uniquely positioned to strengthen the pipeline towards a sustainable future, as indicated in Agenda 2030 (United Nations 2015). The research questions that are proposed for the aim of this chapter are: Which skills that are related to the promotion of sustainability are evident within South African higher education institutions? Which skills and interventions are necessary to promote professionalism in the context of the SDGs within ECE departments in higher education institutions?

## Phenomenology

To answer these questions, the current study is based on the principles of phenomenology, according to Husserl (1980), who explains that through phenomenological research, reality is exposed in its true form. Life

experiences are captured through our senses (Husserl 1980; Vagle 2018). Learning from experience is a process which involves sensory awareness, creating a whole bodily experience in the moment (Meyer-Drawe 2017), followed by thought processes, to make sense of the experience (Husserl and Findlay 1970). All parts of our existence are, therefore, involved in an experience (Meyer-Drawe 2017). Creating a learning experience in ECE in higher education can be complex and requires teacher educators to be experts in their fields of education.

## **Adaptability**

Skills, values and perceptions are already formed during the early childhood years. However, learning is a continuous journey throughout the entire lifespan, and skills, values and perceptions in favour of SDGs can be acquired at any age. Furthermore, this is not necessarily an individual journey; it might require joint opportunities, collaboration, self-reflection and motivation. Adaptability is the ability to adjust one's thinking or behaviour (Martin et al. 2013). Adaptability, or the ability to change, is highly dependent on interpersonal communication (Sarmiento et al. 2024) but has been shown to positively influence well-being (Holliman et al. 2021; Waldeck et al 2021) and academic performance (Martin et al. 2013). In a constantly changing teaching environment, teaching professionals need to have the ability to manage change effectively (Granziera et al. 2016) while staying true to their values (Niemeyer-Rens et al. 2022).

## **Proactivity**

When considering proactivity within the context of SDG 3 (health and well-being), Akay et al. (2024) found a correlation between proactivity and life satisfaction. For early career educators, this implies taking responsibility for teaching tasks and continuous professional development (Arif et al. 2023). This might present similarly in higher education contexts. Teacher educators' work performance and level of engagement have an impact on the quality of education (SDG 4) they provide for student teachers (Mişu et al. 2022). This correlates with Montero-Sieburth and Turcatti (2022), who

highlight the importance of early intervention and relationships (teacher educator and student teacher) as a way of being proactive towards future success. Alasmare et al. (2024) motivate effective classroom management, which includes, but is not limited to, teacher–student relationships, which is a driving force towards proactivity in education. According to Montero-Sieburth and Turcatti (2022), resilience is a skill that is essential for proactivity.

## **Resilience**

Resilience is complex (Borazon and Chuang 2023; Mansfield et al. 2016), yet important and relevant to higher education institutions. Theron (2021) notes that the interaction between the student and the learning environment has an impact on the student’s ability to become resilient. Although the learning environment plays a significant role, other factors such as personality, interpersonal relationships and life events should also be accounted for. Academic resilience can be defined as a student’s ability to manage academic stress, setbacks and expectations. Academic resilience is also linked to academic success and the psychological well-being of students (Egan et al. 2022; Holdsworth et al. 2018; Mantzios et al. 2020; Martin and Marsch 2006). Broadly, psychological resilience is a person’s ability to adapt to significant life-altering events. Although resilience can be accompanied by stress, it also involves a process of personal growth (American Psychological Association 2020). Resilience can be related to self-reflection or ‘mindfulness’ (Mantzios et al. 2020: 302), ‘self-regulation’ (Hill et al. 2021: 181), the ability to adapt (Siders 2019), and transform (Few et al. 2017) or, in an educational context, the implementation of adjusted learning opportunities depending on the context in which it is used (Almerez and Duping 2022). Anthony et al. (2017) note that an all-inclusive definition for resilience does not exist and that the concept of resilience is different for every person based on personal and environmental factors (Hascher et al. 2021). Similarly, the learning process, which requires resilience, is different for each person. To gain a clearer understanding of how resilience and proactivity are present in higher education institutions, in terms of teacher-educator and student relationships, classroom practices,

and how they can be leveraged in terms of SDGs, more research is needed (Jonker et al. 2024).

