



MEASURING LIFE SKILLS

*In the context of Life Skills and Citizenship
Education in the Middle East and North Africa*

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Acknowledgements

With a call for transformation of education systems, and the integration of life skills into curricula and programming for children, measuring life skills is increasingly becoming a priority for ministries of education and their partner organizations. To address this challenge, the United Nations Children's Fund (UNICEF) and The World Bank have joined efforts in the Middle East and North Africa (MENA) region to facilitate evidence generation and pioneering of contextually appropriate tools for measuring life skills.

This publication brings together and reviews available instruments for measuring life skills and reflects on how life skills can effectively be taught. It builds on the MENA Life Skills and Citizenship Education (LSCE) Conceptual and Programmatic Framework (hereafter known as the 'LSCE Framework'), which was developed within the scope of the LSCE Initiative and has informed the development of a life skills measurement instrument.

The LSCE Initiative represents a community of practice that brings together a variety of international and regional organizations, ministries of education and other institutions responsible for or concerned with the status of education across the MENA countries.

Current partners are UNICEF, Arab League Educational, Cultural and Scientific Organization (ALESCO), Aflatoun International, the Arab Institute for Human Rights (AIHR), Birzeit University (BZU), Deutsche Post DHL Group, the International Labour Organization (ILO), the International Youth Foundation (IYF), Mercy Corps, the Norwegian Refugee Council (NRC), Save the Children, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Population Fund (UNFPA), the United Nations Refugee Agency (UNHCR), the United Nations Relief and Work Agency (UNRWA), The World Bank, and the World Food Programme (WFP).

This publication is aimed at a wide audience of education practitioners, United Nations agencies, non-governmental organization (NGO) workers, researchers, and teachers and trainers both inside and outside national ministries of education, who are engaged in the teaching and learning of life skills. It is hoped that it will serve as a basis for providing evidence-based technical support to MENA countries, while strengthening the relevance and quality of their life skills interventions. The common objective is to ensure quality learning opportunities for all children and youth in MENA and beyond.

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Abbreviations

Adult Decision-Making Skill	A-DMC	Multi-Dimensional Emotional Empathy Scale	MDEES
Adolescent measure of empathy and sympathy scale	AMES	Middle East and North Africa	MENA
Basic Empathy Scale	BES	Life Skills and Citizenship Education	LSCE
California Measure of Mental Motivation	CM3	Organisation for Economic Co-operation and Development	OECD
Computer Attitude Questionnaire	CAQ	Promoting Alternative Thinking Strategies	PATHS
Communicative Adaptability Scale	CAS	Problem-based learning	PBL
Child and Adolescent Scale of Participation	CASP	Proactive Decision-Making	PDM
Cornell Critical Thinking Test	CCTT	Programme for International Student Assessment	PISA
California Critical Thinking Skills Test	CCTST	Problem-Solving Inventory	PSI
Conceptual and Programmatic Framework	CPF	Problem-Solving Skills	PSS
Collaborative Problem Solving	CPS	Questionnaire Measure of Emotional Empathy	QMEE
Child Self-Control Rating Scale	CSCRS	Resourceful Adolescent Program	RAP
Deliberative Process Perceived Quality Scale	DPPQS	Resourceful Adolescent Program – Family	RAP-F
Divergent Thinking	DT	Self-Control and Self-Management Scale	SCMS
Extended Class Exchange Program	ECEP	Scale of Ethnocultural Empathy	SEE
International Association for the Evaluation of Educational Achievement	IEA	Situational Judgement Tests	SJT
Interpersonal Communicative Competence Scale	ICCS	Torrance Tests of Creative Thinking	TTCT
International Civic and Citizenship Study	ICCS	United Kingdom	UK
Index of Empathy for Children and Adolescents	IECA	United States	US
Intelligence Quotient	IQ	United Nations Educational, Scientific and Cultural Organization	UNESCO
Interpersonal Reactivity Index	IRI	United Nations Children's Fund	UNICEF
Mindfulness-based Stress Reduction	MBSR	World Values Survey	WVS
		Youth Empowerment Strategy	YES!

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Reimagining Life Skills and Citizenship Education in the Middle East and North Africa

A TRANSFORMATIVE VISION OF EDUCATION FOR THE 21ST CENTURY

The Life Skills and Citizenship Education (LSCE) initiative provides a transformative vision to reimagine education for better (life) outcomes for children and young people. The conceptualization of this vision is based on four essential premises:

- **A holistic approach to learning** considering the whole learner by acknowledging the multi-dimensionality of education for cognitive, individual, social and economic development.
- **A humanistic and rights-based approach to learning** with a transformative effect and a strong ethical foundation, recognizing that education fosters human dignity and promotes human rights-based values.
- **A lifelong learning approach** understood as a cumulative investment from an early age onwards throughout life to learn through multiple opportunities and fulfil personal potential.
- **A multiple pathways approach to learning** in formal and informal settings of learning, fostering learning and individual empowerment for creating an environment enabling social inter-connectedness.

Aiming at higher-order **life outcomes**, life skills and citizenship education aims at equipping individuals with a set of skills allowing them to learn, to work, to be personally empowered, and to be active citizens.

Understood as higher-order, transversal and transferrable skills, life skills enable individuals to develop knowledge, attitudes and behaviours to deal with everyday life and enable them to be and act in a constructive way, while taking into account the context and being able weight in choices.

The four dimensions of learning reflecting a shared conceptual understanding of **life skills** needed to empower individuals, protect children, enhance employability and recreate the bases of inter-connectedness, social cohesion and behaviours mindful of the environment of the 21st century. (See LSCE Conceptual and Programmatic Framework, 2017)*

- **‘Learning to Know’** or the Cognitive Dimension: abilities underscoring the importance of curiosity, creativity and critical thinking for gaining a better understanding of the world and people.
- **‘Learning to Do’** or the Instrumental Dimension: abilities for applying of what has been learned into practice, and how to concretely navigate demanding situations while being efficient and productive.
- **‘Learning to Be’** or the Individual Dimension: abilities aiming at the development of the complete person, thus allowing the individual to act with ever greater autonomy, judgement and personal responsibility.
- **‘Learning to Live Together’** or the Social Dimension: abilities building inclusive identities consistent with democratic and social justice values and principles, adopting a human rights-based approach.

The twelve core life skills reflect the dynamic interplay between and contribute to the development of each of the four dimensions of learning (life outcomes). One life skill can contribute to being a more innovative learner, and at the same time to being a more productive worker, to feeling personally empowered and to being a more engaged citizenship – thus reinforcing other life skills and life outcomes. A **three-step process** was used to identify the twelve core life skills, namely (i) identifying a cluster of candidate core life skills by dimension of learning, (ii) selecting a set of three life skills most relevant to each dimension of learning, and (iii) analysing the twelve core life skills for the MENA region. (LSCE Twelve Core Life Skills, 2017)**

* Available at https://www.unicef.org/mena/media/6186/file/Twelve%20Core%20Life%20Skills%20for%20MENA_EN.pdf%20.pdf

** Available at <https://www.unicef.org/mena/reports/reimagining-life-skills-and-citizenship-education-middle-east-and-north-africa>



EXECUTIVE SUMMARY

Teaching and learning life skills, when done effectively, is incredibly important for empowering children and young people to achieve success in education, employment, personal goals and associative life. Nevertheless, to date, few education systems have integrated life skills into their education systems. Some of the reasons for this are challenges concerning: 1) the lack of knowledge as to what life skills are, 2) how they can be taught and learnt, and 3) how they can be measured, assessed and evaluated.

WHAT ARE LIFE SKILLS?

- Life skills are transferable skills that enable individuals to deal with everyday life, and to progress and succeed in school, work and societal life.
- They are comprised of skills, attitudes, values, behaviours and domain-based knowledge which need to be applied in harmony with each other.
- They can be learnt throughout life, though there are different optimal ages when interventions targeting specific skills are most likely to be effective.
- Life skills are frequently defined in terms of the empowerment that they offer individuals in their daily lives. They are also understood in terms of their social benefits and their contribution towards societal change.
- The boundaries between the different life skills are fluid with each having a close relationship and sometimes overlapping with other life skills.

HOW CAN LIFE SKILLS BE TAUGHT?

There are a set of basic teaching principles that are said to be effective for the teaching and learning of life skills. These are:

- Learning through children and young people's participation and cooperation;
- Learning through practicing life skills (simulation of real-world activities or through real-life experience);
- Learning in a safe environment (open and accepting classroom and school environment, and coherence between the values being taught and the values embedded in the teaching, learning and how they are practiced in the classroom and school life); and
- Targeted strategies to support children and young people (use of explicit instructions and targeted interventions). These methods are useful for all students but are a necessity for ensuring all students have the chance to learn life skills.

These principles need to be applied when integrating life skills into an education system and within specific interventions tailored towards teaching and learning of life skills.

HOW CAN LIFE SKILLS BE ASSESSED?

Quality measures for assessing life skills would enable education decision makers and practitioners to track current levels and distribution across target populations, identify progress of policies and programmes designed to enhance these skills, as well as to inform the nature and scope of potentially useful interventions. In addition, these instruments would enable researchers to identify sub-groups who need more support in the learning of life skills. Nevertheless, limited quality assessment instruments on life skills exist and significant research and development is required.

STATE OF THE ART ON CURRENT INSTRUMENTS

- Most existing valid and reliable instruments are privately owned and not available for public use. This is particularly the case for cognitive test items.
- Some skills have received more attention in instrument development than others – with skills such as cooperation, negotiation and critical thinking having almost no existing measures that have found to be reliable and open for public use.
- There is limited use of innovation in the development of existing measures and they are dominated by traditional self-report items.
- Most existing tools have not been tested in low-income countries or across different socio-cultural contexts.

CHALLENGES OF MEASURING LIFE SKILLS

- Multi-dimensional characteristics of each single life skill. Each individual life skill is described as encompassing multiple and distinct attributes. Multiple measures may be needed to capture the different components of a single life skill.
- The distinction between cognitive and non-cognitive aspects of life skills. Life skills contain a combination of knowledge, skills, attitudes and values with cognitive and non-cognitive elements being used simultaneously. Understanding cognitive and non-cognitive test items as being distinct needs to be reconsidered.
- Proficiency levels and benchmarking. There is little current evidence or guidance on expected proficiency levels of the different life skills in general or age specific. There is not enough research and development to classify the levels of the life skills and to indicate an absolute level or benchmark on the levels of attainment. In addition, one could question whether it is possible or even desirable to determine absolute levels.
- Measuring change. Creating instruments with the purpose to measure skill development within an individual have been identified as challenging. The literature suggests that current response scales for self-report items typically do not provide enough variation to measure change.
- Cultural differences in life skills. The cultural differences in life skills are under researched as most measures have been developed within Organisation for Economic Co-operation and Development (OECD) countries. There is little research to indicate if life skills are performed in the same way in different countries and cultures.
- Self-reporting items are currently still the most useful in terms of cost-benefit in the field. Further development and innovation towards better measures of capturing skills beyond self-reporting is still required to reduce the limitations of the current levels of subjectivity in their use.

OVERCOMING THE CHALLENGES

A range of innovation in instrument design has been developed to overcome some of the challenges:

- Anchoring vignettes are used to reduce cultural differences in response styles. They ask participants to rate other people's behaviour in a given scenario before rating their own. The data on the ratings on other people is used to understand participants' individual response style.
- Situational judgement test are used to reduce errors created through participants giving socially desirable or deliberately wrong answers. It develops a scenario and asks the participants what they would do in this given situation. These tests have been found to be predictive of future success in employment and are a better predictor than either cognitive scores or personality tests.
- Computer-based assessment is the use of virtual reality/serious games to test life skills. Nevertheless, to date, most computer-based testing of skills does not fulfil the potential of the technology and ends up as an online version of a paper and pencil test.

FUTURE DIRECTIONS

The ultimate objective of improving the measurement of life skills is to facilitate the integration of life skills into education systems through curricula and assessment (what is not tested is not taught) and to develop a better understanding of the level of life skills that have been acquired in order to enhance the learning and life outcomes for all children and young people. Despite the existing challenges regarding measurement of life skills, recent innovation and development in the field suggest that it is possible. Concerted effort from policy makers, practitioners and researchers is required to integrate life skills into education systems and non-formal learning settings, and to collaborate to generate the global knowledge and evidence on how to effectively integrate and measure life skills.

Introduction

Evidence indicates that life skills enable children and young people to achieve in schools, gain work, personal growth and become self-empowered active citizens.¹ Scholars find that life skills are malleable,² can be developed over the individual's life cycle and there is the potential for education interventions to create improvement.³ Life skills can be learnt in a wide variety of different environments and through diverse relationships. This includes learning life skills at home with parents, guardians and siblings, in education with teachers and peers, at work with colleagues and through participation in civil society. Nevertheless, currently not all young people have access to structured teaching and learning of life skills. For equity reasons it is critical to rethink and transform education systems to prepare all children with the life skills needed to thrive in today's challenging, fast changing and complex world. To equip all children and young people with life skills requires open education systems capable of targeting the most marginalized through multiple pathways. It requires ensuring the development of the necessary curricula, assessment, recognition, accreditation, and certification of these life skills.

The LSCE Framework (see Figure 1) sets out 12 core life skills (thereafter known as 'the 12 Life Skills'): creativity, critical thinking, problem solving, cooperation, negotiation, decision making, self-management, resilience, communication, respect for diversity, empathy and participation (UNICEF and partners, 2017). These skills have been selected as those most needed for the life outcomes of learning, employability, personal empowerment, and active citizenship (UNICEF and partners, 2017). These four life outcomes should not be considered as distinct and mutually exclusive – they overlap, inter-connect and reinforce one another to combine within the individual learner. This framework is deliberately holistic and identifies the importance of these 12 Life Skills for the range of future challenges that children and young people face. The development of these life skills complements and contributes to the acquisition of knowledge, foundational skills, and technical job-specific skills.

Quality measurement instruments on life skills would enable research to inform the education field on the state of play of life skills in different countries and regions. It would be able to track current levels and distribution of these skills across target populations, identify progress of policies and programmes designed to enhance these life skills, as well as to inform education decision makers and practitioners on the nature and scope of potentially useful interventions. Many new and promising programming activities, curricular development and teacher training activities have developed across the MENA region to teach life skills. Nevertheless, as with other 21st century skill initiatives, the instruments and the research and development are currently not available to enable the education field to evaluate the effectiveness of these recent initiatives. The assessment instruments, and subsequently the knowledge on proficiency levels, are currently unavailable to determine if life skills are being learnt.

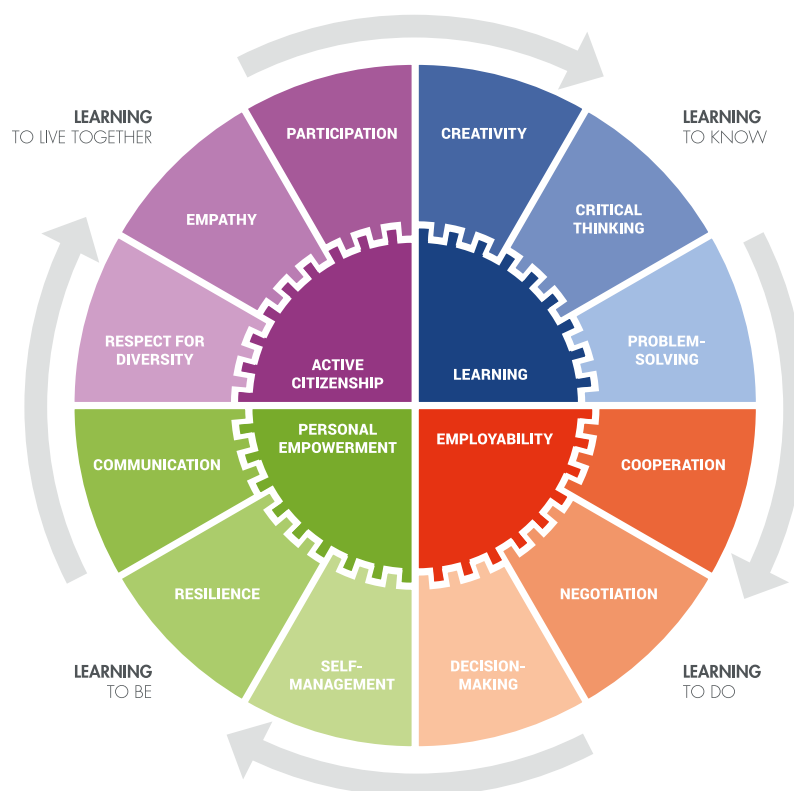
This publication addresses the gap in research and development on assessment of life skills by providing a consolidated scientific evidence base on life skills. The publication draws out key findings from the evidence base and the challenges that these findings pose for measurement. The publication goes on to examine existing quality instruments that can be used to measure life skills and identifies the gaps in research and development. Finally, the publication identifies promising directions and future challenges for the creation of new tools to assess life skills.

1. Rigorous research suggests a likely causal pathway between the learning of life skills and individual life outcomes in terms of educational achievement (Gutman and Schoon, 2013); employability (Hampf and others, 2017); active citizenship (Whitley, 2014); and self-empowerment (Schuller and others, 2004). For more details see the section on the MENA context in the Introduction.

2. A wide variety of literature (Gutman and Schoon, 2013; Stecher and Hamilton, 2014) now demonstrates the malleability of life skills throughout life although there are likely to be optimal periods for learning them – see the section on malleability in Chapter 2 for a detailed overview.

3. Rigorous research has now demonstrated that education interventions are able to improve life skills. For a detailed overview of this literature see the section on improving life skills in Chapter 2.

Figure 1. The 12 Life Skills of the LSCE Framework



UNDERSTANDING THE PUBLICATION

Terminology of life skill

The terminology used in this publication is life skills. A wide variety of terminology is used to refer to similar concepts including: 21st century skill, transferable skills, soft skills, interpersonal and intrapersonal competencies, and social and emotional learning. These terms are frequently used interchangeably and lack clarity and distinction. The reason for selecting the term 'life skills'⁴ is that its origins are clearly based within rights-based and transformative visions of education that fit within the LSCE focus on daily life and civic engagement (UNICEF and partners, 2017). Building on the scientific evidence base drawn together within this publication, life skills are defined as transferable skills that enable individuals to deal with everyday life, and to progress and succeed in school, work and societal life. They are comprised of skills, attitudes, values, behaviours and domain-based knowledge which need to be applied in harmony with each other. Life skill performances should be replicable across diverse settings. They are understood to be able to be learnt throughout the life cycle and in widely different contexts and learning pathways such as formal and non-formal education, vocational education and training, the workplace and more generally during daily life in the home and local community.

Consolidating the evidence to address the gaps in the field

This publication consolidates and analyses the existing literature in the field. Chapter 1, the scientific evidence, which is the core of this publication, builds upon various and sometimes more exhaustive reviews of the literature on certain aspects of the qualities of life skills. These include, but are not limited to, life skills and their relationship with life outcomes – for employment outcomes see Lippman and others, (2015); for violence prevention and health outcomes see Gates and others, (2016); for malleability and life outcomes Gutman and Schoon (2013). Some in-depth reviews have already been undertaken on measurement and assessment for a smaller number of life skills – see Galloway and others, (2017); Lai and Viering (2012); Care and others, (2018); Soland and others, (2013); and Stecher and Hamilton (2014). This publication consolidates the most rigorous of this research and draws on further gold standard research (randomized controlled trials) and the most reliable and valid instruments currently in the field for the broad range and holistic set of 12 Life Skills from the LSCE Framework. It then analyses the scientific evidence base and identifies key challenges and promising approaches to guide future research and development of instruments to measure life skills as outlined in the LSCE Framework.

4. The word 'competences' or 'competencies' was not used within the LSCE Framework due to the lack of clarity in this concept and the need to emphasize the humanistic values associated with life skills that is currently less associated with the concept of competence (UNICEF and partners, 2017).

The scientific evidence base also draws together existing reliable and valid instruments from the field that measure certain qualities of the 12 Life Skills. These include: the IEA International Civic and Citizenship Education Study (ICCS), Communicative Adaptability Scale (CAS), Child and Youth Resilience Measure (CYRM), World Values Survey (WVS), Big Five Questionnaire - Children (BFQ-C), Attitudes Toward Problem Solving Scale (ATPSS), Torrance Tests of Creative Thinking (TTCT), Divergent Thinking (DT) Test, and California Critical Thinking Skills Test (CCTST). For more details on all these instruments see Chapter 1 and the online accompanying appendix: www.lsce-mena.org, which includes a wider array of instruments that did not make it into the final selection for this publication. All these instruments can form a starting point for further research and development in the field. Nevertheless, the existing instruments are not based on the definitions of the 12 Life Skills from the MENA region and they cover only partial aspects from the LSCE Framework, and few have been developed and tested within the region. The next section will include information on the accompanying steps that have taken place alongside this publication to develop a new LSCE measurement instrument.

UNICEF and World Bank collaboration to develop a new instrument

There are a wide range of possibilities for developing a measurement instrument on life skills and many of these can be supported by using this publication. One of these avenues is to support the development of a new instrument to measure life skills, as outlined in the LSCE Framework, in MENA within national education systems. A recent UNICEF and World Bank collaboration has been developed to support ministries of education to measure the current state of play and distribution of life skills of young people within their national education systems. It aims to support the identification of progress of policies and programmes designed to enhance these life skills, as well as to inform education decision makers and practitioners on the nature and scope of potentially useful education interventions. The new measurement tool also aims to help identify sub-groups of children and youth who need support in the learning of life skills and to identify teaching methods that enable these sub-groups to achieve higher levels of proficiency. The assessment instrument when finalised will provide a standardised approach for assessing life skills proficiency targeting the lower-secondary Grade 7 (approximately age 12–14).

Currently a variety of different life skills assessment approaches exist. One useful classification system developed by Clarke (2012) describes three forms of assessment: (1) Classroom assessment that enables ongoing support for teaching and learning. This is typically classified as formative assessment. (2) National exams that assess learning for the purpose of selection and progress within a national education system and that are also used by employers for selection purposes. These forms of assessment are understood to be summative. (3) Large-scale, system level assessments that enable evaluation of an education system and provide evidence for policy and practice regarding system level performance. The latter is also classified as being a summative assessment, however, the data is used for a completely different purpose and is only conducted on a representative sample of the population. The LSCE measurement instrument under construction is aimed to fulfil a third of these objectives, to evaluate the effectiveness of national education systems on teaching and learning life skills for all different social groups.

The long-term vision for instrument development is to have several different instruments for a range of different age groups. The first instrument to be developed was identified to be mid-point within the education system at Grade 7 (about 12–14 years old). This will allow for later development of LSCE assessments for older and younger age groups. The new instrument under construction is not based on current national curricula as the purpose of this instrument is to encourage transformation of the education system and to create an instrument that can be developed to be used independently of the formal education system. At the outset the instrument will be a paper and pencil test in order to facilitate ease-of-use.

The added value of developing a new instrument compared to existing instruments is that it is specifically aimed at measuring life skills that are defined within the MENA region and are shown to facilitate the holistic life outcomes of educational achievement, employment, personal growth and active citizenship.⁵ A new assessment instrument is likely to enable the education field to measure the concepts of the LSCE Framework that are aligned with the proposed new developments and directions in teaching and learning. Alternatively, if existing instruments were used based on different understandings of the life skills, there is likely to be a misalignment between the assessment results and intended learning outcomes. Inaccurate evidence would also occur for instruments that have not been rigorously tested for validity and reliability within the MENA region. In contrast, the new LSCE instrument aims to provide an accurate and reliable understanding of the situation regarding life skills as it is being developed based on the LSCE Framework (UNICEF and partners, 2017) and tested with rigour within the MENA region. The pilot instrument has been developed and tested together with the ministries of education in Egypt, Palestine and Tunisia in 2019.

5. Rigorous research suggests a likely causal pathway between the learning of life skills and individual life outcomes in terms of educational achievement (Gutman and Schoon, 2013); employability (Hampf and others, 2017); active citizenship (Whitley 2014); and self-empowerment (Schuller and others, 2004). For more details see section the section on the MENA context in the Introduction.

UNDERSTANDING THE MENA CONTEXT

Before moving directly into the field of measurement it is necessary to begin with a better understanding of the MENA context and the possible support that life skills can provide. The scientific evidence base provided in Chapter 1 of this publication reviews the latest rigorous scientific evidence regarding the likely causal pathway between the learning of life skills and the four individual life outcomes: educational achievement, employability, personal growth and active citizenship.⁶ Although the relationship between life skills and life outcomes could well be the same in the MENA region, much less data is available to conduct such analysis and draw these conclusions.

For all countries around the world the relationship between individual life outcomes and societal outcomes can only be measured in terms of associations. Change at the country level, either economically or socially, may well require more than a population with high proficiency levels in life skills – including but not limited to institutional and structural reforms. Life skill teaching and learning alone cannot be expected to achieve all social and economic change. Nevertheless, what can be said is that the high-level proficiency on life skills in the population is likely to be a powerful ingredient in any social and economic development.

In order to understand the MENA context, country-level data on learning, employability, personal empowerment and active citizenship are given below. This is accompanied by evidence that identifies the relationship between the learning of the life skill and the four life outcomes to demonstrate the potential benefit that teaching and learning life skills can offer.

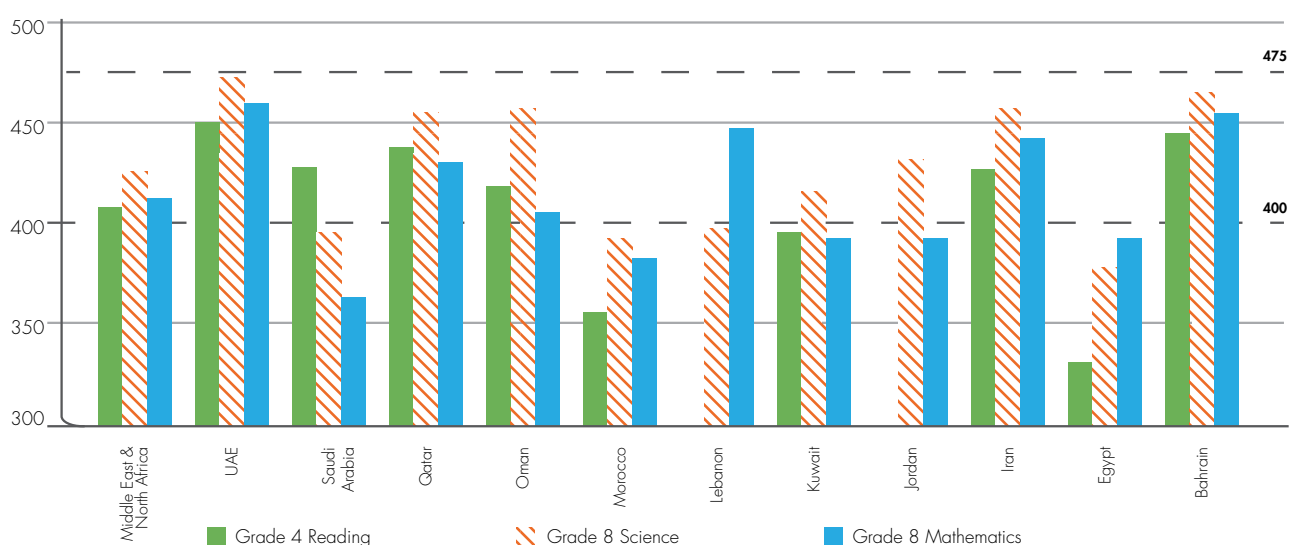
Learning

Education systems in the MENA region are not performing well, and educational achievement is low compared to the rest of the world. Figure 1 illustrates this point by identifying the absolute average proficiency levels in Grade 4 reading (using PIRLS) and Grade 8 mathematics and science (using TIMSS) across MENA countries from 2015 to 2016. All the MENA countries were found to perform below the intermediate international benchmark of 475 for the all three subjects. Some countries did not achieve the international low benchmark of 400:

- i. For reading in Grade 4 Egypt, Kuwait and Morocco did not achieve the low international benchmark of 400.
- ii. For mathematics in Grade 8, five MENA countries did not achieve the low international benchmark of 400, and these were Egypt, Jordan, Kuwait, Morocco and Saudi Arabia.
- iii. For science in Grade 8 there were four countries that did not achieve the low international benchmark of 400: Egypt, Lebanon, Morocco and Saudi Arabia.

Adding to this situation, research from the MENA region showed that the majority (78 per cent) of young Arabs are concerned about the quality of the formal education that they have received⁷ and about half (49 per cent) thought they were not well prepared to find employment (Arab Youth Survey 2019).

Figure 2. The absolute proficiency levels for Grade 4 reading (2016), and Grade 8 science and mathematics (2015), compared to international benchmarks*



Note: *(1) To interpret the mean level of student achievement in different countries for reading, science, and mathematics from the PIRLS 2016 and TIMSS 2015 data, four absolute skill levels have been identified: advanced international benchmark (625), high international benchmark (550), intermediate international benchmark (475*), and low international benchmark (400*) (Mullis and others, 2016). The lowest two of these are visible on the x axis of the above graph. These benchmarks are created using absolute skill levels for more detailed information on the method for the creation of the benchmarks consult the TIMSS and PIRLS website: <http://timssandpirls.bc.edu/> (2) Lebanon did not participate in PIRLS 2016; (3) Average of MENA countries is a calculated value based on all MENA countries listed above.

6. Rigorous research suggests a likely causal pathway between the learning of life skills and individual life outcomes in terms of educational achievement (Gutman and Schoon, 2013); employability (Hampt and others, 2017); active citizenship (Whitley 2014); and self-empowerment (Schuller and others, 2004). For more details see section the section on the MENA context in the Introduction.

7. The Arab Youth Survey (2019) is based on 3,300 face-to-face interviews that focused on young adolescents aged 24–18 years in 15 Arab countries (Algeria, Bahrain, Egypt, Jordan, Kuwait, Iraq, Lebanon, Libya, Morocco, Oman, Palestinian Territories, Saudi Arabia, Tunisia, United Arab Emirates (UAE), and Yemen)

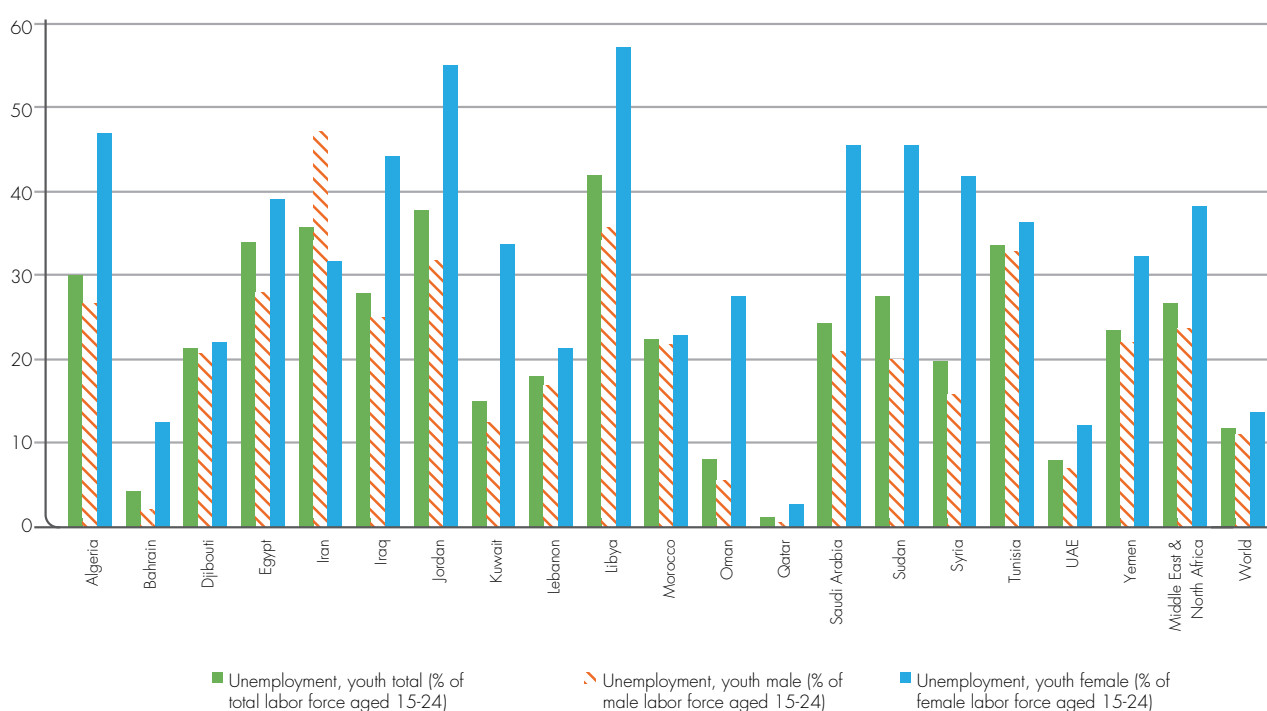
Learning life skills are likely to help with educational achievement. Empirical research on life skills has indicated a strong relationship between these skills and academic performance in particular for low attaining students (Gutman and Schoon, 2013). Low levels of life skills proficiency are correlated with school dropout and risky behaviours (Gutman and Schoon, 2017). The strong predictive element with academic success is frequently at the forefront of the agenda on promoting life skills (Stecher and Hamilton, 2014).

From the scientific evidence base provided in Chapter 1, 10 out of the 12 Life Skills identified evidence of an association between proficiency in the specific life skill and academic achievement. These were creativity, self-management, negotiation, communication, cooperation, critical thinking, decision making, problem solving, participation and resilience. For example, for the skill of self-management, the review suggests that it may well foster strong academic performance. Students with high self-management skills were consistently associated with higher levels of educational achievement through better grades, higher scores on standardized tests, better school attendance, and stronger academic performance. Another example is for the life skill negotiation where research from Zambia showed association between negotiation skills and educational outcomes and also a higher probability of being enrolled in secondary school (Ashraf; McGinn; Bau and Low, 2017).

Employability

Unemployment is a severe problem in the MENA region and the region contains some of the highest rates in the world (Dadush, 2019). The situation regarding youth unemployment is even worse especially for young women. Youth unemployment on average is high with more than 25 per cent of young people across the MENA countries not able to find work (see Figure 2). This compares with an average general unemployment level of about 10 per cent across the MENA region (ILO, 2019). For young women wanting to work the average unemployment level in the MENA region is closer to 40 per cent. Two countries, Jordan and Libya, have more than half of all the young women wanting to work as being unemployed (see Figure 2). Eight countries in the region have 40 per cent or more female youth unemployment. The situation for women in the region is actually much worse than this picture paints as participation in the labour market is very low (Assaad and others, 2018).

Figure 3. Youth unemployment rates across MENA countries and in comparison to the world average for 2018



Note: (1) source: World Bank, <https://data.worldbank.org/indicator/sl.ue.m.1524.zs>; (2) UAE refers to United Arab Emirates; (3) all data are based on ILO-STATS modelled estimates.

Although skills alone are not sufficient for guaranteeing employment, there is plenty of evidence of a strong association between life skills development and having a job and even career development (Lai and others, 2017; Wilson-Ahlstrom and others, 2014; and Ku and others, 2007). The evidence base in Chapter 1 provides many examples of this relationship, for example, cooperation skills were found by employers, including those in the MENA region, to be among the most important skills that are sought after by employers (Lai and others, 2017; Wilson-

Ahlstrom and others, 2014; and Ku and others, 2007). In addition, the life skill decision making has an association with managerial performance (Kose and Sencan, 2016) and the skill level in problem solving was found to predict the level of position within a company (Mainert and others, 2015).

Personal empowerment

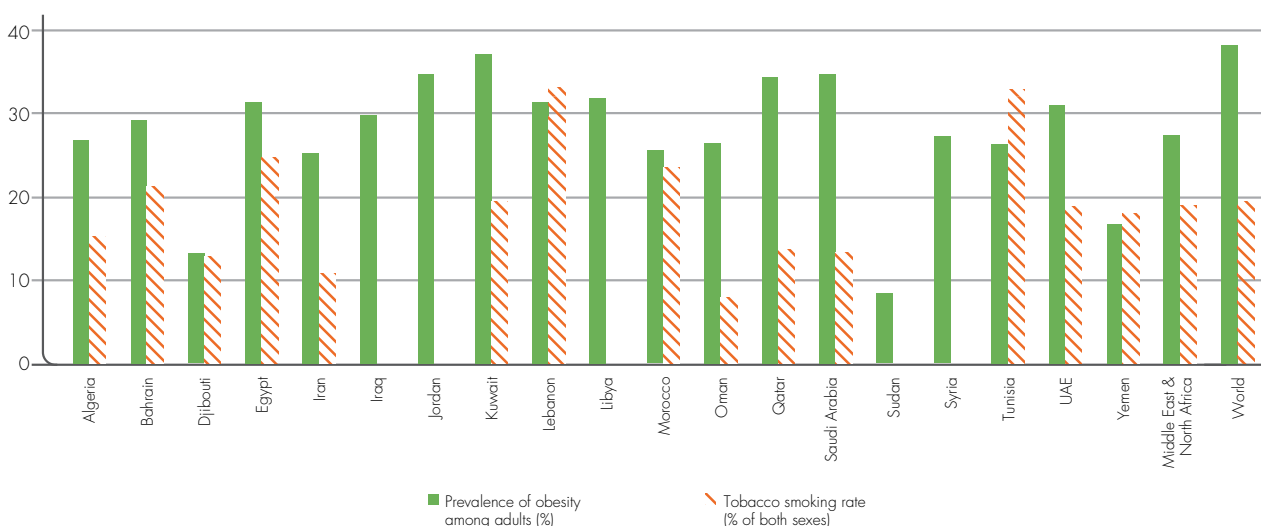
There are significant challenges in the MENA region regarding personal empowerment. Children and youth across the region are suffering from high levels of violence in all spheres of their lives, including at home, in school, and in the community (Save the Children, 2019). Being in contact regularly with violence, children and youth are more likely to feel frustration, distress and fear (Save the Children, 2019). Over half of children and young people up to the age of 14 experience violent discipline in the last month (psychological or physical) and for 7 out of 10 of these countries this holds true for 80 per cent or more of the youth population (See Figure 3). According to UNICEF (2014, 2017), five out of the ten countries globally with the highest prevalence of violence towards children are from MENA countries, including Egypt, Tunisia, State of Palestine, Jordan and Morocco.