## **Methodology**

Vignette observations were conducted of a teacher educator in an ECE department at a higher education institution, having interpersonal contact with colleagues. The participant was female and appointed to a senior position. The time spent observing the participant in the following vignette was two and a quarter hours. Observation notes were made in Afrikaans, the language in which the researcher is most comfortable with speed handwriting, using a notebook and pen. As much detail as possible was added regarding the environment, the participant's verbal and non-verbal cues and emotional and bodily reactions (Agostini et al. 2024). During the observation process, the researcher was not looking for any specific details, nor did she reflect on the situation during that moment. From the observation notes, raw vignettes were crafted. The vignettes then followed a process of validation, which included resonance readings by three individuals who are not involved in the study. Their feedback, which consisted of positive feedback and suggestions on, for example, embodiment and word choice, was used during the continued crafting process of the vignettes. The vignettes were presented to the participant for a final stage of validation, before the final vignettes were ready (Agostini et al. 2024). One of these vignettes is presented to the reader to see the situation as it played out, through the eyes of the researcher, making it a self-explanatory piece of literature, as presented under the sub-heading preliminary findings and discussion.

Semi-structured interviews were conducted, which were piloted by South African and Austrian teacher educators as a means of validating the questions and following the Teach4Reach 2.0 protocol. A few questions were revised for the sake of clarity, removing unnecessary or repetitive questions. The interview consists of 26 questions focusing on professionalisation, practice, life-long learning, implementing SDGs at the university and at the policy level, current challenges and future visions. It took approximately 45 to 75 minutes to complete an online interview, which was recorded

and transcribed (Creswell and Creswell 2018) using the MS Word dictate application. The interviews took place between November 2024 and March 2025. The participants consisted of four female ECE teacher educators between the ages of 28 and 67, with different levels of experience in South Africa. Content analysis was done using the MS Word search application on the transcriptions from the four interviews to find words or phrases that are related to the findings from the presented vignette and related to resilience and proactivity as discussed in the literature review. These words included resilience or flexibility, adaptability, adaptation, change, growth, self-reflection, mindfulness, self-regulation, transformation, proactivity, professional development, engagement, intervention, implement, and relationship. Search results were considered if it was relevant to the content of the current chapter.

Participants were aware that participation in the study was voluntary and was conducted with the necessary consent. Data is managed with confidentiality and anonymity; alternatively, pseudonyms were used where necessary. Participants were informed of their right to withdraw from the study at any time. The study was conducted within the ethical clearance of the Teach4Reach 2.0 project and adheres to the ethical codes of the University of Pretoria, University of Innsbruck and University of Vienna.

## **Preliminary Findings and Discussion**

The preliminary findings of the study, which is still in the phase of data collection, suggest that high levels of adaptability, proactivity and resilience are necessary skills to promote teacher educator professionalism and strengthen SDG 3 (well-being) and SDG 4 (quality education) within higher education institutions. From the first vignette observations that were done at a South African ECE higher education department, according to the guidelines stipulated in the methodology, the following vignette was crafted and translated from Afrikaans. This vignette captures a moment in which an ECE teacher educator is in conversation with a colleague. This vignette encapsulates bodily experiences and thought processes as it was present and captured through the sensory awareness of the researcher, in that moment. Through this process, this moment then also becomes a

learning experience, highlighting the finer nuances that are present.

Bernadette sits behind her desk in a quiet office. Her laptop is open in front of her. Overhead lights lighten the room. In front of her table are two chairs. Bernadette holds the telephone receiver in one hand, talking to a colleague on the telephone. Another colleague's head and shoulders appear from behind the door frame. Bernadette beckons her to come inside by stretching out her hand and bringing it closer. The big hand gesture invites her to come inside. Bernadette ends her telephonic conversation and puts down the receiver. She looks at Suné, who has a question about her leave form. Bernadette answers her query. The conversation leads to personnel—and then to personal matters. Bernadette engages in eye contact while they are talking. There are soft lines on her face. She holds her glasses in one hand, which rests on the table, her other hand on her lap. 'I will make time for you ... ' You just have to stay encouraged,' says Bernadette. As the conversation continues, the atmosphere lightens.