Figure 4. Prevalence of any types of violent discipline (psychological aggression and/or physical punishment) towards children undertaken in the last month, 2017



Note: (1) UNICEF global databases, 2017, based on Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and other nationally representative surveys: <https://data.unicef.org/topic/child-protection/violence/violent-discipline/>; (2) the data on the violent disciplines is asked to adults if they or any other adults in their household has used any types of violent disciplines to teach children in the past month; (3) the data on the MENA average is derived from the above datasets.

Figure 5. Obesity and smoking rates across MENA countries and in comparison to the world average for 2016



Note: (1) source: the data is from WHO: <http://apps.who.int/gho/data/node.main.MHHR?lang=en>; (2) the MENA and world average data were collected from the above datasets; (3) UAE refers to United Arab Emirates.

Children and young people in the MENA region, like other regions, also take risks (Figure 5). Over a third (35 per cent or more) of children and youth in Jordan, Kuwait, Qatar and Saudi Arabia are suffering from obesity whilst a quarter or more of young people in Egypt, Lebanon and Tunisia are smoking (see Figure 4). In addition, more than half of young Arabs in the region believe that drug use is on the rise and that drugs are easy to obtain in their country (ASDAA BCW, 2019).⁸

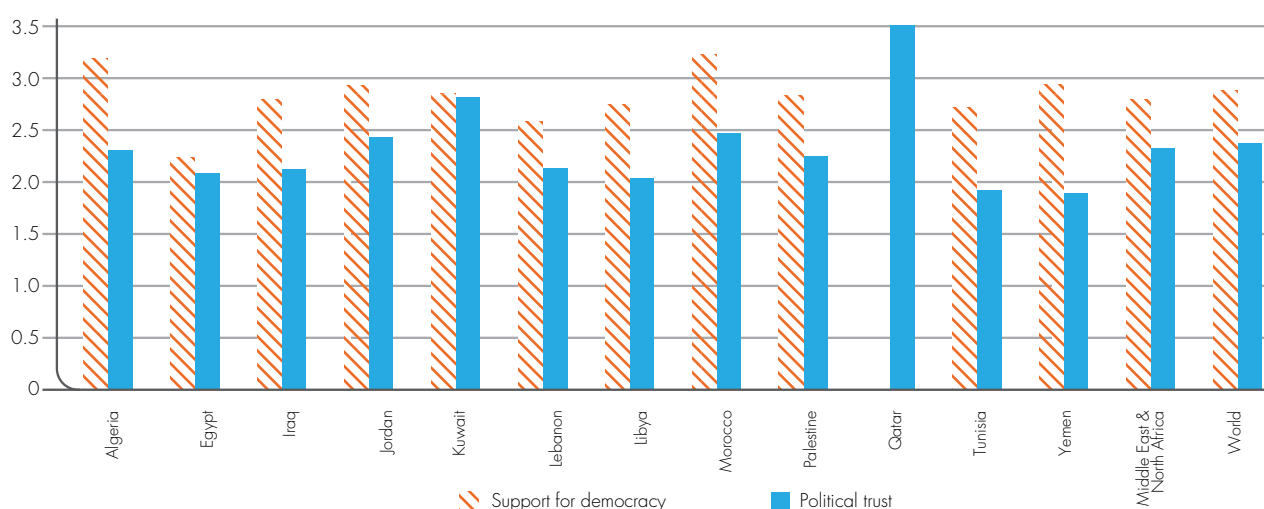
The life skills self-management and resilience have been shown to be associated with reduced risky behaviour including a reduction in anti-social behaviour, substance abuse and hazardous sexual behaviour (Eisenberg and others, 2009; Moffitt and others, 2011; OECD, 2015). For half of the life skills from the LSCE Framework rigorous research has identified associations with some aspects of personal empowerment including creativity, empathy, decision making, participation, resilience, and self-management. These relationships were framed in different ways, for the life skills empathy, self-management and co-operation they were said to be associated with healthy social relationships and were identified as important for students at risk of dropping out of school as building these skills increased their involvement in the life of the school community (Lai, 2012). Alternatively, and framed from a health perspective, the skills resilience and creativity have been found to be associated with managing stress and reducing the chances of mental health difficulties.

Active citizenship

There are significant challenges regarding active citizenship and the development of civil society within the MENA region. MENA countries are on average lower than the world average for active participation in associations, support for democracy, attitudes towards gender equality and political trust (see Figures 6 and 7). These differences are the most sizable for attitudes towards gender equality⁹ and active participation in associations¹⁰ (see Figure 7). Figure 7 shows that the majority of countries in the MENA region were more negative than positive towards gender equality. In Algeria, Jordan, Morocco and Yemen the mean average support for democracy was actually higher than the world average (see Figure 6). However, it was considerably lower than the world average in Egypt and Lebanon.

Young people, particularly young girls, continue to be excluded socially, economically and politically in the MENA region (Adolescent Development and Participation, 2017). Young people's voices, in particular young females, are argued to have been paid less attention to in all contexts including the home, school, community and at local government level. This has led to the lack of safe places for youth and in particular young females to voice their thoughts and engage in the decision-making process that affects their lives (Mendonca and others, 2019).

Figure 6. Mean level of support for democracy and political trust across MENA countries and in comparison to the world average 2010–2014



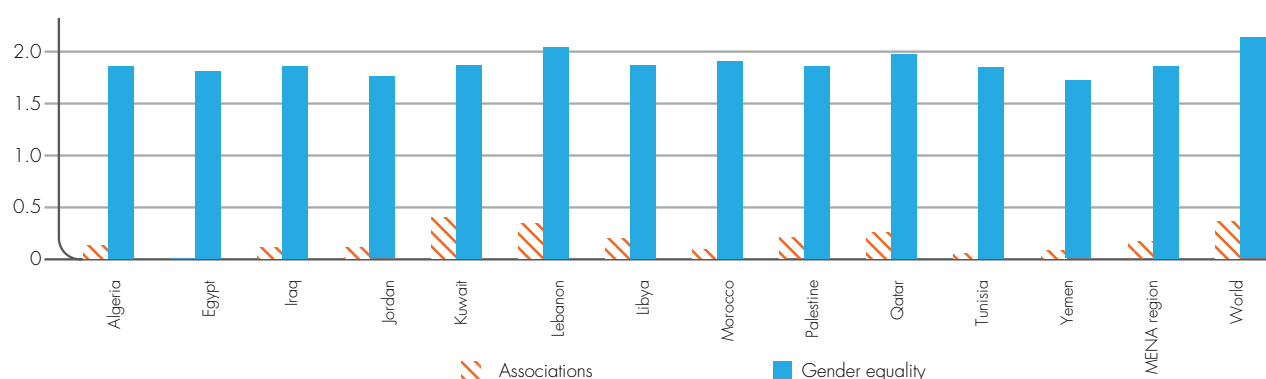
Note: (1) Country selection was based on MENA countries participating in the study. The average of MENA countries refers to the average of a merged file that combines all available MENA countries (presented above) in World Values Survey (WVS) 2014–2010. The world average was calculated by using an existing integrated dataset that covers 60 countries around the world and more than 85,000 participants that participated in WVS 2) ;2014–2010) the left axis refers to the response scale for questions regarding support for democracy, and political trust, which ranges from 4–1, with a higher score indicating a more positive citizenship attitude. More information on variable selection and recoding can be found in Appendix 3) ;1) the questions on 'support for democracy' were not asked during the survey in Qatar.

8. <https://www.arabyouthsurvey.com/pdf/downloadwhitepaper/download-whitepaper.pdf>

9. Gender equality is a combined indicator that asks participants' attitudes (agree = 1, neither = 2, disagree = 3) on the following statements: when jobs are scarce, men should have more right to a job than women; If a woman earns more money than her husband, it is almost certain to cause problems; and having a job is the best way for a woman to be an independent person. It was recoded so that positive responses are denoted by a higher number.

10. Participation in association is comprised by multiple question items that measure participants' active membership in a list of voluntary organizations (0 = don't belong, 1 = inactive member; 2 = active member).

Figure 7. Mean level of attitudes towards gender equality and active participation in associations across MENA countries 2010–2014



Note: (1) Country selection was based on MENA countries participating in the study. The average of MENA countries refers to the average of a merged file that combines all available MENA countries (presented above) in WVS 2014–2010. The world average was calculated by using an existing integrated dataset that covers 60 countries around the world and more than 85,000 participants that participated in WVS 2) ;2014–2010) The left axis refers to the response scale. Active participation in associations is comprised by multiple question items that measure participants' memberships in a number of voluntary organizations with three response options (0 = don't belong, 1 = inactive member; 2 = active member). Gender equality is a combined indicator that asks participants' attitudes on gender equality with three response options (agree = 1, neither = 2, disagree =3). It has been recoded in the analysis by using a higher score to denote a positive attitude. More information on variable selection and recoding can be found in Appendix 1.

Within the scientific evidence base in Chapter 1, seven of the 12 Life Skills set out in the LSCE Framework identified rigorous empirical evidence regarding an association with active citizenship as a life outcome. These were: communication, critical thinking, negotiation, problem solving, participation, respect for diversity and empathy. The strongest evidence is with the life skill participation where several scientific and rigorous studies have demonstrated the relationship with active citizenship in adult life. The scientific evidence base identifies that the dispositions to participate in civic engagement from the age of 11–12 upwards has a durable effect into adulthood and once this is learnt this disposition is significantly related to actual levels of civic engagement (Achen and Blais, 2010).

Overall, the MENA context demonstrates significant challenges regarding life outcomes for learning, employability, personal empowerment and active citizenship. One of the steps that may well contribute towards tackling some of these challenges is by supporting young people from all social groups to learn those life skills outlined in the LSCE Framework.¹¹ The need now is to develop reliable and valid instruments tailored to the young people in the region that will enable the assessment of the effectiveness of activities, programmes and education reforms that are aimed at teaching and learning life skills.

ORGANIZATION OF THE PUBLICATION

This publication is organised as follows:

Chapter 1: The scientific evidence base, provides rigorous research that enables sophisticated understanding of the qualities of life skills and provides valid and reliable existing measurement instruments. Concerning the qualities of life skills, the chapter includes definitions and the latest most rigorous research on the malleability of life skills, their relationship with life outcomes and scientifically evaluated education practices that have been found to be effective in increasing these skills. This chapter also includes information on currently available valid and reliable assessment instruments for each life skill.

Chapter 2: Provides an analysis and synthesis of the evidence base on the qualities of life skills and draws out the implications for the development of measurement instruments. It contains an overview of the research findings on malleability and identifies the principles behind the education interventions that have been found to be effective. The current availability of existing instruments to measure life skills is assessed and promising new directions for the development of new instruments are reviewed. The final section of Chapter 2 outlines the future challenges for developing measures on life skills.

Chapter 3: Conclusions. A summary of the main finding from the publication are presented as a concluding chapter.

This publication is aimed at a wider audience than those interested in building measures to assess the effectiveness of education systems. It will be of interest to anyone who is working in the field of life skills or similar concepts in particular those who have an interest in evaluating and assessing learning for diverse purposes. This includes but is not limited to ministries of education, researchers, teachers, trainers and NGO workers both inside and outside of the MENA region who need to be able to evaluate the effectiveness of teaching and learning of life skills.

11. As stated above, it is necessary to take into account that social change at the country level may well require more than a population with high proficiency levels in life skills – including but not limited to institutional and structural reforms.

Chapter 1: Scientific Evidence Base

This chapter reviews the scientific evidence for each of the 12 Life Skills. The evidence justifies the selection of each life skill by providing rigorous scientific proof of its malleability and longitudinal research demonstrating its correlations with life outcomes. Control trials then are reviewed to identify the education interventions that can improve the selected life skills. Chapter 1 also provides the existing measurement instruments that have been selected due to their relevant scientific qualities.

The reviews of the literature and instruments in this chapter were not intended to be exhaustive but pursued high-level scientific inquiry. The reviews were completed through systematic, desk-based research of published journal articles. Only articles using the highest quality empirical methods were selected.¹² Primarily English language journals were reviewed.

The authors note that the limitation of the demand for high scientific rigor and the use of English-language journals has led to a dominance of research from OECD countries. Several more exhaustive attempts (a wider range of languages, qualitative research, and expert opinion) have been made to review specific elements of the LSCE life skills measurement publication.¹³

In contrast to the existing literature, this review of empirical research focuses on the breadth of the 12 Life Skills in the LSCE Framework and its more holistic range of intended life outcomes (learning, employability, personal empowerment, and active citizenship). The review then pinpoints the most reliable scientific evidence to justify life skill selection and to provide the most reliable existing measurement instruments. The evidence in this chapter will enable the reader to provide scientific evidence to potential funders of the reasons that it is important to enhance these life skills, locate existing education interventions that have been found to increase proficiency, and select reliable existing tools to measure life skills.

METHODOLOGY FOR SCIENTIFIC REVIEW OF LITERATURE

To have the highest degree of certainty that changes in proficiency levels occurred, this review prioritized empirical research that used randomized controlled trials, quasi-experiments, or rigorous analyses of longitudinal data to provide evidence on malleability, life skills relationship with life outcomes, and successful education interventions. Finding these specific types of empirical evidence was not always possible. In such cases, empirical evidence from cross-sectional studies, such as employers' surveys that identified association rather than causality, was used.

METHODOLOGY FOR INSTRUMENT SELECTION

A range of assessment instruments exist to measure specific life skills. They vary in target population groups, constructs, methodologies, linguistic/cultural coverage, and available evidence that sheds light on validity and reliability. The authors undertook the following steps to identify the most appropriate set of measures of the 12 Life Skills relevant for the MENA region.

The first step was to research a wide range of instruments that captured the relevant life skill as outlined in the LSCE Framework. This more exhaustive repository of tools is available in the online appendix accompanying this publication.¹⁴

Step two was to short-list measurement instruments by applying these criteria:

1. **Evidence of psychometric properties of instruments.** Evidence of instruments' established reliability and validity (including construct and predictive validity), and cross-national/linguistic comparability); and
2. **Practical and logistical considerations.** Costs of the assessment and time commitment required for training and implementation in schools. Given MENA region's contextual and fiscal constraints, priority given to low cost and time per collection of datum.

Step three ranked the instruments using the following criteria:

1. Strength of evidence of reliability/validity;
2. Extensiveness of instrument use and international validation;
3. Validation in the MENA region and/or translated into Arabic;
4. Applied on children and/or adolescents and/or young adults; and
5. Ease of use for data collection and analysis.

12. The Maryland Scientific Method Scale (SMS) (Sherman, 1997) is commonly used to evaluate methodological quality of research for policy and practice and places the highest standard as interventions that use randomized control trials.

13. For soft skills and employment outcomes, see, for example, Lippman and others, 2015. For soft skills and violence prevention and health outcomes, see Gates and others, 2016. Regarding other relevant reviews using quantitative research, for non-cognitive skills and outcomes, see Gutman and Schoon, 2013. For measuring soft skills/21st century skills, see Galloway and others, 2017; Lai and Viering, 2012; and Soland and others, 2013.

14. The online appendix can be found on the following URL www.lsce-mena.org

Each instrument received one point for every criterion it met (maximum possible score was 5). Depending on their scores, instruments were organized in three categories: high suitability (4–5 points), medium suitability (3 points), and low suitability (1–2 points). Only the instruments that were considered medium to high suitability are listed for each skill in this chapter.

ORGANIZATION OF THE CHAPTER

The chapter is divided into 12 sections, a separate section for each life skill from the LSCE Framework. The skills are ordered by their locations on the LSCE Framework: Learning (creativity, critical thinking, problem solving); employability (cooperation, negotiation, decision making); personal empowerment (self-management, resilience, communication); and active citizenship (respect for diversity, empathy, participation).

The discussion of each life skill begins with a clear operational definition developed from the LSCE Framework (UNICEF and partners, 2017). The evidence is then provided to justify the selection of each life skill. First, the relationship between the life skill and life outcomes is examined to identify the evidence between the skill and long-term beneficial changes for the individual and society. Second, the evidence is provided for the development of the life skill in children and youth. The aim is to provide evidence and review the extent that the skill is malleable across the life course. When possible, this source of information has identified the age at which the skill is the most malleable and thus at which interventions are likely to be most effective. Third, the evidence is provided on education interventions that have scientifically proven to significantly increase proficiency levels in skills. The first table for each skill details education interventions that have been assessed using control trials or quasi-experimental design.

Overall, the evidence provided demonstrates that education can have an effect and learning the skill is possible. The evidence on education interventions also provides examples of proven methods for teaching and learning these life skills.

The final part of each life skill section of this chapter is devoted to measurement. A list is provided of the most reliable and appropriate existing instruments to measure the skills following the scientific principles given in the above section. Providing these instruments, first, gives readers reviewed measurement tools that can be considered for use in future assessments of education interventions. For this purpose, the online appendix provides the contact details of the authors of the instruments. Second, and within Chapter 2, this resource enables a review of the gaps that existing instruments do not cover. These gaps were the starting point for understanding the work that needed to be undertaken to develop a new instrument that measured life skills as set out in the LSCE Framework.

CREATIVITY

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of creativity

Creativity has been defined as the ability to generate ideas that are simultaneously novel and useful (Barron, 1955; Stein 1953; Runco and Jaeger, 2012). These ideas can be either a solution to an existing problem or simply a new thought. Creativity is said to have four domains: fluency, originality, flexibility, and elaboration (Shively, 2011). Fluency refers to the frequency of creative ideas; originality is how uncommon these ideas are; flexibility comprises how many areas or domains the ideas cover; and elaboration is the level of detail in which ideas are developed (Torrance, 1972).

Following the current research in the field, the LSCE Framework defines creativity as the ability to generate, articulate, and/or apply inventive and original ideas, techniques, and perspectives (Ferrari and others, 2009, as cited in UNICEF and partners, 2017). Creativity within LSCE is understood as applicable to diverse settings. Thus, creativity can be understood as participation in the arts but, equally, as new thinking of how to solve a societal, family, or individual problem. Therefore, creativity is closely linked with other core life skills, including critical thinking and decision making, all of which can be seen as examples of creativity and purposeful thinking (UNICEF and partners, 2017).

2. Relationship between skills for creativity and life outcomes

Contrary to common belief, on average, highly creative people enjoy positive life outcomes not despite their extraordinary creativity but because of it (Carson and others, 2005). Many areas have been causally linked to creative individuals' success. As the literature on skills shows, on average, creative individuals exhibit higher



productivity throughout their lifetimes, and they are more likely to succeed in more than one of following domains; visual arts, music, creative writing, dance, drama, architecture, scientific discovery, invention and innovation, and the culinary arts (Carson and others, 2005).

Creativity is a particularly valuable asset during adolescent social and emotional development when new cognitive, emotional, and social experiences arise. Creative adolescents are able to channel the novelty in their lives in a useful direction by sheer definition of the skill (Barron, 1955; Stein, 1953; Runco and Jaeger, 2012). During what is a developmental period ripe for both growth and challenging behaviours, creativity makes adolescents particularly resilient to the confusion of novelty and helps them navigate this phase of their lives. In short, on average, creative individuals are better emotionally and socially adapted adolescents (Runco, 1996). Furthermore, individuals with higher levels of creativity enjoy better levels of physical and mental well-being in later life.

The causal link between creativity and academic performance has yet to be rigorously established. Nevertheless, creativity is associated positively with academic performance even though the benefit of having this skill is sometimes mediated through more traditional cognitive skills (Gajda and others, 2016; Niaz and others, 2000; Olatoye and others, 2010). Studies also identify an association between creativity and knowledge creation, and between learning how to learn and lifelong learning (Gralewski and Karwowski, 2012). Gajda and others (2016) suggest that, to identify the relationship between creativity and learning, the methodology employed is crucial. The relationship was found to be stronger when creativity was measured by creativity tests rather than by self-reported measures, and when academic achievement was measured via standardized tests rather than by grade point averages (Gajda and others, 2016).

Moreover, research based on employers' surveys and expert advice have addressed the value of creativity for employability, especially entrepreneurship and development of new small and medium enterprises (SMEs) (Lippman and others, 2015; Knight and Yorke, 2003; Sewell and Darce, 2010). Research conducted on skills that employers reported to expect from graduates and their resumes identified the necessity of demonstrating the graduates' life skill creativity and imagination (Rae, 2007). Additionally, creativity has been argued by employers to be essential to solve complex problems, develop creative strategies, and facilitate innovation (Badke-Schaub and Buerschaper, 2001).

3. Development of skills for creativity in children and youth

Considering all cognitive and non-cognitive abilities, creativity is considered one of the least malleable skills (Gutman and Ingrid, 2013). Nevertheless, an enabling psychosocial environment from birth is necessary to bring any individual's creative potential to its full fruition (Care and others, 2016). Even though each individual is likely to have a set amount of creative potential at birth, only with the necessary physical, mental, behavioural, and relational environmental conditions can individuals become their most creative selves (Care and others, 2016).

Creative individuals generate new and useful ideas according to their developmental stages (Runco, 1996). Even though the conceptualization of creativity does not change from childhood into adolescence and onto adulthood, its manifestation does change (Simonton, 2000; Reed, 2005). A five-year-old might be creative in leading her friends in a new, playable game she invented, whereas a fifteen-year-old might be an experimental composer for various instruments in a band, while a 25-year-old might be an innovative physicist who breaks with existing paradigms and proposes new, pragmatic theories. Although these all of these novel ideas are translatable into real-world action, they are starkly different. In addition, they all share the commonalities of being new and useful.

The right psychosocial environments and life chances are argued to be important for developing creative individuals throughout childhood and adulthood (Runco, 1996; Russ and Fiorelli, 2010; UNICEF and partners, 2017). Therefore, a caring and creative learning environment for children has been found to enable their full potential of creativity into adulthood (Russ and Fiorelli, 2010). Colangelo and others argue that "...the best predictor of future creative behaviour may be past creative behaviour." (1992, 158). All of these findings are particularly important for the children and youth who live in the MENA region because they are facing particularly complex life environments (UNICEF and partners, 2017).

4. Actively improving skills for creativity

Although creativity is said to be not as malleable as other cognitive and non-cognitive skills, there are ways to potentiate it within the classroom and beyond (Garaigordobil, 1995, 1996; Gutman and Ingrid, 2013). Perhaps more important is the fact that creativity is more malleable in one direction than in some other. That is, creative individuals remain creative given the necessary enabling psychosocial conditions. Conversely, disabling conditions during childhood and adolescence can significantly hinder creativity, and permanently so (Gutman and Ingrid, 2013).

The authors briefly mention two education programmes that show evidence of promoting and increasing creativity in children and adolescents (Table 1.1). The results of the study undertaken for Stanford University's Design School suggest that every individual can be creative and that learning creativity is a matter of providing an environment that

helps participants unlock their creative potential and apply it in their own work (Design School 2010; Straker and Wrigley 2014). This study sampled people from diverse backgrounds and interests, including students, business persons, and educators and encouraged them to use design to creatively solve real-world challenges (d.school, 2010; Straker and Wrigley, 2014). The other example is the study called, 'Destination Imagination (DI)' (Table 1.1). This after-school programme provides students the opportunities and access to develop creativity skills that were less likely to be offered in a normal school setting (Calkin and Karlsen, 2014). At the Stanford Design School (d.School), the most important mission was to produce future innovators (Plattner and others, 2013). The results in Clakin and Karlsen's 2014 study reflect this mission and suggest that students' understanding of themselves and their surroundings improved greatly after the coaching. Nevertheless, the direct correlation between DI and increases in students' cognitive development was not found in these studies (Clakin and Karlsen, 2014).

Table 1.1. Examples of successful interventions for creativity-related skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Destination Imagination (DI)	8–12 years old	USA	Creative thinking	The results of the team work tasks on solving challenges were that the students were then able to develop creativity skills.	Calkin and Karlsen 2014
Stanford's Design School (D School)	18 years old and over	USA	Creativity	Students had to work together to solve real-world challenges. The result showed that D School encouraged participants to unlock creative potential and apply design thinking skills in their real lives, at home, and at work. Also helped develop empathy skills via challenges.	d.school, n.d.; d.school 2010

5. Measuring skills for creativity

To monitor and assess whether an intervention designed to increase creativity or any of its sub-domains is effective, it is necessary to operationalize and reliably measure both creativity and its sub-domains. Table 1.2 presents existing measurement instruments that have the most rigorous psychometric properties for creativity.¹⁵

Table 1.2. Shortlisted measurement instruments for the skill of creativity

Name of instrument	Age group	Target life skills	Brief description
Torrance Tests of Creative Thinking (TTCT)	7–65 years old	Figural and verbal creativity [bring up Verbal TTCT to be under Figural TTCT]	The Figural TTCT ("Thinking Creatively with Pictures") is appropriate for ages four through adulthood. It uses three picture-based exercises to assess the four domains of creativity: fluency, originality, flexibility, and elaboration. The Verbal TTCT ("Thinking Creatively with Words") is appropriate for ages seven through adulthood. It uses six word-based exercises to assess the four domains of creativity.
Divergent Thinking (DT) Test	7–65 years old	Fluency, originality, flexibility, elaboration	This behavioural test gives the respondent a common object, like a chair, a cup, or a clip, and it asks the respondent to list as many uses as possible in two minutes. This widespread, validated test has been the source of a variety of Divergent Thinking (DT) Tests. These tests are easy to administer and assess creativity on four sub-domains: fluency, originality, flexibility, and elaboration.
Divergent Thinking (DT) Test	18 years old and over	Visual arts, music, dance, architectural design, creative writing, humour, scientific discovery, theatre and film, culinary arts	The Creative Achievement Questionnaire is a self-report measure of creative achievement that assesses achievement across 10 areas of creativity: visual arts, music, creative writing, dance, drama, architecture, humour, scientific discovery, invention and innovation, and the culinary arts.

15. The ranking criterion for selection of instruments was comprised by five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the instruments that were considered medium to high suitability are provided in Table 1.2. For more details on all the instruments reviewed see the online appendix, www.lscemena.org.

CRITICAL THINKING

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of critical thinking

The LSCE Framework defines critical thinking as the ability to think purposefully and identifies how this life skill can be performed when the learner has learned to think about thinking (UNICEF and partners, 2017). Scholars have further described the process of critical thinking as performing self-regulated judgement — wherein an individual gathers, interprets, and evaluates evidence to form a judgment in a particular context (Facione, 1990; Halpern, 2003; Liu and others, 2014; Moseley and others, 2005; Dwyer and others, 2014).¹⁶ The skill then is said to enable the individual to perform multiple tasks such as separating facts from opinion, recognizing assumptions, questioning the validity of evidence, verifying information, and understanding multiple perspectives (Magno, 2010; Lai, 2011; Anderson and others, 2001; Moseley and others, 2005; Choy and Cheah, 2009; Lewis and Smith, 1993).

The LSCE definition of critical thinking emphasises its vital function in society. The definition explains that critical thinking can empower the individual to critically assess norms, values, power structures and social media messages; and to uncover and resist sexist, racist, extremist, radical, and populist influences and pressures to make society a fairer place for all social groups (UNICEF and partners, 2017).

Critical thinking skills combine multiple processes including cognitive, attitudinal, and behavioural dispositions. Besides the ability to engage in cognitive processes, critical thinkers should have a strong 'critical thinking disposition'. Dispositions are characteristics that reflect one's inclination and consistent internal motivation to apply critical thinking. These 'habits of mind' qualities include open-mindedness, inquisitiveness, flexibility, persistence, propensity to seek reason, and willingness to entertain diverse viewpoints.¹⁷

Critical thinking skills have general, as well as domain-specific, aspects. Researchers have debated the degree of generality or specificity of critical thinking skills. Critical thinking generally is viewed as the ability to engage in forms of inquiry required to study particular disciplines as well as to address complex, interdisciplinary everyday life situations. Critical thinking conceptual skills can transcend specific subjects or disciplines. However, learning and applying such skills in different contexts requires domain-specific knowledge. Background knowledge is an essential — but not sufficient — prerequisite for critical thinking.¹⁸

2. Relationship between skills for critical thinking and life outcomes

Critical thinking has been widely recognized as an important instructional goal and a desirable life outcome.¹⁹ This very assumption has hampered the development of rigorous empirical evidence and research to demonstrate this point (ten Dam and Volman, 2004). Critical thinking has been argued to be essential in preparing individuals for adult life and success in social, civic, interpersonal, and work-related contexts (Soland and others, 2013). Critical thinking is said to equip students with the ability to gain complex understandings of information, evaluate alternatives, identify assumptions, and make inferences — all while promoting decision making and decision making in real-world environments (Lai, 2011). Critical thinking is a crucial element of being an active citizen because it enables the learner to question the norms and structures of society and imagine alternative ways of doing things (ten Dam and Volman, 2004). In addition, critical thinking skills are essential part of the learning process and crucial for academic success (Lai, 2011). Empirical research evidence has revealed a positive association between critical thinking and academic achievement.²⁰

Research suggests that critical thinkers make better judgements in complex situations; engage less in cognitive bias and are more likely to become more informed, active, and self-reliant citizens who are better equipped to give back to society (Soland and others, 2013). Employers also have identified critical thinking skills as an exceedingly important life skill for individuals to succeed in today's workforce, in which good decision making, and continuous reflective processes and product/service improvement are needed (Casner-Lotto and Barrington, 2006, Renaud and Murray, 2009; Peredo and McLean, 2006; Soland and others, 2013).



16. In 1988, a committee of 46 experts gathered to agree a robust conceptualization of critical thinking. The Delphi Report determined a consensus definition of critical thinking skills as well as a description of the 'ideal critical thinker' (Facione, 1990).

17. Facione 2000, 1990; Dwyer and others, 2014; Perkins and Ritchhart, 2004; Stapleton, 2011; Halpern, 2006.

18. Facione, 1990; Bailin and others, 1999; Ben-Chaim and others, 2000; Liu and others, 2014; Lai, 2011; Case 2005; Willingham, 2007.

19. In the early 20th century, educator John Dewey first introduced the related notion of 'reflective thinking' as an educational matter. He defined it as the "kind of thinking that consists in turning a subject over in the mind and giving it serious consideration" (1933, in Stapleton 2011).

20. Lai, 2011; Anderson and others, 2001; Zoller 1997; Kettler, 2014; Stewart 2000; Dwyer and others, 2014; Halpern, 2003; Butler and others, 2012.

3. Developing skills for critical thinking in children and youth

Critical thinking is considered by some scholars to be one of the most advanced life skills and, in the past, was associated with learning in late adolescents and adults. Bloom's Taxonomy of Learning (1956) and the revised taxonomy (Anderson and others, 2001)²¹ suggest that children first are taught to remember, then to understand and apply knowledge, then to analyse; and finally, to think critically and evaluate knowledge (Anderson and others, 2001).

More recently, scholars have challenged this perspective. They argue that critical thinking can be learned at a much younger age; and that all learners, regardless of ability levels, have been found to benefit from appropriate instruction and practice in critical thinking skills (Lai, 2011). Instruction in critical thinking at a young age can start by teaching children to reason, consider options, and understand others' views.²² Interventions to enhance both general and specific critical thinking skills generally have shown positive results. In fact, some studies observed greater effects in school-aged students than in older university students.²³

4. Actively improving skills for critical thinking

Critical thinking capacities can be improved through instruction and practice. A compelling body of empirical evidence shows how persistent, purposeful efforts that target complex skills such as critical thinking can be effective.²⁴ However, not all programmes are equally effective. Empirical evidence identifies three overarching principles to effectively teach critical thinking: (1) explicit instructions on learning outcomes, (2) make critical thinking a separate component within each subject discipline, and (3) constructionist pedagogy. These three are discussed below.

First, rigorous research on critical thinking interventions has identified that teaching benefits from explicit instructions on the learning outcome as opposed to including this skill as an implicit goal.²⁵ The evidence indicates that students need to be aware that they are being taught critical thinking skills and also provided with information on how they are expected to demonstrate critical thinking skill (Abrami and others, 2008). Explicit critical thinking instruction can be incorporated in general and/or subject-specific components of the curriculum.

Second, a systematic review of the empirical research identified that the most effective approach to teaching and learning critical thinking was to have a separate critical thinking component within each subject discipline in the curricular (Abrami and others, 2008). These findings identified that providing opportunities for students to apply critical thinking skills in a range of contexts and subject areas amplified the likelihood of their transferring these skills to new contexts (Abrami and others, 2008).

Third, many empirical studies have found constructivist techniques effective at teaching critical thinking (Lai, 2011; Miri and others, 2007; Ten Dam and Volman, 2004; Burke and Williams 2008; Heyman 2008). From her research, Lai (2011) highlighted that the essential underlying element for teaching and learning critical thinking is the necessity for an open and accepting classroom climate in which teachers use methods that show students how to identify and embrace divergent opinions without fearing dissent. Lai's (2011) empirical research also identified other constructivist approaches to teaching effective at improving critical thinking. These approaches included the use real-world scenarios, group work and collaborative learning, getting the teacher to model the critical thinker, and placing students at the centre of the learning process. Research further recommended attending to the dual dimension of critical thinking: enhancing the development of students' thinking skills while nurturing their internal motivation to use these skills. (Miri and others, 2007; Burke and Williams, 2008; Heyman, 2008).

Table 1.3 presents three examples of successful interventions to cultivate and boost critical thinking skills. All three projects took place in the United States. The first project is Youth Empowerment Strategy (YES!). Its interventions focused on enhancing critical thinking, communication, and interpersonal relationships; and targeted children aged 9–12. Wilson and others (2008) found that 11 of 12 groups in 'YES!' were able to think critically about their local contexts, construct social activities projects that could make a difference, and implement these projects to make positive changes in their communities.

The second project, Success for All (Table 1.3), developed a randomized national evaluation of a comprehensive reading reform model. The evaluation involved 41 schools implementing Success for All that were randomly assigned to treatment (schools) or control (schools not implementing the programme) groups. Results reveal a statistically significant positive school-level impact of assignment to Success for All that totalled more than two months of additional learning on individual Word Attack test scores.

21. Bloom's Taxonomy of Educational Objectives "mental acts of thinking from educational experiences." Bloom's was one of the first frameworks to characterize thinking as a range of both lower order and higher order thinking processes (Dwyer and others, 2014).

22. Facione, 1990; Silva 2008; Bailin and others, 1999; Willingham, 2007; Halpern, 2003.

23. Kennedy and others, 1991; Abrami and others, 2008; Lai, 2011; Zohar and Dori 2003; Miri and others, 2007; Halpern, 2003.

24. Kennedy and others, 1991; Abrami and others, 2008; Lai, 2011; Zohar and Dori 2003; Miri and others, 2007; Halpern 2003.

25. Dwyer and others, 2014; Marin and Halpern 2011; Abrami and others, 2008; Brown 1990; Case 2005; Lai, 2011; Halpern, 1998; Paul, 1992; Van Gelder and others, 2004).

In the third project, Athena, third to fifth graders made statistically significant improvements in critical thinking and comprehension as assessed by the Test for Critical Thinking (TCT). TCT uses Paul's Reasoning Model (1992) as a conceptual framework. TCT's reliability measures are high because internal consistency coefficients range from 0.83 to 0.87 between grades 3 to 5, and 0.89 for the overall sample.

Table 1.3. Examples of successful interventions for critical thinking skills

Name of work	Age group	Geographic Location	Target life skills	Major findings	Authors
Success for All	3–11 years old	USA	Critical thinking	A whole-school reform programme that used a multi-dimensional approach. The result shows that a statistically significant positive effect of more than 2 months of additional learning on individual Word Attack test scores.	Borman and others 2005
Project Athena	8–11 years old	USA	Critical thinking, reading, writing, analytical skills	Changes to the objectives of the curricular for arts, language and mathematics. The result showed that students made statistically significant improvements in critical thinking and comprehension as assessed by the TCT (Test for Critical Thinking). TCT uses Paul's Reasoning Model (1992) as a conceptual framework. TCT's reliability measures are high as internal consistency coefficients range from 0.83–0.87 for grades 3–5, and 0.89 for the overall sample.	Bracken and others 2003
Youth Empowerment Strategy (YES!) Project	9–12 years old	USA	Critical thinking, communication, inter-personal relationships	After school empowerment programme using photovoice. The result shows that eleven of 12 groups in YES! critically reflected on their local contexts, constructed social activities projects, and implemented them to make positive changes in their communities.	Wilson and others 2008

5. Measuring skills for critical thinking

Conceptualizing and assessing critical thinking skills are interdependent: how critical thinking is defined determines how it is best measured (Ku, 2009). Because several attempts to define critical thinking varied in their multi-dimensional nature, numerous critical thinking assessments exist each of which tends to capture multiple themes and differs in its purpose, format, and context (Ku, 2009; Liu and others, 2014). Although most measurements are general-content assessments, some are subject specific. Furthermore, many assessments include numerous aspects of the critical thinking skill, whereas only a few focus on one aspect. Assessments generally overlap in their emphasis of key critical thinking themes (such as analysis, reasoning, and evaluation). However, some recent assessments have tried to reflect metacognition and the disposition to engage in critical thinking (Liu and others, 2014).