Bernadette is talking on the telephone when a colleague's head and shoulders appear around the corner. Bernadette does not leave her standing there or allow her to leave. She reacts to what is important at the time by inviting her inside with hand gestures while she concludes her telephonic conversation. Bernadette shows the ability to adapt to different tasks at a specific moment. She engages with her colleague as soon as her telephone conversation ends. They have a brief discussion about a leave form, personnel matters, and she also engages with her colleague on a more personal level. Bernadette says: 'I will make time for you... You just have to stay encouraged.' From this statement, it seems that her colleague's well-being is of importance to her; and she is willing and has the skills to adjust her own schedule in favour of the relationship, to be available for her colleague in the present, but also indicating her availability in the future. This verbal and non-verbal gesture also indicates her ability and willingness to be proactive in communicating with her colleague that when the need arises, she is willing to support her, showing her availability in future, taking responsibility for her role in a senior position. Bernadette's verbal and non-verbal gestures lead to a

change in the atmosphere, indicating the depth of her actions. Bernadette's gestures can also be an indicator of adaptability as a skill towards well-being, fostering high-quality relationships and creating positive learning environments. In line with Arif et al. (2023), who highlight the importance of taking responsibility as an early career teacher, this is also applicable to teacher educators in higher education institutions. Being adaptable, making time to discuss professional and personal matters, and promoting the well-being (SDG3) of colleagues or students, can be indicative of the proximity and relatedness of resilience and proactivity in higher education settings, as Montero-Sieburth and Turcatti (2022) point out. From a top-down approach to integrate the SDGs, this high-quality relationship is of significance (Blewitt et al. 2020). This vignette can serve as an example of how adaptability and proactivity, important skills to leverage sustainable behaviour (Akay et al. 2024; Benavot et al. 2024; Mişu et al. 2022), can be present in ECE departments in higher education institutions.

To extend the preliminary findings from the vignette, data from the semi-structured interviews were analysed as stipulated in the methodology. During interviews conducted with teacher educators at a South African ECE department, participants were asked which skills they identify as essential for effectively contributing to SDGs. The response in interview one was as follows: 'The first skill that pops up in my mind is adaptability. I think adaptability or flexibility, depending on how you want to put it, is important.' During interview four, the concept of professional teacher educator and how her personality affects her development, was explained as follows: '...professionals got to think it, they got to reflect. They got to do. And they got to change practices... So, every time that you do something, you've got to make those changes practically...' These statements highlight the importance of changing teaching practices regularly to meet the needs of the direct and indirect community, promoting SDG 3 and SDG 4. It also highlights the importance of proactivity in the sense that significant teaching practices forego appropriate learning experiences to strengthen SDG 4. In terms of adaptability and proactivity, it can present as teacher educators being available, making time in their schedule, even changing their daily planning to support colleagues or student teachers on an academic or a personal level. In the ECE classroom, it might present as

teachers having the ability to adjust their pedagogy to meet the needs of the learners in the classroom (Eslamian et al. 2017). This requires teacher educators, or teachers, to know what those needs are. The following response was recorded during the third interview: ‘Teachers [educators] should know children [students]...You should know their needs. You should know how to deal with their needs. You should know how to deal with their well-being. It’s not only the physical part.’ Väisänen et al.’s (2018) reference to teacher educators who are supporting student teachers’ experience of well-being and initiative to prevent burnout can be used as another example of how proactivity is present in higher education institutions. This again suggests the importance of high-quality relationships between teacher educators (Boon 2026) and student teachers.

In a different question on the challenges experienced on a university level regarding the integration of Agenda 2030 into teacher education, the response in interview one was as follows: ‘...not being open to change, resistance to change and saying that it’s not needed... I can definitely see resistance to change and not everyone being equally bought into the concept and the necessity of SDGs.’ This statement strengthens the importance of and the need for high levels of resilience in higher education, as change can often be stressful. It also signifies the need for ECE teacher educators to take part in professional development activities on how to deal with change, as resilience involves personal and professional growth (American Psychological Association 2020), self-reflection and ‘mindfulness’ (Mantzios et al. 2020: 302). Professional development was explained as: ‘Lifelong learning to me is the humility to acknowledge that you constantly need to learn... being willing to listen to feedback, as hard as it might be, the willingness to implement that.’ [interview 1], ‘I think just to be willing to learn, willing to grow, willing to understand, and to be a lifelong learner, you really need to be open to new ideas and open to collaboration.’ [interview 2] and ‘What is important for me would be to keep on reading. Keep on developing, self-development, attending workshops...’ [interview 3]. These statements also indicate that professional development requires a level of adaptability, proactivity and resilience.

From a top-down perspective, modelled behaviour, such as applying resilience, adaptability and proactivity, can contribute to a learning

experience of how SDG 3 and SDG 4 can present in all levels of ECE, when the recipient is receptive to learning. From a bottom-up perspective, a teacher educator can be receptive towards the changes they need to make to include the needs of their colleagues, students and the community they serve. These strategies can then be carried down to the ECE department at the school level.

A moment like the one captured in the vignette can serve as a learning opportunity (Agostini et al. 2024; Bandura 1969; Jarvis et al. 2003) for teacher educators on how, for example, adaptability and proactivity can be applied in a social and higher education context, to align with sustainable behaviour and SDG 3 and SDG 4. For example, the experience of a colleague or a teacher educator showing their willingness to change to accommodate their needs can, through social learning, be repeated in different situations. In terms of teaching practices that align with SDGs in ECE, teacher educators have the responsibility to adapt and be proactive and resilient. Although these are complex skills (Borazon and Chuang 2023), they can and should be developed throughout the educational system (see, for example, Johnson et al. 2014; Mansfield et al. 2016; Nolan et al. 2014). Professionalism in ECE departments in higher education institutions can be strengthened by being open to change, fostering high-quality relationships, participation in professional development activities and an adjusted curriculum for teacher educators to incorporate SDGs (García-González et al. 2020), across all phases (early childhood to higher education), relevant to the specific community that is served (Samuelsson and Park 2017).

From previous references (Galtseva et al. 2020; Nakidien et al. 2021; Nketsia et al. 2020), proactivity and resilience did not feature as two of the main skills in findings related to SDGs, however, other authors (Baron and Baron 2019; Ebersöhn 2014; Ebersöhn et al 2015; Johnson et al. 2014; Mansfield et al. 2016; Nolan et al. 2014), recognise the importance of adaptability, proactivity and resilience (Alasmari et al. 2024; Arif et al. 2023; Montero-Sieburth and Turcatti 2022) in the teaching profession. Further research in terms of values (Samuelsson and Park 2017), skills, proactivity and resilience in education and practice (Vance et al. 2015) in terms of SDGs, especially in ECE (Borg and Gericke 2021) and related

higher education institutions, is necessary. Through the above-mentioned research, literature can add to the body of knowledge on promoting SDGs (Chankseliani and McCowan 2021).

## **Limitations**

This chapter only reports on preliminary and limited sources of data, as the study is still in a phase of data collection. More vignettes and interview data have the potential to give more insight into these findings. Further research on adaptability, proactivity and resilience in the context of teacher educator professionalism and SDGs in ECE departments in higher education institutions is necessary. The data in this chapter focus on ECE teacher educators in higher education institutions in South Africa and cannot be generalised to different higher education departments or global ECE departments. The preliminary data can, however, be used as a baseline for future research in different departments across different countries.

## **Conclusion**

This chapter reported on the pivotal role teacher educators in ECE play by following a top-down and bottom-up approach to teaching and strengthening SDG 3 and SDG 4. Therefore, their values, skills and perceptions should be as such to promote SDGs through their behaviour, classroom practice and curriculum. Aspects such as the willingness and ability to change, foster high-quality relationships, take part in professional development activities and adjust teaching practices to incorporate SDGs are skills and a responsibility, related to proactivity and resilience, which promote professionalism in higher education contexts.

While previous literature suggest that social cohesion (Galtseva et al. 2020; Nakidien et al. 2021), 'patience, empathy, tolerance' (Nketsia et al. 2020: 62), 'citizenship' (Nakidien et al. 2021: 6) as well as environmental and economical values (Galtseva et al. 2020) are necessary to promote SDGs, the current study demonstrated through preliminary findings, how adaptability can lead to proactivity, but requires resilience and in some cases professional development to strengthen the skills needed to ensure a

more sustainable future and therefore, promoting professionalism in higher education institutions.

Although suggesting further research in terms of adaptability, proactivity and resilience as skills for sustainable behaviour, these preliminary findings can be indicative of how teacher educators' skills influence their professionalism in their teaching practices (Gamage et al. 2021).

## Funding

This study is funded with the support of Africa Uninet [P093].

## Acknowledgement

The Teach4Reach 2.0 project team from which the interview questions were developed (Dittrich, Ann-Kathrin; Eloff, Irma; Agostini, Evi; Mathabathe, Kgadi, M.; Weinberg, Lucas; Rabani, Maryam Nia).