To examine the effectiveness of any intervention designed to increase critical thinking skills, appropriate assessment that reliably measures critical thinking skill and its subscales is needed (Ku, 2009). Table 1.4 presents the measurement instruments that have the most rigorous psychometric properties for the critical thinking skill.²⁶

26. The ranking criteria for selecting the instruments comprise five components that are introduced in the section on methodology for instrument selection the introduction of Chapter 1. Of these instruments, only those that were considered medium to high suitability appear in Table 1.4. For details on all the instruments reviewed, see the online appendix, www.lsce-mena.org.

Table 1.4. Shortlisted measurement instruments for critical thinking skills

Name of instrument	Age group	Target life skills	Brief description
California Critical Thinking Skills Test M Series for Children and Youth (CCTST-M20; CCTST-M25; CCTST-MIB)	8–15 years old	Critical thinking	California CT M Series test is a collection of multiple-choice tests of critical-thinking skills ranging from the analysis of the meaning of a given sentence to more complex integration of critical thinking skills. Questions focus on everyday common sense topics. To obtain a more comprehensive view of both skills and mental state, which shape CT ability, the test also recommends a side assessment of the student's mental dispositions (such as motivation using CM3 below).
California Measure of Mental Motivation (CM3)	8–18 years old	Critical thinking disposition	CM3 is an objective measure of student engagement and a predictor of student success. It measures and reports scores on (a) learning orientation, (b) creative problem solving, (c) cognitive integrity, (d) scholarly rigor, and (e) technological orientation.
Cornell Critical Thinking Test (CCTT)	10–18 years old	Induction, deduction, credibility, identification of assumptions	Cornell Critical Thinking Test Level Z (Ennis and others, 1985) is a standardized test to measure critical thinking among secondary school and university students. It measures (a) Deduction, (b) Semantics, (c) Credibility, (d) Judging Conclusions, (e) Planning Experiments, and (f) Definition and Assumption Identification. Its Level X equivalent for younger students in grades 5–12 focuses on (a) Induction, (b) Deduction, (c) Credibility, and (d) Identification of Assumptions.
Ennis-Weir Critical Thinking Essay Test (TEWCTET)	12–18 years old	Critical thinking	Ennis-Weir Critical Thinking Essay Test (EWCTET; Ennis and Weir 1985) is a popular open-ended essay test of the general critical ability of high school or college students. This highly structured test examines students' ability to identify built-in reasoning flaws in an argumentative passage as well as their ability to defend their own arguments (Ennis 2003).
California Critical Thinking Dispositions Inventory (CCTDI)	14 years old and over	Critical thinking dispositions	California CT Dispositions Inventory (CCTDI) tests seven scales of critical thinking measures: (b) Open-mindedness, (c) Analyticity; (d) Systematicity; (e) Confidence in Reasoning; (f) Inquisitiveness; and (g) Maturity of Judgment.
Watson-Glaser Critical Thinking Appraisal (WGCTA)	14 years old and over	Critical thinking	Watson-Glaser Critical Thinking Appraisal (WGCTA) is a standardized test comprising a series of exercises that require students to apply important abilities involved in critical thinking: drawing inferences, recognizing assumptions, evaluating arguments, deductive reasoning, and logical interpretation.
Halpern Critical Thinking Assessment Using Everyday Situations	15 years old and over	Verbal reasoning, argument analysis, thinking as hypothesis testing, using likelihood and uncertainty, decision making, problem solving	Halpern Critical Thinking Assessment Using Everyday Situations (HCTAES; Halpern, 2007) is a multiresponse format test that combines multiple-choice and open-ended response formats. HCTAES measures critical thinking ability using questions set in authentic and believable everyday contexts.
California Critical Thinking Skills Test (CCTST)	17–19 years old	Critical thinking	California Critical Thinking Skills Test (CCTST) is a general test of critical thinking that studies the reasoning and analyses of test-takers who have been given diverse questions regarding everyday life scenarios, pictures, texts, and more theoretical social and political inquiries.

PROBLEM SOLVING

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS



1. Definition of problem solving

The skill to solve problems has been defined in multiple ways. A basic description of the skill to problem solve is “the ability to think through steps that lead from a given state of affairs to a desired goal” (Barbey and Baralou, 2009). The definition can be extended to explicitly state the steps required. For example, OECD (2015, p.13) defines problem solving as beginning with “recognizing that a problematic situation exists.... It [then] requires the solver to identify the specific problem(s) to be solved, plan and carry out a solution, and monitor and evaluate progress throughout the activity.”

The LSCE Framework defined problem solving similarly by explicitly referencing the process. Problem solving is, therefore, understood within this framework as “the ability to think through steps that lead to a desired goal by identifying and understanding a problem and devising a solution to address it” (UNICEF and partners, 2017, p. 133).

The field of research on problem solving is divided into two large subfields. One is firmly based on problem solving mainly as a cognitive challenge, for example, how to tackle a mathematical problem. The other focuses on skills that help individuals solve social and societal problems, for example, how to reduce a conflict at school, home, or the local community. The LSCE definition emphasizes the social context of problem solving as well as contains the mathematical sense of problem solving; and includes collaborative as well as individual problem solving. The LSCE definition highlights that problem solving is at the heart of conflict management and conflict resolution processes because it enables individuals to use their intelligence and imagination to invent conflict-exit strategies (Weitzman and Weitzman, 2000).

2. Relationship between skills for problem solving and life outcomes

Problem solving can be seen either as a skill that can impact other life outcomes, or as a life outcome in its own right (Barry and others, 2017). Consequently, problem solving can play different roles in an intervention. The activity of problem solving can be the treatment variable expected to influence other life outcomes (section 4). Alternatively, the problem-solving skill can be the expected outcome of an intervention. An example of the former is a recent intervention focused on social and emotional learning that used problem solving as the treatment (O’Conner and others, 2017). In the latter situation, problem solving as a skill can be conceptualized as either an academic outcome alongside students’ other qualities such as self-efficacy, time management, and mathematics grades (Linares and others, 2005; Snyder and others, 2013; Acosta Price and others, 2014), or as an interpersonal life skill such as cooperation, conflict resolution, and respect for diversity (Durlak and others, 2011).

Problem solving also may appear associated with certain practices while predicting an additional outcome, thus acting as a mediator. For instance, longitudinal research has found that “playing strategic video games may enhance adolescents’ self-reported problem-solving skills, which in turn may help adolescents perform better in school”²⁷ (Adachi and Willoughby 2013, p. 1050). In this case, problem-solving skills mediate between a voluntary practice (playing strategic video games) and an academic outcome.

Furthermore, problem solving is associated with other life outcomes among adults, such as employability. A cross-sectional study found that complex problem-solving skills predicted job level at a large German automobile firm and was a much stronger predictor than IQ or school grades (Mainert and others, 2015).

3. Development of skills for problem solving in children and youth

The development of problem-solving skills has been found in the very earliest years of life. Evidence of this early development was identified by following two groups of infants between the ages of 6 to 13 months (and their mothers) in the United States (Landry and others, 2006). The treatment group was exposed to taught ‘responsive parenting’, including home visits to develop parents problem-solving abilities and self-evaluation of parenting using videos. The evidence showed, among other findings, that the children of parents trained in responsiveness exhibited greater problem-solving skills. The conclusions of this study suggested the important role of “supportive others,” in this case, meaning trained parents, in children developing problem-solving skills from an early age (Landry and others, p. 639).

The literature also indicates that, as children grow through middle childhood, their development of problem-solving skills can increase as well as change in both ability and process. A mixed-method study from the United Kingdom on the behaviour of children aged 5-7 years during problem-solving tasks (completing train-track designs) showed a quantitative increase in meta-cognitive skills and qualitative improvement in the types of monitoring/planning of the problem-solving tasks undertaken by the children (Bryce and Whitebread, 2012).

27. These findings apply to strategic video games, not to fast-paced video games.

Evidence from the literature also suggests there may be an optimal age for the development of problem-solving skills. For example, a study of domain-specific and complex problem solving in a sample of over 2,500 third to eleventh grade students in Hungary (Molnar and others, 2013), reported that the development of problem-solving skills across this age group developed in the form of an 'S' curve — with slower progress in early and late grades, and faster development of problem-solving skills around the ages of 12 to 14. This age-/grade-specific 'window of opportunity' speaks to opportunities for optimal timing of teaching interventions, or instruction in how to develop problem-solving skills.

Although the amount of direct evidence of how problem-solving skills develop in older age groups (>14) is limited, evidence can be partially gained from pedagogies that attempt to lever problem solving as part of an instructional tool. Since the mid-20th Century, the concept of problem-based learning (PBL) increasingly has been used across multiple disciplines as a learner-centred approach to "conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem" (Savery, 2006, p. 13). One well-cited model of PBL is the Maastricht Seven Jump Process, a group problem-solving process. Adaptations of the Maastricht model broadly involve (a) clarifying terms/understanding the problem; (b) defining the problem/setting questions; (c) discussing the problem and initial solutions; (d) organizing what is known; (e) identifying gaps in knowledge; (f) private research and learning; and (g) group discussion and feedback/consolidation. The application of this model assumes a continuing development of problem-solving skills in later age-groups — both individually and as part of a team. Moreover, as part of the PBL approach, communication and negotiation life skills also are developed.

Of related interest is the ways that problem solving develops alongside other cognitive skills. The literature reviewed for this study indicates that inductive reasoning (what is probable based on evidence), fluid reasoning, working memory, and critical thinking (what is reasonable based on evidence) all are salient. In the sample of Hungarian school children studied by Molnar and others (2013), inductive thinking and complex problem solving were positively and consistently correlated across all age groups. A 2015 study by Greiff and others undertook a three-year longitudinal study of 2,000 12-year-old Finnish students. Those authors found that fluid reasoning was a strong predictor of the complex problem-solving skills: both knowledge acquisition and knowledge application. In contrast, working memory — though a predictor — had only a small influence. Finally, Snyder and Snyder (2008) is one example of many from the United States literature that aligns critical thinking with effective problem solving in both theory and pedagogy.

4. Actively improving skills for problem solving

Table 1.5 presents problem-solving-building interventions implemented at the individual or the family level and summarizes the evidence of their effectiveness as reported in the academic publications reviewed.²⁸ The evidence suggests that the majority of interventions on the topic of problem solving use this skill as a method to support other skill development or particular life outcomes or to remedy social problems such as to change risky and/or aggressive behaviours (See Table 1.5 for details on Abdulmalik and others, 2016; Wolpert, 2015; Snyder and others, 2013); and/or social and emotional outcomes (See Table 1.5 for details on Ahghar, 2014; Ghahfarokhi and others, 2015; Farokhzad and Mardani, 2015). Interestingly, and in contrast to the other life skills, many of the programme interventions that use problem solving and that are assessed through control trials derive from the MENA region. In Iran, in particular, the last decade has seen a number of quasi-experimental studies that used problem-solving skills education to influence other life skills outcomes such as creativity and assertiveness (Adavi and others, 2016), social anxiety (Ahghar, 2014), self-regulation (Ahghar, 2012), self-esteem (Ghahfarokhi, and others, 2015), social adjustment (Farokhzad and Mardani, 2015), and aggression (Bahrami, 2006). In OECD countries as well, certain cluster-randomized controlled trials further confirm the benefits of problem-solving skills training (Sharma, Petosa, and Heaney, 1999; Wolpert and others, 2015).

A number of these successful interventions had the specific aim of increasing problem-solving skills as a learning outcome. These studies were undertaken in the United Kingdom (Wolpert, 2015), the United States (Sharma and others, 1999), Turkey (Totan and Kabasakal, 2012; Erozkhan 2013), and Iran (Totan and Kabasakal, 2012).

28. Details for statements made and all studies cited in Section 4 appear in Table 1.

Table 1.5. Examples of successful interventions for problem-solving skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Targeted Mental Health in Schools (TaMHS)	8–9 years old	UK	Support social problem solving and emotional regulation skill development	The main intervention was to integrate provision of mental health services across different agencies. The result shows that TaMHS reduced (self-reported) behavioural, but not emotional, difficulties of at-risk children.	Wolpert and others, 2015
Effects of problem-solving interventions on aggressive behaviours among primary school pupils in Ibadan	9–14 years old	South Africa	Outcomes: teacher-rated aggressive behaviour, self-rated aggression scale	Group-based problem-solving intervention for aggressive behaviours among primary school students showed significant reductions in both teachers' and students' rated aggressive behaviours, with large effect sizes. Although this was a small exploratory trial whose findings may not be generalizable, it demonstrates that psychological interventions for children with high levels of aggressive behaviour are feasible and potentially effective in Nigeria.	Abdulmalik and others, 2016
The Positive Action Program	10–12 years old	US	Problem solving is part of "continuous self-improvement," 1 of 6 programme components.	Social-emotional and character development programme using a positive youth development perspective. The result shows that students attending intervention schools reported significantly better academic behaviour and significantly less substance use, violence, and sexual activity. Intervention effects on self-reported substance use, violence, and sexual activity were mediated by positive academic behaviour.	Snyder and others, 2013
Problem-Solving Skills (PSS) training among adolescent girls with irresponsible or no parents	11–12 years old	Iran	Problem-solving skills education intervention; self-esteem, behavioural adjustment as outcomes.	Problem-solving skills training significantly increased the self-esteem and the behavioural adjustment.	Ghahfarokhi and others, 2015
Raising a Thinking Child workshops, Iran	11–12 years old	Iran	Mothers' problem-solving skills education intervention; mothers' over-protectiveness, child rejection, over-indulgence as outcomes.	Problem-solving workshop designed for parents and children decreased the levels of over-protectiveness and child rejection, and increased acceptance and improved mother-child relationships. There was not any significant difference in over-indulgence.	Shokoohi-Yekta and Malayeri, 2015

PSS training for sixth grade primary school students	11–12 years old	Turkey	problem-solving training; outcomes: task articulation, peer relations, self-regulation communication, problem solving, coping with stress and self-esteem enhancing skills	Problem-solving skills training is effective in increasing task articulation and self-regulation, skills of problem solving, coping with stress total score of social and emotional learning needs and abilities with a permanent effect. It was also determined that the difference in peer relations during the post-test stage in favour of the experimental group was not observed in the follow-up tests. Problem-solving skills training had no effect on communication skills and self-esteem enhancing skills.	Totan and Kabasakal 2012
Evaluation of a Brief Intervention Based on Social Cognitive Theory to Develop Problem-Solving Skills (PSS) among Sixth-Grade Children	11–12 years old	US	Intervention based on social cognitive theory (SCT) intended to develop PSS	A training in applying social cognitive theory to solve real-life problems. At post-test, 36% of the students in the SCT-based intervention reported applying PSS to real-life problems compared to 1% in the knowledge-based group.	Sharma and others, 1999
PSS training to reduce social anxiety	12–18 years old	Iran	PSS education intervention; social anxiety as outcome	The problem solving training reduced social anxiety among the students who received it. PSS had appropriate stability over time.	Ahghar 2014
PSS training for self-regulation	12–18 years old	Iran	PSS education intervention; self-esteem, behavioural adjustment as outcomes	Problem-solving training on self-esteem and behavioural adjustment significantly increased self-esteem and behavioural adjustment in ($P < 0/001$).	Ghahfarokhi and others, 2015
Effects of PSS Training on Social Adjustment of High School Students	12–18 years old	Iran	PSS education intervention; social adjustment as outcome	PSS training improved social adjustment of experimental group in post-test in comparison with pre-test.	Farokhzad and Mardani 2015
PSS training for creativity and assertiveness	13 years old	Iran	PSS intervention; creativity and assertiveness as outcomes	Experimental group received eight PSS training sessions (90 minutes each); control group got no intervention. Rate of creativity and assertiveness in experimental group significantly higher ($P < 0.001$) compared to control group.	Adavi and others, 2016

5. Measuring skills for problem solving

The growing interest in problem solving in recent years as a transversal, transferable set of skills has led to the considerable expansion of the problem-solving literature and the development of several instruments that operationalize the concept. Reliable and valid instruments are necessary to assess problem solving and measure the effectiveness of interventions aimed at building problem-solving skills. Since problem solving also applies to specific strategies within academic disciplines, particularly in the sciences, the current search encountered instruments that focused on mathematical, physics, and chemistry problem solving. However, as mentioned above, the focus was on problem solving as a set of transferable skills. Therefore, although initially identified and catalogued, these instruments were excluded from later stages of this review.

Table 1.6 summarizes the instruments for measuring problem solving that were tested in this review for appropriateness (some in a variety of contexts and age groups) and were found to have sound psychometric properties.²⁹

Table 1.6. Shortlisted measurement instruments for problem-solving skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Attitudes toward Problem Solving Scale (ATPSS)	11–16 years old	Malaysia	Willingness to engage in problem solving, perseverance during problem-solving process. self-confidence with respect to problem solving	Measures students' attitudes toward problem solving.
Social Problem-Solving Inventory for Adolescents (SPSI-A)	11–22 years old	Unknown	PSS inventory	Measures self-reported covert and overt social problem-solving behaviours in personal and social contexts: Automatic Process, Problem Orientation, Cognition, Emotion, Behavior, Problem-Solving Skills, Problem Identification, Alternative Generation, Consequence Prediction, Implementation, Evaluation, Reorganization.
VIEW: An Assessment of Problem-Solving Style	12 years old and over	US	Orientation to change, manner of processing, ways of decoding	Assesses problem-solving styles.
Social Problem-Solving Inventory-Revised (SPSI-R)	13 years old and over	Australia, UK	Positive problem orientation, negative problem orientation, rational problem solving, problem definition and formulation, generation of alternative solutions, decision making, solution implementation and verification, impulsivity/carelessness style, avoidance style	Measures people's "ability to resolve problems of everyday living." SPSI-R offers 2 options: a long form with 52 items, and a short form with 25 items. Subskills: Positive Problem Orientation, Negative Problem Orientation, Rational Problem Solving, Problem Definition and Formulation, Generation of Alternative Solutions, Decision Making, Solution Implementation and Verification, Impulsivity/Carelessness Style, Avoidance Style.
PISA Complex Problem Solving (CPS) - MicroDYN and MicroFIN	15 years old	Instrument used internationally, including UK, Spain, and Sweden etc.	Knowledge acquisition, knowledge application	Interactive tool measures complex problem solving.

29. The ranking criterion for selection of instruments was comprised by five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the instruments that were considered medium to high suitability are provided in Table 1.2. For more details on all the instruments reviewed see the online appendix, www.lscemena.org.

Problem-Solving Inventory (PSI) and Arabic version (PSI-Ar)	16 years old and over	Egypt, Greek	Problem-solving confidence, approach-avoidance style, personal control	Assesses an individual's perceptions of his or her own problem-solving behaviours. It comprises 32–35 items for PSI, or 27 items for Arabic version (PSI-Ar).
Creative Problem-Solving Profile (CPSP)	20–60 years old	US	Apprehension of knowledge, use of knowledge	Measure individual's preferred creative style in two dimensions: apprehension and use of knowledge. CPSP helps people understand their creative problem-solving style (personal preferences for different stages of a multistage process of creative problem solving) and to increase their sensitivity to individual differences in style.

COOPERATION

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of cooperation

Cooperation skills have been defined as those that are required to “...participate successfully with others on shared activities, tasks and ventures” (Council of Europe, 2018, 51). Most frameworks for 21st century skills include cooperation-related constructs. Such frameworks either classify the concept as collaboration rather than cooperation skills (P21 Framework for 21st Century Learning-Battelle for Kids 2019), and/or as one attribute within a wider set of social skills (Gutman and Schoon, 2013).

In the context of the LSCE Framework, cooperation has been defined similarly as in other frameworks in the field as “the act or process of working together to get something done or to achieve a common purpose that is mutually beneficial” (Tyler, 2011 cited in the LSCE Framework, UNICEF and partners, 2017, 52). What makes the LSCE definition less common is that the social context of this skill is emphasized. Consequently, the definition is expanded by explaining that it includes the ability to work effectively and respectfully with diverse teams to achieve common goals. The definition includes respecting others’ opinions and inputs, accepting feedback, resolving conflict, leading effectively, working toward consensus in decision making, and building and coordinating partnerships (Brewer, 2013 and Deutsch, 2006 both cited in UNICEF and partners, 2017).

2. Relationship between skills for cooperation and life outcomes

Skills for cooperation have been identified as a valuable educational outcome for a wide range of society and of social and economic outcomes. Collaboration, along with other skills such as communication, has emerged as one of the most important and valuable skills required to succeed in the workplace (Lippman and others, 2015). During recruiting for the MENA region, and according to different national employer surveys, cooperation and teamwork were considered among the most important skills (Lai and others, 2017; Wilson-Ahlstrom and others, 2014; Ku and others, 2007; Brame and Biel 2015; Maktoum 2008; YouGov and Bayt 2016).

Cooperation is also perceived as an important skill for learning, particularly for success in higher education (Lai, 2012). A synthesis of research on cooperation learning reveals that cooperation learning strategies improved the achievement of college students as well as their attitudes toward learning, persistence, and interpersonal relationships (Lai, 2012). Evidence suggests that cooperation skills learned in school result in healthier relationships because students learn to interact with their peers. This skill can be especially important for at-risk students because it can increase their involvement in the life of their school community (Lai, 2012).



Cooperation also promotes the creation of effective, inclusive classrooms of diverse learners. Cooperative learning can create a sense of equity in cooperative groups, which then can install the values of equity and justice in society. Teaching students to work with others on social issues also can improve students' tolerance, commitment to civic participation, community acceptance, and conflict resolution abilities (see Johnson, 1998; Lai, 2012; Johnson and others, 1993; Slavin, 1991).

Finally, cooperation skills have been associated with other positive outcomes and desired life skills. Cooperation helps students develop their self-concept and self-esteem and stimulates the development of a range of other skills and outcomes, such as critical thinking, metacognition, empathy, problem solving, and creativity (Lai, 2011; Wright and others, 2013; Iyer 2013; Francisco and others, 2013; Kramarski and Mevarech, 2003; Karantsaz and others, 2013).

3. Development of skills for cooperation in children and youth

Learning the skills for cooperation can start at a very young age (Tomasello and Hamann, 2012). Even children of 1 and 2 years can begin to learn to form common goals with others and to learn joint attention, including understanding the different individual roles in question. At approximately 3 years of age, the collaborative interactions that children undertake with others follow a more normative approach that includes learning to have obligations. Children around this age also can develop further the cognitive ability to conceptualize the role of the other as well as their own role and perspective (Tomasello and Hamann, 2012). Furthermore, research provides evidence that children as young as 5 can benefit from cooperation learning in a similar way to older children. For instance, pairing five- and six-year-old children with different peers has shown to influence collaboration (Murphy and Faulkner, 2000; Lai, 2011).

By mid-childhood, children learn the concepts of fairness and justice, and the children start to show these qualities through equally sharing resources (Burnet and Blakemore, 2009; Lai, 2011). In adolescence, social abilities and behaviours continue to develop, in addition to more maturation in the brain regions involved in social cognition. Adolescents also start enjoying more activities that include social interactions (Lai, 2011). Nevertheless, more rigorous research needs to be performed on how cooperation skills and social abilities in general develop during childhood and adolescence (Blakemore, 2008 and Fehr and others, 2008, in Burnet and Blakemore, 2009; Lai, 2011).

4. Actively improving skills for cooperation

Despite knowledge that the skill to cooperate is malleable (Tomasello and Hamann, 2012) there are few studies that explore or identify specifically how to teach cooperation skills (Lai and others, 2017). The few studies that do exist include this skill as a learning outcome combined with a range of other social and emotional learning outcomes. Teaching instructions on how to teach cooperation skills have suggested that learning by doing is the most appropriate strategy (Bossert 1988). Lai and others (2017) found that experts in field on teaching cooperation skills recommended articulating to the students explicitly the objectives of fostering cooperation in the classroom; and engaging in direct instruction on what good cooperation looks like, including the desired gains in academic and social skills. Teachers are encouraged to stress desirable qualities and useful strategies for positive interaction among students, such as encouraging peers, asking direct questions, and responding appropriately to others' requests. Devising a positive classroom environment that values and promotes the development of cooperation-related skills and behaviours such as communication, conflict resolution, and negotiation, and combining direct instruction with opportunities to practice is recommended (Lai, 2017).

Table 1.11 provides examples of interventions that have been scientifically shown to increase cooperation skill levels. These programmes, all of which were run in the United States, target children from pre-kindergarten to the end of primary education. Thus, they appear to be based on the current thought that cooperation skills can be nurtured at an early stage of life (Tomasello and Hamann, 2012). After participating in these programmes, students significantly improved not only in skills for cooperation but also in a range of social skills and positive attitudes toward learning (Table 1.11). Other skills that were seen to improve were conflict resolution (Domitrovich and others, 2007; Shure, 2001) and decision making (Domitrovich and others, 2005).

Table 1.11. Examples of successful interventions for cooperation-related skills

Name of work	Age group	Geographic Location	Target life skills	Major findings	Authors
Peace Works: Peace-Making Skills for Little Kids https://casel.org/guideprogramspeace-works-peacemaking-skills-for-little-kids/ based on the Promoting Alternative Thinking Strategies (PATHS) Project (see below)	3–8 years old	US	Cooperation, conflict resolution, listening	Skills training using meaningful real-life scenarios was evaluated in a medium (n = 246) RCT. Students were followed for one year. Results showed increased positive social behaviour, and reduced conduct problems.	Domitrovich and others 2007
PATHS Project	3–12 years old	US	Social skills, peaceful conflict resolution, emotional regulation, empathy, responsible decision making	PATHS social-emotional skills training was evaluated in multiple, large (for example, n = 2,397) RCTs in grades Pre K–5 (1 quasi-experimental; 4 RCTs). Evaluations followed students for up to three years. Results were increased positive social behaviours, reduced conduct problems, improved ability to deal with emotional distress, and improved academic behaviours.	Domitrovich and others 2007
I Can Problem Solve	5–12 years old	US	Cooperation and problem-solving skills	I Can Problem-solving programme was evaluated in multiple RCTs (2 RCTs; 1 quasi-experimental). Largest sample was 655. Students were followed for one year. Results were increased positive social behaviour, reduced conduct problems, and improved social skills.	Shure 2001

5. Measuring skills for cooperation

A challenge in measuring and assessing cooperation skills is the necessity to define the exact aspects of cooperation to be assessed. For example, is this outcome and assessment for an individual or for a group? If it is an individual assessment, does it need to be conducted with other students to demonstrate the individual's ability to work with other team members (see Webb, 1995). Typically, there are four categories of assessment of student cooperation. The first two assess individuals' or group's outcomes from a cooperation exercise (that is, considering cooperation as a process). The second two categories are individual assessments and group assessments of cooperation skills as an educational outcome. Traditional assessments focused on individual or group outcomes following the cooperation activities. In contrast, recent research has focused on the individual's ability to work with other members of a team (Lai and others, 2017).

In assessing the different elements under the cooperation skill, researchers suggest that educators should collect a mix of evidence. In addition to student self-reported measures and teacher/parent surveys to gauge students' willingness and ability to cooperate with others, a variety of observational tools have been developed to capture evidence of team interactions. Some recent performance measures also test students' cooperation skills by providing them with scenarios intended to simulate real-life tasks and assessing their actual performance. Technological advances have enabled supplementing observations with capturing real-time group communications and decision making. Finally, new assessments of cooperation are focusing on collaborative problem solving to test the ability of students to work effectively in team environments to solve complex problems.

Table 1.12 presents measurement instruments that have the most rigorous psychometric properties for the cooperation skill.³⁰ These instruments measure aspects related to cooperation by assessing individuals' teamwork and social skills.

30. The ranking criterion for selection of instruments was comprised by five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the instruments that were considered medium to high suitability are provided in Table 1.2. For more details on all the instruments reviewed see the online appendix, www.lscemena.org.

Table 1.12. Shortlisted measurement instruments for cooperation skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Social Skills Improvement System Rating Scales (SSIS)	3–18 years old	Spain	Cooperation	SSIS is a multitiered assessment system to support youths' social skills. Suite of tools focuses on skills that enable social and academic success for youth ages 3–18.
Developmental Asset Profile (DAP)	3–18 years old	Instrument is said to be effective for use with non-US youth, including from developing countries. Used in Albania, Bangladesh, Japan, Lebanon, Philippines, and Thailand (Scales 2011).	Social competencies	DAP measures the developmental assets of children and adolescents that are positive qualities essential for healthy social and psychological development and success.
Youth Outcomes Online Toolbox	7–13 years old	Unknown	Social competencies, prosocial behaviour	Youth Outcomes Online Toolbox is a battery of tools that assesses positive behaviours and skills development in youth. Contains a set of measures to be completed by elementary and middle school students, in-school teachers, and out-of-school programme staff. Contains subscales of social competencies and prosocial behaviour.
Mission Skills Assessment (MSA)	11–18 years old	Australia	Collaboration	MSA is an online assessment that targets six non-cognitive constructs: Teamwork, creativity, resilience, curiosity, ethics, and time management.
Behavioral and Emotional Rating Scale 2d ed. (BERS-2)	11–18 years old	BERS is said to be an appropriate instrument for global use.(One study seems to have used this instrument in South Africa; and another with Latino English learners). Spanish version available (parent form).	N/A	BERS-2 measures the personal strengths and competencies of children and adolescents in five areas. The interpersonal strength area measures social skills. It can be used as a multimodal assessment system to measure children's behaviour from three perspectives: that of child, parent, and teacher.
PISA	15 years old	Most OECD countries and several other partner countries	Collaborative problem-solving skill (CPS)	CPS is an assessment of individuals in collaborative problem-solving contexts. Effectiveness of collaborative problem solving depends on group members' ability to collaborate and to prioritize the success of the group over individuals.

NEGOTIATION

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of negotiation

Negotiation has been defined as “a process through which two or more parties – be they individuals, groups, or larger social units – interact in developing potential agreements to provide guidance and regulation to their future behaviour” (Sawyer and Guetzkow, 1965, 466). From this perspective, negotiation is a communication-based activity through which parties attempt to create understandings, agreements, or contracts that define the nature of their future interdependence. Interdependence is a key element in negotiation because parties depend on each other to attain their goals while they are competing for resources and striving for divergent ends. Hence, negotiation has mixed motives in that parties both cooperate and compete through their social interaction (Greene and Bureson 2003).



Thus, negotiation can be understood as a process by which people exchange things of value using civilized means (Covey, 2000) and knowing how to reach the best agreement for both sides, not just any agreement. It does not always mean that an agreement will be reached. Rather, skilled negotiation is demonstrated in how one structures the problem, processes the information, frames the situation, and evaluates alternatives (Bazerman, 1992).

Because a wide range of emotions – pleasure, surprise, fear, and anger – could infuse working through a potential settlement, negotiation also can be a highly emotional arena (Efbein, 2007). Hence, success in negotiation often depends on the ability not only to communicate and exchange information but also to accurately perceive emotions and make accurate social judgements.³¹ These characteristics distinguish negotiation from related types of social interaction, such as persuasion and argumentation. In negotiation, parties exchange proposals, explore and define issues, and conceal weaknesses in their positions while revealing options. In persuasion, one party is trying to get the other party to do something s/he would not ordinarily do. In argumentation, parties assert claims and support these claims with evidence and reasoning.

Both argumentation and persuasion occur outside of conflict situations and in circumstances other than those characterized by perceived incompatibilities; hence, both are communicative processes that are broadly applied to a variety of situations. As a form of social interaction, negotiation employs persuasion and argumentation, but it extends beyond these arenas to create and manage exchanges, deal with mixed-motive interactions, and formulate acceptable solutions (Putnam and Roloff, 1992).

For some scholars, negotiation is conceptually closer to conflict management and resolution. Conflict is defined as “...the lack of fit between the existing schemata of the person and the perceptual challenges of external events and objects” (Piaget, as cited in Valsinger, 1992, 17). Resolution of conflict occurs when there is a “...modification of both the new information (assimilation) and the cognitive schema (accommodation)” (Valsinger, 1992, 17). Since bargaining is a way to manage incompatibilities through finding mutually acceptable solutions, negotiation parallels compromise, a classic style of conflict management, as a way to uncover options, reframe the situation, and explore potential settlements. However, negotiation is not the only conflict management strategy available to individuals and is considered part of a broader repertoire of actions available to them. Others include forcing, yielding, and avoiding (Carsten and Drew, 2001).

In the context of the LSCE Framework, negotiation is understood as a skill that is performed interactively. Specifically, it is defined as “the process of communication between at least two parties aimed at reaching agreements on their (perceived) divergent interests” and the ability to “interactively and effectively partake in a negotiation process until its conclusion, by, among others, respecting others while being assertive, being cooperative, using communication skills, showing leadership skills while being civil, saying no when one’s well-being is threatened” (UNICEF and partners, 2017). In this respect, the LSCE Framework favours the integrative approach to negotiation, which stresses “cooperative processes, rather than ‘competitive-distributive’ ones” and “focuses on developing mutually beneficial agreements and solutions based on the interests, needs, desires, concerns, and fears that are recognized as important for both parties involved” (UNICEF and partners, 2017).

31. Bazerman and Carroll, 1987; Neale and Northcraft, 1991; Pruitt and Carnevale, 1993; Thompson, 1991; Thompson and Hastie, 1990 – all cited in Bazerman and others, 2000.

2. Relationship between skills for negotiation and life outcomes

Being able to negotiate effectively has many long-term benefits to individuals such as being able to obtain resources, career success, and power over decisions that affect their lives (Greene and Burleson 2003). Studies on children also confirmed the link between negotiation skills and positive social and economic outcomes. For example, research in Zambia showed that young girls with developed negotiation skills had better educational outcomes and a higher probability of being enrolled in secondary school (Bau and Low, 2017). Another study showed that children who lack negotiation skills are at risk of maladjustment and social rejection (Newcomb and others, 1993).

The conflict management literature also provides evidence of a positive correlation between capacity to handle disagreement and positive individual and interpersonal outcomes (Broadbear and others, 2000). Conflict can offer the opportunity for several positive outcomes to be achieved. Johnson and Johnson (1995, 64) claim:

However, conflict results in these benefits only when the individuals involved have developed conflict resolution skills. Otherwise, conflict is often the cause of violent behaviour (Broadbear and others, 2000).

According to De Dreu (2001, 645): "...conflict management influences individual well-being, group performance and organizational effectiveness." In the workplace, the effectiveness of individual employees, teams and entire organizations depends on how they manage interpersonal conflict at work (Tjosvold, 1998). Managers spend an average of 20 per cent of their time managing conflict (Thomas, 1992), and evidence suggests conflict and conflict management at work substantially influence individual, group and organizational effectiveness, as well as wellbeing, as indicated by health complaints and doctor visits (De Dreu and others, 1999; Spector and Jex, 1998).

"...conflict can increase achievement, motivation to learn, higher level reasoning, long-term retention, healthy social and cognitive development, and the fun students have in school. Conflict also can enrich relationships, clarify personal identity, increase ego strength, promote resilience in the face of adversity, and clarify how one needs to change."

3. Development of skills for negotiation in children and youth

Little empirical scientific evidence exists on exactly how negotiation skills are developed. Consequently, there are two competing theories on when negotiation skills are able to be, or are the most effectively, taught. The first approach claims that only in early adolescents and older can students be taught to negotiate effectively. The second approach maintains that, given the right conditions, younger children from the age of 7 can learn to negotiate too.

Some scholars have suggested that early adolescence – approximately ages 10 to 14 – is the crucial formative period for skills and attitudes that influence social behaviour (Savin-Williams and Berndt, 1990; Ogilvy, 1994). This period is marked by an increase in children's capacity for abstract or formal operational thought. This change is consequential for social cognition and interpersonal functioning generally, and has been identified as the likely developmental stage for negotiation skills. The hallmark of this transition is the progression from a primarily self-centred perspective talking and negotiation skills to greater reciprocity and concern for others (Nakkula and Nikitopoulos 2001). This transition is important because, to engage in negotiation practices and resolve conflicts constructively, individuals must be able to take account of both their own interests and the interests of the others involved. Engaging in integrative negotiations, for example, requires that a person focus on maximizing joint outcomes and finding a solution that satisfies the interests of all involved parties. For this reason, developmental psychologists such as Selman (1980) predict that children under age 10 are not developmentally able to take the perspective of others to search for mutually satisfying agreements and therefore will not be able to learn and use integrative negotiation.

An alternative perspective suggests that negotiation skills can be learned much earlier. Some social psychologists predict that if the training is conducted appropriately, younger children can learn integrative negotiation procedures to resolve their conflicts constructively. Johnson and others' study (1994) of 7- to 13-year-olds in their conflict resolution training found that the younger children in the sample learned the integrative negotiation procedure as well as the 11- to 13-year-olds.

4. Actively improving skills for negotiation

The typical aim of teaching and training negotiation is to develop the skills required to resolve problems through bargaining (Lewicki 1986). Negotiation training first emerged in the 1980s (Tyler and Cukier 2006) and has since expanded in many fields, including education, law, business, and international affairs. Negotiation training is grounded in standardized models of learning that combine theory, simulations, repeated experimentation, and reflection — all summarized by Tyler and Kukier (2006) as the 'theory-roleplay-debrief' model. This model is offered to children and youth across their life cycles (Sandy and Cochran, 2000). The 'theory-roleplay-debrief' model entails multiple learning methods (Nadler and others, 2003; Bordone, 2000) and several theoretically informed pedagogical tools and curricula.