## References

- Agostini, E., Schratz, M. and Eloff, I. 2024. *Vignette research: research methods*. Great Britain: Bloomsbury Publishing, Inc.
- Akay, A., Karabulut, G. and Yilmaz, L. 2024. Life satisfaction, pro-activity and employment. *The Singapore Economic Review*, 69(7): 2235–2257. <https://doi.org/10.1142/S0217590821500132>
- Alasmari, N. J. and Althaqafi, A. S. A. 2024. Teachers' practices of proactive and reactive classroom management strategies and the relationship to their self-efficacy. *Language Teaching Research*, 28(6): 2158–2189. <https://doi.org/uplib.idm.oclc.org/10.1177/13621688211046351>
- Almeraz, Q. L. G. and Duping, A. M. 2022. Challenges and responses of higher education institutions (HEIs) towards academic resilience. *International Journal of Research and Innovation in Social Science*, 6(12): 464–472.
- American Psychological Association 2020. *Building your resilience*. [Online]. Available at: <https://www.apa.org/topics/resilience/building-your-resilience>. [Accessed on 10 September 2024].

- Anthoney, J., Stead, R. and Turney, K. 2017. Making connections and building resilience: Developing workshops with undergraduates. *Knowledge Management and E-Learning: An International Journal*, 9(3): 404-418.
- Arif, A., Mir, T. T. and Gul, F. 2023. Identifying essential employability skills for new graduate teachers: school employers' perspectives. *Pakistan Journal of Social Research*, 5(2): 1105–1112. [www.pjsr.com.pk](http://www.pjsr.com.pk)
- Bandura, A. 1969. Social-learning theory of identificatory processes. *Handbook of socialization theory and research*, 213: 262.
- Baron, P. and Baron, A. C. 2019. Ethically resilient teachers, what might that be? A comparison across two educational levels: Pre-school and university in South Africa. *Kybernetes*, 48(4): 696–714. <https://doi.org/10.1108/K-01-2018-0033>
- Bates, B. 2016. *Learning theories simplified and how to apply them to teaching*. London: Sage.
- Benavot, A., Williams, J. H., and Naidoo, J. 2024. Should we not be educating for resilience? Leveraging SDG 4 in times of crisis. *International Journal of Educational Development*, 104: 102929. <https://doi.org/10.1016/j.ijedudev.2023.102929>
- Blewitt, C., Morris, H., Nolan, A., Jackson, K., Barrett, H. and Skouteris, H. 2020. Strengthening the quality of educator–child interactions in early childhood education and care settings: A conceptual model to improve mental health outcomes for preschoolers. *Early Childhood Development and Care*, 190(7): 991–1004. <https://doi.org/10.1080/03004430.2018.1507028>
- Boon. W. 2026. Mense, prosesse, plekke en beginsels in vroeë kinderonderwys: Die bevordering van kwaliteitonderrig in hoëronderwys (People, processes, places and principles in early childhood education: The advancement of quality teaching in higher education). *LitNet Akademies (LitNet Academics)*, 23(1). <https://www.litnet.co.za/mense-prosesse-plekke-en-beginsels-in-vroeë-kinderonderwys-die-bevordering-van-kwaliteitonderrig-in-hoer-onderwys/>
- Borazon, E.Q. and Chuang, H.H. 2023. Resilience in educational system: A systematic review and directions for future research. *International Journal of Educational Development*, 99: 102761.

- Borg, F. and Gericke, N. 2021. Local and global aspects: Teaching social sustainability in Swedish preschools. *Sustainability*, 13(7): 3838. <https://doi.org/10.3390/su13073838>
- Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T. ... and Fernald, L. C. 2017. Nurturing care: Promoting early childhood development. *The Lancet*, 389(10064): 91–102. [https://doi.org/10.1016/S0140-6736\(16\)31390-3](https://doi.org/10.1016/S0140-6736(16)31390-3)
- Chankseliani, M. and McCowan, T. 2021. Higher education and the Sustainable Development Goals. *Higher Education*, 81(1): 1–8. <https://doi.org/10.1007/s10734-020-00652-w>
- Chapman, S. N. and O’Gorman, L. 2022. Transforming learning environments in early childhood contexts through the arts: Responding to the United Nations Sustainable Development Goals. *International Journal of Early Childhood*, 54: 33–50. <https://doi.org/10.1007/s13158-022-00320-3>
- Creswell, J. W. and Creswell, J. D. 2018. *Research design* (5<sup>th</sup> ed.). Los Angeles: Sage Publications.
- Davis, J. and Elliott, S. 2024. Introduction. In *Young children and the environment: early education for sustainability*, 3<sup>rd</sup> ed, edited by J. Davis and S. Elliott. Cambridge: Cambridge University Press. pp. 7–29.
- Department of Basic Education. n.d. Admissions of learners to public schools. [Online]. <https://www.education.gov.za/Informationfor/ParentsandGuardians/SchoolAdmissions.aspx#:~:text=It%20is%20however%20important%20to%20check%20the%20registration%20deadlines%20of%20individual%20provinces.&text=Grade%20R%20is%20age%20four,in%20the%20year%20of%20admission.> [Accessed on 11 November 2024].
- Ebersöhn, L. 2014. Teacher resilience: Theorizing resilience and poverty. *Teachers and Teaching*, 20(5): 568–594. <https://doi.org/10.1080/13540602.2014.937960>
- Ebersöhn, L., Loots, T., Eloff, I. and Ferreira, R. 2015. In-service teacher training to provide psychosocial support and care in high-risk and high-need schools: school-based intervention partnerships. *Journal of Education for Teaching*, 41(3): 267–284. <https://doi.org/10.1080/02607476.2015.1044226>