Even though negotiation training has developed rapidly in the past few decades, systematic research on its effectiveness remains scarce. As Deutsch (1995) noted, "There is an appalling lack of research on the various aspects of training in this field. We have not begun to collect the data that answer such questions as who benefits and how, through what type of training, for how long, by what trainers and in what circumstances" (quoted in Coleman and Lim, 2001, 364). Almost a decade later, Roloff and others argued that "...research on negotiation training is truly in its infancy" (2003, 826). The review of the negotiation literature produced since these remarks were made revealed that these comments continue to be as relevant today.

Most studies that assess the impact of negotiation training are based on limited sample sizes and generalized descriptions, and focus on short-term rather than enduring effects of training (Roloff and others, 2003). Moreover, there seems to be some difficulty in defining 'effectiveness' in negotiation and deciding how this definition translates to measurable objectives in training (Coleman and Lim 2001). Finally, researchers agree that there is a shortage of reliable and valid assessment tools that can be administered before, during, and after negotiation training (Roloff and others, 2003).

Table 1.7 summarizes studies that, while not entirely free from the aforementioned limitations, provide plausible evidence that negotiation skills are teachable across a child's life cycle. Significant differences have been found between trained and untrained children in their knowledge and strategies for resolving conflicts in real life (Table 1.7). Compared to untrained students, trained ones had the capacity to apply negotiation strategies and procedures in practice to reduce conflicts and/or achieve negotiated outcomes (Nakkula and Nikitopoulos 2001; Johnson and others, 1994; Johnson and others, 1997; Sandy and Boardman, 2000; Stevahn and others, 2000). Trained children also had better educational outcomes, emotional control, and cooperation skills than their fellow students (Johnson and others, 1994; Sandy and Boardman, 2000). After these training programmes were completed, the number of conflicts in the schools that had participated decreased significantly, and students were less likely to demonstrate aggressiveness and socially withdrawn behaviours than before their training. These two outcomes bring us to think about the ways to effectively teach negotiation skills to students. Nadler and others (2003) compared and tested the effectiveness of four methods of teaching negotiation skills. The authors concluded that observational and analogical learning results in negotiated outcomes and is favoured by all parties. However, Nadler's work targets university students. Thus, when this learning method is adapted for a primary or secondary school, it is necessary to consider whether this method is suitable for younger learners.

Table 1.7. Successful interventions to boost negotiation skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Peaceful Kids Early Childhood Social-Emotional (ECSEL) Conflict Resolution Program	2–6 years old	US	Social, emotional, cognitive, conflict resolution	The conflict-resolution programme for children showed significant increases in assertiveness, cooperation, and self-control; and significant decreases in aggressiveness and socially withdrawn behaviour.	Domitrovich and others 2007
Conflict resolution training programme	5–7 years old	US	Integrative negotiation	Significant differences between trained and untrained children occurred in their knowledge and retention of the conflict resolution procedure and willingness and ability to use the procedure in conflict situation.	Domitrovich and others 2005
Conflict resolution training	6–12 years old	US	Negotiation, mediation	Peer mediation training programme. The results show that months after training, students seriously and carefully used the procedures they had been taught to resolve highly emotional and prolonged conflicts with fellow students. The training dramatically reduced number of conflicts referred to teachers and principal.	Shure 2001

Negotiating a Better Future	13–14 years old	Zambia	Negotiation, interpersonal communication	A training using simulation game on parents' education investment decisions. Results show that girls could better communicate with their parents, and their parents could invest more in them. Trained girls also had better educational outcomes over the next two years and were more likely to enroll in secondary school.	Domitrovich and others 2007
Program for Young Negotiators	10–15 years old	Argentina	Personal initiative, collaboration, communication, conflict-based perspective talking, conflict resolution approach	The training, which encouraged participants to think and act in a more complex way in diverse negotiation contexts, improved overall negotiation attitudes and behaviours. Large increases were recorded in the domains of conflict-based perspective talking and behavioural approaches to conflict resolution.	Domitrovich and others 2007
Conflict resolution training	10–15 years old	US	Conflict resolution, peer mediation. Training included integrative, negotiation, and perspective reversal procedures.	Strategies that students used to resolve their conflicts changed due to the training and enabled them to apply the negotiation procedures to actual conflicts.	Domitrovich and others 2005
Learning negotiation skills	18 years old and over	US	Negotiation	Study tested effectiveness of four methods of teaching negotiation skills: didactic learning, learning via information revelation, analogical learning, and observational learning. Study found that observational and analogical learning led to negotiated outcomes that were more favourable for all parties.	Shure 2001

5. Measuring skills for negotiation

Multiple curricula, exercises, and teaching methods exist to enhance negotiation skills. Many are tailored to the needs/competencies of specific groups, such as corporate employees, graduate law students, and pre-schoolers. Numerous tests involving "feedback from participants, indicators of goal achievement, assessment of skills utilization, and transfer of skills to different situations" to measure the effectiveness of negotiation skills training also have been created (Greene and Burleson 2003). Most tests confirm positive training outcomes of participants' increased knowledge of the steps of the negotiation process and their actual negotiation skills. Nevertheless, few measurement instruments have been systematized and standardized.

Table 1.8³² lists and summarizes two instruments that have established psychometric properties. Reflecting disagreements on the definition of 'negotiation', one of the instruments conceptually equate negotiation with conflict management. The other more accurately treat negotiation as one potential method of conflict management/resolution.

32. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lscemena.org.

Table 1.8. Shortlisted measurement instruments for negotiation skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Five-Factor Negotiation Scale	10–15 years	Argentina, Canada	Personal initiative, collaboration, communication, conflict-based perspective talking, conflict resolution approach	Scale assesses specifically the effectiveness of training model to improve youth negotiation and leadership skills. Scale measures five characteristics: Personal Initiative, Collaboration, Communication, Conflict-Based Perspective Talking, and Conflict Resolution Approach.
Thomas–Kilmann Conflict Mode Instrument (TKI)	13 years and over	US	Competing, collaborating, compromising, accommodating, avoiding	TKI measures preferences for five different styles of handling conflict, called conflict modes: Competing, Collaborating, Compromising, Accommodating, and Avoiding. The five modes are described through two dimensions: assertiveness, or the extent to which one tries to satisfy his or her own concerns; and cooperativeness, or the extent to which one tries to satisfy the concerns of another person.

DECISION MAKING

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of decision making

Decision making has been defined by scholars in the field as “the process of making choices among competing courses of action” (Beyth-Marom and others, 1991, 20). Normative decision-making theories analyse and decide the optimal decisions to have taken, given existing constraints. These theories highlight four cognitive processes as essential for rational decision making (Strough and others, 2015):

- Belief assessment for each option: Being able to judge in advance the likelihood of specific outcomes if this decision were chosen.
- Value assessment: Being able to judge in advance how well outcomes would meet one’s goals.
- Integration: Being able to combine beliefs and values in coherent decisions.
- Metacognition: Being able to understand the strengths and limits of one’s abilities.

Normative models of decision making then prescribe five steps to use the four cognitive processes to make a rational decision (Beyth-Marom and others, 1991; Fischhoff, 2008):

- Identify action alternatives
- Recognize consequences linked to each course of action
- Assess the probability of consequences
- Estimate the value or utility of each consequence
- Integrate values and probabilities to identify the most appropriate action.

Normative decision-making research in recent years has started to expand with several efforts to operationalize decision making for measurement purposes. One example is Bruine de Bruin and others (2007), who treat the decision-making skill as a multi-dimensional construct comprising seven internal components. These are (a) resistance to framing; (b) recognizing social norms; (c) under/over confidence; (d) applying decision rules; (e) consistency in risk perception; (f) resistance to sunk costs; and (g) path independence. Definitions of decision-making skills in adolescence and pre-adolescence offered by Parker and Fischhoff (2005) and Weller and others (2012), respectively, involve the same or similar internal components. These components are considered to capture the abilities of normatively rational decision-makers, that is, individuals who are able to resist cognitive biases and heuristic shortcuts (Geisler and Allwood, 2015).

Within the LSCE Framework, decision making is understood both as a process and as a composite cognitive skill. As a skill, it “closely interrelates with critical thinking, cooperation and negotiation” but also with self-management, which is “important to control impulsive reactions to a situation” (UNICEF and partners, 2017, 56). The process element of the LSCE definition demonstrates a recognition that decision making involves at least five stages: (a) defining objectives; (b) collecting information (for informed decision making); (c) developing options; (d) evaluating and deciding; and (e) implementing. Consequently, the definition of decision making provided within the LSCE Framework accords with the dominant conceptualizations offered in existing literature.



The unique element of the LSCE definition of decision making is the context of the MENA region. Thus, specifically the LSCE definition emphasizes overcoming biases in decision making, and ethical and responsible decision making, for example, “evaluating and choosing among alternatives in a manner consistent with ethical principles, safety concerns, and prevalent social norms and rules of civility in the region” (UNICEF and partners, 2017).

2. Relationship between skills for decision making and life outcomes

Decision-making skills are considered crucial to improve life outcomes across the life cycle. In a recent study, Bruine de Bruin and others (2007) found that adults who performed better on decision making in standardized tests were less likely to report negative life events indicative of poor decision making, including bad health, poverty, and risk behaviour. Using an adult sample, Parker and Fischhoff (2005) established an association between higher performance on standardized decision-making tests and more intact social environments, more constructive cognitive styles, and fewer maladaptive risk behaviours. Kose and Sencan (2016) found a statistically significant relationship between decision-making skills and managerial performance, highlighting the importance of decision-making skills for career development and work success.

Focusing on adolescents, Fischhoff (2008) showed that high-level decision-making skills correlated positively with low-risk families, families with higher social and economic status, and more positive peer environments. These results suggest that conventional norms regarding decision making are learned from parents, peers, and the young person’s local community. decision-making skills were found to correlate negatively with important risk behaviours (antisocial and externalizing behaviour, substance abuse, and hazardous sexual behaviour) as well as with social support (thought to reflect teen gang membership). In pre-adolescents (ages 10–11 years), Weller and others (2004) showed that higher decision-making skill was associated with lower reported behavioural difficulties and greater instances of prosocial behaviours at ages 12–13 years. Finally, Balovar (2014) confirmed the correlation between low-level decision-making skills and high-risk behaviour (substance abuse and risky sexual behaviour) in young adults (university students).

Other studies have investigated the link between decision-making styles and life outcomes. Using a sample of high school and university students, Bavolar and Orosova (2015) found that an intuitive decision making style is a protective factor for mental health. Baiocco and others (2009) found that, in adolescents aged 15–19 years, a rational decision-making style correlates positively with high school achievements. In contrast, a spontaneous and avoidant decision-making style correlates positively to the number of absences from school.

3. Development of skills for decision making in children and youth

Developmental psychologists argue that decision-making skills are closely associated with the development of cognitive capacities. These theorists hold that, relative to adults, young children are less competent decision-makers and unable to always act in their own best interests (Halpern-Felsher and Cauffman, 2010). However, considerable disagreement exists on the decision-making skills of adolescents and on how much they differ from those of adults. Studies comparing adolescents’ and adults’ decision-making skills across hypothetical dilemmas have produced mixed results. Halpern-Felsher and Cauffman (2010, 259) summarize them: “While some studies report no or few age differences (Ambuel and Rappaport 1992; Beyth-Marom and others, 1993; Scherer 1991), others suggest substantial age differences, with younger adolescents demonstrating less skill than older adolescents and/or adults (for example, Cauffman and Steiberg, 2000; Felsher and Cauffman, 2001).”

Arguably, adolescent decision making capacity varies by age group. By comprehensively reviewing the evidence on the development of decision making skill during adolescence, Mann and others, (1989) confirmed that the age of the adolescent is an important predictor of decision making skill. Specifically, they found that:

“...at age 15 adolescents exhibit high levels of skill in metacognitive understanding of decision making, creative problem solving, correctness of choice, and commitment to a course of action. However, young adolescents (12–14 years) are less able to create options, identify risks and benefits, foresee the consequences of alternatives, and gauge the credibility of information from sources with vested interests.” Mann and others 1989, 265

4. Actively improving skills for decision making

Initiatives have been found that provide evidence of an improvement in decision-making skills among children of all ages. Examples of these interventions can be found in Table 1.9. One such project is called ‘Children Decide: Power, Participation and Purpose in the Classroom’ (Cox and Robinson Pant, 2008; Table 1.9). The project was targeted at children between 1 and 6 years of age in six Norfolk (UK) primary schools to introduce more participatory and collaborative approaches to decision making in classrooms. The project aimed to give children space to reflect and to begin to see ways to initiate change and share decision making with their teachers (Cox and Robinson Pant, 2008). For the next age group up, seventh and eighth graders, in Ontario, Canada, a programme was developed that taught students to (a) summarize information, (b) identify criteria for decision making, (c) identify alternatives, (d) assess alternatives, and (e) conduct self-evaluation (Ross, 1981; Table 1.9). Impressively, the study showed that, after the programme, students improved in four of the five decision-making skills (Ross 1981).

Decision-making teaching and learning interventions also have been effective among groups of adolescents. For instance, in the Pacific Northwest (United States), a study of high school students showed that training in integrated decision making enhanced their academic performance (in history) while enhancing their overall ability to make sound decisions (Jacobson and others, 2012). These studies show that decision-making skills can be improved within academic environments to enable young people to face and make life-shaping decisions (for example, about their education, careers, and health behaviours). Nevertheless, despite this evidence, decision making rarely is taught in schools at any age (Jacobson and others, 2012).

However, the several decision-making curricula and training programmes mentioned above are not free from deficiencies (Ross 1981). Most important, few of the existing curricula and training courses have been evaluated with rigorous quantitative measures (Jacobson and others, 2012).

Table 1.9. Examples of successful interventions to boost decision-making skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Children Decide: Power, Participation and Purpose in the Primary Classroom	5–11 years old	UK	Expose children to more participatory and collaborative approaches to decision making in classrooms.	The program enabled more participatory approaches to decision making in the classroom. The results were that children were given the space to reflect on their situations and to begin to see ways of sharing decision-making with their teachers and initiate change.	Cox and Robinson Pant 2008
No official name. Study assessed the effectiveness of a training programme designed to enhance the decision-making skills of adolescents in Canadian high schools	11–13 years old	Canada	Identifying alternatives, identifying criteria, assessing alternatives, summarizing information, evaluating self	Evidence of positive effects of programme on four of five decision-making skills. Impact of programme on the “identifying criteria” skill was modest.	Ross 1981
Goals, Options, Facts, Effects, Review (GOFER) decision-making course	12 and 15 years old	Australia	Provide adolescents with an understanding of factors that produce good and poor decision making and knowledge and practice of sound decision skills.	Study 1 (young adolescents) found a significant difference between students trained in the course and a control group on measures of self-esteem as a decision-maker, self-reported decision habits, and knowledge of decision strategy. Study 2 (mid-adolescents) also found treatment-control differences in self-esteem and decision habits.	Mann and others 1988
No official name. Program integrated decision-making training in high school US history courses.	14–18 years old	US	Decision-making competence	Program improved students’ knowledge of history and decision-making competence. Integrating decision-making training enhanced academic performance and improved an important general life skill associated with improved life outcomes.	Jacobson and others 2012

5. Measuring skills for decision making

The review of the decision-making literature uncovered multiple instruments designed to (a) assess how individuals make decisions and (b) identify decision-making styles. Table 1.10 presents and briefly describes existing measurement tools with proven psychometric properties.³³ Unfortunately, none of the (identified) existing measurement instruments of decision making captured the social and ethical components of decision making referred to within the LSCE definition (Table 1.10). The research identified a serious gap in these two components in this field.

Table 1.10. Shortlisted measurement instruments for decision-making skills

Name of instrument	Age group	Target life skills	Brief description
Pre-adolescent Decision-Making Skill (PA-DMC)	10–11 years old	Applying decision rules	Scale was designed to measure decision skill in pre-adolescents and as a child-friendly version of the Y-DMC measure developed by Parker and Fischhoff (2005) and the Adult Decision-Making Skill (A-DMC) measure developed by Bruin de Bruin (2007). PA-DMC has five components: Resistance to Framing, under/overconfidence, applying decision rules, consistency in risk perception, and resistance to sunk costs.
Flinders Adolescent Decision-Making Questionnaire/ Adolescent Decision-Making Questionnaire	12 and 15 years old	Decision self-esteem, vigilance, panic, cop out, complacency	Flinders Adolescent measure was designed to assess how adolescents approach decision situations. It modifies Mann's (1982) original Decision-Making Questionnaire used in research on student and patient samples (Radford and others, 1986). It comprises 5 subscales (each with 6 items, totaling 30 items): Decision self-esteem, vigilance, panic, cop out, and complacency.
Youth Decision-Making Skill Scale (Y-DMS)	12 and 15 years old	Decision self-esteem	Y-DMC was designed to assess how well young individuals make decisions. It is a close relative of A-DMC. Y-DMC comprises 7 assorted tasks groups totaling 94 items: Consistency in risk perception; recognizing social norms; resistance to framing; resistance to sunk costs; applying decision-making rules; path independence; and under/over confidence.
Melbourne Decision-Making Questionnaire/ (formerly Flinders Decision-Making Questionnaire)	18 years old and over	Vigilance, hypervigilance, procrastination, buck passing	Melbourne Decision-Making Questionnaire was designed to assess how individuals approach decision situations. It was intended to improve Mann's (1982) Flinders Decision-Making Questionnaire. Melbourne distinguishes 4 approaches to decision making: <ul style="list-style-type: none"> • Vigilance involves a careful, unbiased, and thorough evaluation of alternatives and rational decision making. • Hypervigilance involves a hurried, anxious approach. • Procrastination involves delaying decisions. • Buck passing involves leaving decisions to others and avoiding responsibility.
General Decision-Making Style (GDMS)	18 years old and over	Decision-making style: rational, avoidant, dependent, intuitive, spontaneous	GDMS was designed to assess how individuals approach decision situations. It distinguishes 5 decision styles: <ul style="list-style-type: none"> • Rational style emphasizes "a thorough search for and logical evaluation of alternatives." • Avoidant style emphasizes postponing and avoiding decisions. • Dependent style emphasizes "a search for advice and direction from others." • Intuitive style emphasizes "a reliance on hunches and feelings." • Spontaneous style emphasizes "a sense of immediacy and a desire to get through the decision-making process as soon as possible."

33. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lsce-mena.org.

Proactive Decision-Making (PDM)	18 years old and over	Decision making	<p>The PDM scale was designed to assess proactive decision making. It has six conceptually distinct dimensions:</p> <ol style="list-style-type: none"> 1. Systematic identification of objectives 2. Systematic identification of alternatives 3. Systematic search for information 4. Using a decision radar 5. Taking initiative 6. Striving for improvement.
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SELF-MANAGEMENT

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of self-management

The LSCE Framework defines self-management as the ability to effectively regulate and monitor one's emotions, feelings, thoughts, impulses, and behaviours in different situations (UNICEF and partners, 2017). Self-management includes managing stress, controlling impulses, motivating oneself, and setting and working toward achieving personal and academic goals (CASEL, 2017). Self-management skills have wide application across different aspects of life from personal relationships at home to peer relationships at school. These skills also have been identified as common employability skills applicable to a range of jobs and having one's voice heard on decisions that affect one's life (Blades and others, 2012). The LSCE Framework does not define self-management in terms of obedience to power and authority. Rather, it is a skill that empowers the individual to manage her or his own emotions so that the individual can implement the most effective strategy to ensure personal safety while being enabled to create change (UNICEF and partners, 2017).