- Egan, H., O'Hara, M., Cook, A. and Mantzios, M. 2022. Mindfulness, self-compassion, resilience and wellbeing in higher education: A recipe to increase academic performance. *Journal of Further and Higher Education*, 46(3): 301–311. <https://doi.org/10.1080/0309877X.2021.1912306>
- Engdahl, I. and Furu, A. C. 2022. Early childhood education: A vibrant arena in the complex transformation of society towards sustainability. *International Journal of Early Childhood*, 54(1): 1–12. <https://doi.org/10.1007/s13158-022-00323-0>
- Eslamian, H., Jafari, S.E.M. and Neyestani, M.R. 2017. Investigating the effect of teaching aesthetic skills to faculty members on development of their effective teaching performance. *Journal of Teacher Education for Sustainability*, 19(2): 90–106. <https://doi.org/10.1515/jtes-2017-0016>
- Few, R., Morchain, D., Spear, D., Mensah, A. and Bendapudi, R. 2017. Transformation, adaptation and development: Relating concepts to practice. *Palgrave Communications*, 3(17092). Available at: <https://doi.org/10.1057/palcomms.2017.92>
- Filho, W. L., Shiel, C., Paço, A., Mifsud, M., Ávila, L. V., Brandli, L. L. ... and Caeiro, S. 2019. Sustainable development goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? *Journal of Cleaner Production*, 232: 285–294. <https://doi.org/10.1016/j.jclepro.2019.05.309>
- Galtseva, T., Svitich, S., Kutsiy, A., Savchenko, V. and Strukova, T. 2020. Education for sustainable development in the value system of teachers. *European Journal of Sustainable Development*, 9(4): 147–160. <https://doi.org/10.14207/ejsd.2020.v9n4p147>
- Gamage, K. A. A., Dehideniya, D. and Ekanayake, S. Y. 2021. The role of personal values in learning approaches and student achievements. *Behavioral Sciences (Basel)*, 11(7): 102. <https://doi.org/10.3390/bs11070102>
- García-González, E., Jiménez-Fontana, R. and Azcárate, P. 2020. Education for sustainability and the Sustainable Development Goals: Pre-service teachers' perceptions and knowledge. *Sustainability*, 12(18): 7741. <https://www.mdpi.com/2071-1050/12/18/7741>
- Granziera, H., Collie, R. J. and Martin, A. J. 2016. Adaptability: An important capacity to cultivate among pre-service teachers in teacher

- education programmes. *Psychology Teaching Review*, 25(1): 60–66.
- Hascher, T., Beltman, S. and Mansfield, C. 2021. Teacher wellbeing and resilience: Towards an integrative model. *Educational Research*, 63(4): 416–439. <https://doi.org/10.1080/00131881.2021.1980416>
- Hill, J., Healey, R. L., West, H. and Déry, C. 2021. Pedagogic partnership in higher education: Encountering emotion in learning and enhancing student wellbeing. *Journal of Geography in Higher Education*, 45(2): 167–185. <https://doi.org/10.1080/03098265.2019.1661366>
- Holdsworth, S., Turner, M. and Scott-Young, C. M. 2018. Not drowning, waving. Resilience and university: A student perspective. *Studies in Higher Education*, 43(11): 1837-1853. <https://doi.org/10.1080/03075079.2017.1284193>
- Holliman, A. J., Waldeck, D., Jay, B., Murphy, S., Atkinson, E., Collie, R. J. and Martin, A. (2021). Adaptability and social support: Examining links with psychological wellbeing among UK students and non-students. *Frontiers in Psychology*, 12, 636520. <https://doi.org/10.3389/fpsyg.2021.636520>
- Høydalsvik, T.E.L. 2019. The hidden professionals? An interview study of higher education–based teacher educators’ professional identity. *Nordisk tidsskrift for utdanning og praksis*, 13(2): 93–113. <https://doi.org/10.23865/up.v13.1974>
- Husserl, E. 1980. *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy*. Boston: Kluwer Boston.
- Husserl, E. and Findlay, J. N. 1970. *Logical investigations*. London: Routledge and Kegan Paul; New York: Humanities Press.
- Jarvis, P., Holford, J. and Griffin, C. 2003. *The theory and practice of learning*. Great Britain: Kogan Page.
- Johnson, B., Down, B., Le Cornu, R., Peters, J., Sullivan, A., Pearce, J. and Hunter, J. 2014. Promoting early career teacher resilience: A framework for understanding and acting. *Teachers and Teaching*, 20(5): 530–546. <https://dx.doi.org/10.1080/13540602.2014.937957>
- Jonker, C., Graham, M. A. and Ebersöhn, L. 2024. Measuring dimensions of teacher resilience in Africa: Self–efficacy and teacher efficacy. *South African Journal of Education*, 44(3). <https://doi.org/10.15700/saje.v44n3a2481>

- Knowles, M. S. 2003. Part 1: The learner. In: *Adult and continuing education: Liberal adult education, part 2*, edited by P.G. Jarvis and C. Griffin. Routledge
- Kolb, D. A. 1984. *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice–Hall, Inc.
- Mansfield, C. F., Beltman, S., Broadley, T. and Weatherby–Fell, N. 2016. Building resilience in teacher education: An evidence informed framework. *Teaching and teacher education*, 54: 77–87. Available at: <https://doi.org/10.1016/j.tate.2015.11.016>
- Mantzios, M., Egan, H., Cook, A., Jutley–Neilson, J., and O’Hara, M. 2020. Wellbeing and the NSS: the potential of mindfulness and self–compassion for an enhanced student experience. *Journal of Further and Higher Education*, 44(3): 300–310. <https://doi.org/10.1080/0309877X.2018.1541970>
- Martin, A. J. and Marsh, H. W. 2006. Academic resilience and its psychological and educational correlates: a construct validity approach. *Psychology in the Schools*, 43(3): 267–281. <https://doi.org/10.1002/pits.20149>
- Martin, A. J., Nejad, H. G., Colmar, S. and Liem, G. A. D. 2013. Adaptability: How students’ responses to uncertainty and novelty predict their academic and non-academic outcomes. *Journal of Educational Psychology*, 105(3): 728–746. <https://doi.org/10.1037/a0032794>
- Mazon, G., Pereira Ribeiro, J. M., Montenegro de Lima, C. R., Castro, B. C. G. and Guerra, J. B. S. 2020. The promotion of sustainable development in higher education institutions: Top–down, bottom–up, or neither? *International Journal of Sustainability in Higher Education*, 21(7): 1429–1450. <https://doi.org/10.1108/IJSHE-02-2020-0061>
- Meyer–Drawe, K. 2017. Phenomenology as a philosophy of experience: Implications of pedagogy. In *Phenomenological pedagogy and vignette research*, edited by M. Schratz and J. F. Schwarz. University of Innsbruck.
- Mezirow, J. 1993. A transformation theory of adult learning. *Adult Education Research Annual Conference Proceedings*, 31: 141–146.
- Mișu, S. I., Radu, C., Deaconu, A. and Toma, S. 2022. How to increase teacher performance through engagement and work efficacy. *Sustainability*, 14(16): 10167. <https://doi.org/10.3390/su141610167>

- Montero–Sieburth, M. and Turcatti, D. 2022. Preventing disengagement leading to early school leaving: Pro–active practices for schools, teachers and families. *Intercultural Education*, 33(2): 139–155. <https://doi.org/10.1080/14675986.2021.2018404>
- Nakidien, T., Singh, M. and Sayed, Y. 2020. Teachers and teacher education: Limitations and possibilities of attaining SDG 4 in South Africa. *Education Sciences*, 11: 66. <https://doi.org/10.3390/educsci11020066>
- Niemeyer-Rens, R. F., Sullivan, G. and Self, S. W. 2022. Leadership adaptability within higher education. *Journal of Higher Education Theory & Practice*, 22(9). <https://doi.org/10.33423/jhetp.v22i9.5357>
- Nketsia, W., Opoku, M. P., Saloviita, T. and Tracey, D. 2020. Teacher educators’ and teacher trainees’ perspective on teacher training for sustainable development. *Journal of Teacher Education for Sustainability*, 22(1): 49–65. <https://doi.org/10.2478/jtes-2020-0005>
- Nolan, A., Taket, A. and Stagnitti, K. 2014. Supporting resilience in early years classrooms: The role of the teacher. *Teachers and Teaching*, 20(5): 595–608. <https://doi.org/10.1080/13540602.2014.937955>
- Oltra–Badenes, R., Guerola–Navarro, V., Gil–Gomez, J.–A. and Botella–Carrubi, D. 2023. Design and implementation of teaching–learning activities focused on improving the knowledge, the awareness and the perception of the relationship between the SDGs and the future profession of university students. *Sustainability*, 15(6): 5324. <https://www.mdpi.com/2071-1050/15/6/5324>
- Petersen, N. T., De Beer, J. and Mentz, E. 2020. The first–year student teacher as a self–directed learner. In: *Becoming a teacher: research on the work–integrated learning of student teachers*, edited by J. De Beer, N. Petersen, and H. J. van Vuuren. NWU self–directed learning series 4. Cape Town: OASIS. pp. 115–150.
- Peterson, K. and Kolb, D.A. 2017. *How you learn is how you live: using nine ways of learning to transform your life*. San Francisco: Berrett–Koehler Publishers.
- Rodrigo, M. M. T., Diy, W. D. A., Favis, A. M. T., Amante, F. U., Castro, J. C. M., Herras, I. Y., Mallari, J. C. F., Mora, K. A., Torres, J. M. R. and Cuyegkeng, M. A. C. 2021. *A recipe for teaching the Sustainable*

- Development Goals*. In: The 29th International Conference of Computers in Education, Asia–Pacific Society for Computers in Education, 22–26 November.
- Samuelsson, I.P., and Park, E. 2017. How to educate children for sustainable learning and for a sustainable world. *International Journal of Early Childhood*, 49: 273–285. <https://doi.org/10.1007/s13158-017-0197-1>
- Sarmiento, A., Supartha, W. G., Sintaasih, D. K. and Riana, I. G. 2024. Lecturer performance in higher education: Transformational leadership, knowledge sharing, change adaptability and its relationship. *Pegem Journal of Education and Instruction*, 14(1): 261–269. <https://doi.org/10.47750/pegegog.14.01.29>
- Schwartz, M. and Palviainen, A. 2016. Twenty–first–century preschool bilingual education: Facing advantages and challenges in cross–cultural contexts. *International Journal of Bilingual Education & Bilingualism*, 19(6): 603–613. <https://doi.org/10.1080/13670050.2016.1184616>
- Siders, A. R. 2019. Adaptive capacity to climate change: A synthesis of concepts, methods, and findings in a fragmented field. *Wiley Interdisciplinary Reviews: Wires Climate Change*, 10(3): e573. Available at: <https://doi.org/10.1002/wcc.573>
- Theron, L. 2021. Learning about systemic resilience from studies of student resilience. In: *Multi–systemic resilience: adaptation and transformation in contexts of change*, edited by M. Ungar. Canada: Oxford University Press. pp. 232–250.
- Tough, A. M. 1989. Self–directed learning: Concepts and practice. In: *Lifelong education for adults: An international handbook* edited by C.J. Titmus. Elsevier Science & Technology. pp. 256–259. <https://ebookcentral-proquest-com.uplib.idm.oclc.org/lib/pretoria-ebooks/detail.action?docID=1875374>
- United Nations. 2015. *Transforming our world. The 2030 agenda for sustainable development*. [Online]. Available at: <https://sdgs.un.org/2030agenda>. [Accessed on 10 June 2024].
- Vagle, M. D. 2018. *Crafting phenomenological research*. New York: Routledge.
- Väisänen, S., Pietarinen, J., Pyhältö, K., Toom, A. and Soini, T. 2018. Student teachers’ proactive strategies for avoiding study–related burnout during teacher education. *European Journal of Teacher Education*, 41(3):

301–317.

Vance, A., Pendergast, D., and Garvis, S. 2015. Teaching resilience: A narrative inquiry into the importance of teacher resilience. *Pastoral Care in Education*, 33(4): 195–204. Available at: <https://doi.org/10.1080/02643944.2015.1074265>

Waldeck, D., Pancani, L., Holliman, A., Karekla, M. and Tyndall, I. 2021. Adaptability and psychological flexibility: Overlapping constructs? *Journal of Contextual Behavioral Science*, 19: 72–78. <https://doi.org/10.1016/j.jcbs.2021.01.002>