To successfully self-manage, individuals need to be proficient with processes that, given different contextual conditions, enable them to manage and improve their motivations. Self-monitoring, self-evaluating, and self-reinforcing are key processes that enable individuals to self-manage (Bandura 1991). Through such processes, individuals can develop strategies that enable them to read social norms and apply plausible tactics to achieve their goals over time and across changing environments (Erkoskun, 2016; Bandy and Moore, 2010; Bronson, 2000; Karoly, 1993).

2. Relationship between skills for self-management and life outcomes

Self-management life skills and their sub-constructs, such as self-control, can enhance individual, economic, and social returns on education investments (OECD, 2015; Kautz and others, 2014). Self-management predicts both short- and long-term life outcomes including social and emotional wellbeing, mental and physical health, educational achievement, economic wealth, and criminal behaviour (Duckworth and Seligman, 2005; Eisenberg and others, 2009; Moffitt and others, 2011; OECD, 2015; Tangney and others, 2004; Tremblay and others, 1995; Moffitt and others, 2011).

Self-management fosters strong academic performance and is a better predictor of, for example, academic success and school grades than is IQ, and of hours students spent on homework (Duckworth and Seligman, 2005). Students with high self-management skills consistently demonstrate greater educational achievement through better grades, higher scores on standardized tests, better school attendance, and stronger academic performance (Duckworth and others, 2012; Duckworth and Carlson, 2013; Duckworth and Seligman, 2005). In particular, the subconstructs of self-discipline and self-control are key contributors to academic achievement (Duckworth and others, 2012; Duckworth and Carlson, 2013; Duckworth and Seligman, 2005; Tangney and others, 2004; Zhou and others, 2010).

Self-management is an important skill for mental health and social and emotional development (Broderick and others, 2011; Seligman and others, 2009; Eacott and others, 2008; Kabat and others, 2003). Individuals with high self-management and self-regulation are argued to show healthier interpersonal and social relationships, secure methods of attachment, and optimal emotional responses to situations. The capacity to self-manage in childhood is linked to social and emotional ability, the alleviation of behavioural problems, and the ability to cope successfully with stress and frustration later in adolescence. High self-control in early childhood predicts better social functioning and a higher social status; it also relates to harmonious family relationships in adulthood. In contrast, individuals with low self-management are more prone to problematic attachment styles and to antisocial, aggressive, and delinquent behaviours in adolescence (Eisenberg and others, 2009; Moffitt and others, 2011; OECD, 2015; Tangney and others, 2004; Tremblay and others, 1995).



Self-management is tied in with economic prosperity and public safety (Moffitt and others, 2011). For an employee to succeed in a workplace, employer surveys highlight the importance of skills that extend beyond the academic, such as self-management, taking responsibility, and being conscientious, (Kautz and others, 2014). Furthermore, children with high self-control are more likely to experience successful careers and economic wealth in adulthood. Conversely, children with poor self-control are at a higher risk of experiencing future financial problems and money management difficulties due to, for instance, being less able to engage in saving or financial planning behaviours (Moffitt and others, 2011).

3. Development of skills for self-management in children and youth

Self-management is defined as an executive function that is argued by scholars to increase during early childhood development (Warhol and Shelov, 1998). It is argued that the capacity to self-regulate and effectively mold behaviour or emotional responses to situations is enabled by the brain's regulatory functions (Warhol and Shelov, 1998). Although immature at birth, the brain's region for executive function, the prefrontal cortex, develops slowly during early childhood until middle childhood. Thus, children become much more capable of self-management as they move from infancy into childhood and adolescence (Warhol and Shelov, 1998).

In early childhood, children act to satisfy only their immediate needs and start to learn to control aggressive responses (McCabe and others, 2004). During middle and late childhood, children become capable of inhibiting impulses and postponing rewards, in line with long-term goals (Warhol and Shelov, 1998). They start to better regulate emotional responses and develop attentional and behavioural control while coping with their environments. They also learn to delay engagement in tasks or gratification in expectation of future rewards (Posner and Rothbart, 2000; Raffaelli and others, 2005). As they enter adolescence, children learn to self-regulate and concentrate their efforts for longer periods, and they learn to make plans to meet long-term goals (Branson, 2000; Gliebe, 2011; Holtz and Lehman, 1995; Lemmon and Moore, 2007; Moilanen, 2007; Tarullo and others, 2009; Vaznonvi and others, 2010).

The malleability of children and youth self-management through education has been an important focus of interest for researchers and policymakers, particularly because empirical evidence for their malleability has increased during the last two decades (Cunha and Heckman, 2008; Cunha, Heckman, and Schennach, 2010). Individual differences in degrees of self-management can also be influenced by having certain disabilities such as attention deficit hyperactivity disorder (ADHD), certain psychological traits and learning from environmental factors (such as quality of relationships and home background/socioeconomic status and education) (Warhol and Shelov, 1998).

At the population level, there is a predictable developmental increase in the age trajectory for self-management. However, the inequality in the development of self-management skills can be reduced by providing the most enabling economic and psychosocial environmental factors for all individuals within a given population. Specifically, individuals' basic material needs (food, water, housing, electricity, safety) together with healthy relationships, access to healthcare and education, access to sports, and the presence of role models are necessary conditions to best promote and build self-management. These enabling conditions amplify the effects of interventions aimed at increasing self-management (Kautz and others, 2014).

4. Actively improving skills for self-management

Given their far-reaching impact on a wide range of life outcomes, there is a growing interest in assessing the effectiveness of interventions designed to teach self-management skills. These skills the ability to work toward long-term goals, self-discipline, perseverance in the face of difficulties, and the ability to focus on clearly aligned goals and objectives (OECD, 2013). Interventions using experimental design and control trials have found increased proficiency in self-management skill and positive life outcomes such as well-being (see Table 1.13). The empirical evidence is provided in Table 1.13 for the different sub-domains of self-management including stress regulation (Broderick and others, 2011), self-regulation (Kabat and others, 2003), emotional management (Eacott and others, 2008; Villiers and Berg, 2012; Greenberg and others, 1995) and self-control (Seligman and others, 2009). The learning outcome of self-management in these interventions was just one of many life skills that were developed along with improved proficiency in problem solving, empathy, and creative thinking (Greenberg and others, 1995). Across almost all the interventions cited here, improved mental health was a consistent life outcome of the self-management education programmes (in Table 1.13, see Broderick and others, 2011; Seligman and others, 2009; Eacott and others, 2008; Kabat and others, 2003).

Following successful pilot randomized controlled trials, countries around the world have infused their public education systems with skills-based training and curricula that include self-management skills (Adler, 2016). Embedding self-management in schools at the national level has yielded dividends in improved academic performance, more prosocial behaviours, better physical health, lower dropout rates, and enhanced life outcomes beyond the school years (Adler, 2016).

Table 1.13. Examples of successful interventions for self-management-related skills

Name of work	Age group	Geographic Location	Target life skills	Major findings	Authors
Penn Resiliency Program (PRP)	8–9 years old	Australia	Resilience, self-control, decision making, creativity, problem solving	Teaching students skills for happiness. The result shows that PRP increased resilience, reduced depression, reduced hopelessness, prevented anxiety, reduced behavioural problems.	Seligman and others, 2009
Best of Coping (BOC) + Coping for Success (CFS)	14–17 years old	Australia	Emotional management, self-management	Coping skills programme for children in danger of depression, increased emotional literacy and emotional management. Children at risk for psychological distress increased their use of productive coping strategies. A 12-month follow-up showed that these children continued to increase their reliance on positive coping mechanisms after the BOC and CFS programmes, showing sustained psychological well-being and self-management strategies and behaviours.	Eacott and others, 2008
Learning to Breathe	15–19 years old	US	Emotional management, stress regulation	Programme introduced mindfulness using videos and workbooks. Participants showed decreased frequency and intensity of negative emotions, increased indicators of self-acceptance, relaxation, and calmness.	Broderick and others, 2011
Mindfulness-based Stress Reduction (MBSR) and Mindfulness-based Cognitive Therapy (MBCT)	10–19 years old	US	Self-awareness, self-regulation, effective communication	School-based mindfulness programmes were introduced that integrated it into group sessions, home practice and formal curriculum. MBSR and MBCT significantly and sustainably reduce stress, increase emotional awareness and regulation, and enhance prosocial behavior.	Kabat and others, 2003
Resilience Program-South Africa	12–16 years old	Bloemfontein	Resilience, emotional management, communication, problem solving	Programme on coping with stress increased emotional regulation, self-control, and self-appraisal.	Villiers and Berg 2012
The Promoting Alternative Thinking Strategies (PATHS) Project	8–13 years old	US	Communication, empathy, emotional management, creative thinking, problem solving	Classroom discussions on topics like emotional experiences were introduced. Beneficiaries showed increased prosocial behaviours in managing reactions and emotions, in self-efficacy, and in empathy. They found new solutions to problems in their communities and their lives. PATHS participants decreased problematic behaviours.	Greenberg and others, 1995

34. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lscemena.org.

5. Measuring skills for self-management

To monitor and assess whether an intervention designed to increase self-management or any of its sub-domains is effective, it is necessary to operationalize and reliably measure both self-management and its sub-domains. Table 1.14 presents measurement instruments with the most rigorous psychometric properties for the self-management skill (see accompanying materials for details on each measurement instrument).³⁴

Table 1.14. Shortlisted measurement instruments for self-management skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Big Five Questionnaire - Children (BFQ-C)	7–14 years old	Bhutan, France, Greece, India, Italy, Kuwait, Mexico, Netherlands, Peru, Spain, US.	Openness to experience, conscientiousness, extraversion, agreeableness, neuroticism	Measures the well-validated “Big Five” personality traits in children and early adolescents: 1. Extraversion, 2. Agreeableness, 3. Conscientiousness, 4. Neuroticism, 5. Intellect (or Openness to Experience).
Child Self-Control Rating Scale (CSCRS)	10–14 years old	Australia, Canada, Turkey, UK, US.	Self-control	Self-report scale measures older children’s (10–14) ability, or lack of, to control self.
Adolescent Self-Regulatory Inventory (ASRI)	11–17 years old	Portugal, Taiwan, UK, US	Self-control/impulsivity	Questionnaire measures adolescents’ short- and long-term self-regulation.
Adolescent Coping Orientation for Problem Experiences (A-COPE)	11–18 years old	Australia, Canada, Finland, France, Japan, India, Italy, Philippines, Spain, Sweden, UK, US,	Stress management, coping skills/style	Inventory captures adolescent coping behaviours to respond to normal adolescent stress. Coping inventory identifies the behaviours adolescents find helpful in managing problems or difficult situations.
Impulsivity Teen Conflict Survey	12–15 years old	Canada, India, Iran, US.	Self-control/impulsivity	Questionnaire measures the frequency of adolescents’ impulsive behaviours: lack of self-control, difficulty sitting still, trouble finishing things.
Questionnaire on Self-Regulation	12–18 years old	Japan, Netherlands, Turkey, US.	Self-control/impulsivity, goal setting	Self-report questionnaire assesses children’s ability to regulate negative emotions and disruptive behaviour, and their capacity to set and attain goals.
Short Grit Scale (Grit-S)	13 years old and over	US	N/A	Eight-item, well-validated, and internationally used instrument measures self-control and perseverance, the two sub-domains of grit.
Casey Life Skills Assessment–Youth Form	14–21 years old	Australia, US, UK	Self-management, self-care	Self-report and observational instrument measures vulnerable adolescents for: self-management, daily living, self-care, relationships and communication, housing and money management, relationships and communication, career and education planning, and planning for the future.
Academic Diligence Task (ADT)	15–19 years old	Australia, Canada, UK, US	Self-control	Mirrors a real-world choice that students must confront when completing homework: the choice to remain engaged in tedious, but important assignments, and/or browse the Internet to play video games. Task consists of a split-screen interface with the choice to complete single-digit subtraction problems (“Do Work”) or play games (“Play Games”).
Self-Control and Self-Management Scale (SCMS)	17–22 years old	China, Turkey, US	Self-management, self-control	Adaptive self-regulatory coping skills instrument measures the three independent processes: self-monitoring, self-evaluating, and self-reinforcing.

RESILIENCE

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of resilience

Resilience has been conceptualized in many ways. What is broadly similar across the definitions is that they contain two parts: (a) the specification of a risk or a challenge to which an individual is subject and (b) a positive outcome that follows from exposure to this adversity (Alvord and Grados, 2005).

Available definitions of resilience also differ in important ways. Ahern and others, (2006, p. 105), for instance, distinguish among definitions that view resilience as 3 different types of constructs; (a) a set of traits (Jacelon, 1997); (b) a skill that can be learned (Olsson, Bond, Burns, Vella-Brodrick, and Sawer, 2003; Vinson, 2002); and (c) a process (Olsson and others, 2003).

Another distinction is between the individual-centred and the more ecological definitions of resilience. The former view resilience purely as an individual asset so focus on individual capacities. In this respect, resilience has been defined as “the capacity of the person to prevent, minimize, overcome, or thrive in spite of negative or challenging circumstances” (Wagnild and Young, 1993). By contrast, more ecological definitions view resilience not as a quality that individuals inherently possess (Pangallo and others, 2015), but a dynamic process that involves complex interactions between internal characteristics and external conditions (Rutter, 2006). Ungar (2008), for instance, defines resilience:

Resilience in the LSCE Framework is defined as “the constructive, personal ability, to navigate changing circumstances successfully” (UNICEF and partners, 2017). Thus, the definition of resilience in the LSCE Framework places greater emphasis on the individual than on the environment. The LSCE Framework goes further to position resilience as a skill that is developed from a learning process rather than as an inherent trait. Although the LSCE definition does not emphasize the environment, the definition does consider the social and political processes important. The LSCE definition of resilience moves beyond associating the construct merely with “the capacity to survive, or just accept, by resigning oneself to an otherwise unacceptable situation” (cited in UNICEF and partners, 2017). Rather, within the LSCE Framework, it is defined as, “being resilient translates for a human being into

being actively engaged in the process, and in full consciousness, and not being merely passive” and implies that “a person both struggles and copes with adversity, yet does it constructively” (UNICEF and partners, 2017).

Furthermore, the LSCE definition takes into consideration the highly politicized and conflict-prone environment of the MENA region. Accordingly, the LSCE definition argues that resilience “should be the umbrella term for the life skill” that enables addressing issues that threaten well-being “in a tenacious, systematic, active, and constructive way” and should “encompass the element of resistance against negative norms, views and behaviours” that “legitimize inequalities, hatred and the use of violence” (UNESCO, 2017 in UNICEF and partners, 2017).

To sum up, the contextualized conceptualization of resilience developed and used in the LSCE Framework takes into account “the adversity of the situation itself, the ‘coping’ mechanisms as processes, the psychological well-being of the person, as well as the long-term perspective and motivation to overcome the challenge” (UNICEF and partners, 2017).

2. Relationship between skills for resilience and life outcomes

Resilience has been associated with a broad range of life outcomes. Concerning employability outcomes, correlation studies on corporate employees and healthcare workers have shown that increased resilience is associated with enhanced psychosocial functioning and improved productivity in the workplace (Robertson et. al., 2015). Evidence also suggests that resilience can help build management skills and help employees deal with organizational change (Grant and others, 2009).



“in the context of exposure to significant adversity, whether psychological, environmental, or both, resilience is both [a] the capacity of individuals to navigate their way to health-sustaining resources, including opportunities to experience feelings of well-being, and [b] a condition of the individual’s family, community and culture to provide these health resources and experiences in a culturally meaningful way” (p. 225).

Resilience also has been associated with academic success within correlation-based research. De Boca (2010) and Rodríguez-Fernández and others, (2018) found a positive relationship between increased resilience and higher academic performance. Moreover, Catterall (1998) and Hartley (2010) confirmed a negative association between resilience and school dropout rates. For young people living through challenging circumstances and poverty (the empirical research was on young black children in South Africa), resilience skills have been found to mitigate some challenges and increase the chance of academic success (Dass-Brailsford, 2005). In difficult situations, low resilience levels also have been associated with low coping strategies and a more distressing experience in aggressive situations (Gates and others, 2016).

Concerning wider social outcomes, resilience also has been found to be associated with better mental health including less stress, psychiatric disorders, and substance abuse (Daining, 2007; Garnezy, 1991; Luthar and others, 2000; Masten and Coatsworth, 1998; Smith and Carson, 1997; Griffin et.al., 2003). A recent empirical study found that one reason that resilience is associated with better educational outcomes is that it increases well-being, and well-being enhances academic success (Rodríguez-Fernández and others, 2018).

3. Development of skills for resilience in children and youth

Research suggests that early childhood is crucial for the development of resilience as the latter is closely linked to the development of motor skills, language, self-confidence, play, and problem-solving abilities (Masten and Coatsworth, 1998). A growing body of literature argues that individual capacity to overcome adversity is determined primarily by a set of environmental factors. According to this view, resilience may vary during childhood and throughout the life cycle, depending on the availability of protective factors, such as positive school experiences (Rutter and Quinton, 1984; Werner and Smith, 1982); church membership (Ianni, 1989; Werner, 1990); and competent parenting figures (Long and Vaillant, 1984; Rutter, 1990; Miliotis, 1996). Benard (1995) summarizes these protective factors in three categories: (a) caring and supportive relationships, (b) positive and high expectations, and (c) opportunities for meaningful participation. Although protective factors do not necessarily yield resilience, they do “moderate the effects of individual vulnerabilities or environmental hazards so that the adaptational trajectory is more positive than...if the protective factor were not operational” (Masten and others, 1990, p. 426).

4. Actively improving skills for resilience

Resilience training is becoming increasingly popular in corporate and university settings. Nevertheless, few resilience-building curricula and training programmes have been developed for school-aged children and youth in the mainstream education system. Most resilience-strengthening interventions designed for children focus on vulnerable and at-risk individuals. Furthermore, according to some available definitions, resilience represents the interaction between risk factors and protective resources. However, interventions to improve resilience skills and support health, educational, and other positive outcomes in children, their families, and communities tend to focus more on the development of protective assets and resources and less on the amelioration of risk factors (Fergus and Zimmerman, 2005; Yates and others, 2003).

Table 1.15 lists studies of successful resilience-building interventions implemented at the individual or the family level (Zakolski and Bullock, 2012). These interventions give evidence of both adults and adolescents who benefited from resilience programmes. Adult resilience training can improve personal resilience (Table 1.15, Leadership Development Program, Grant and others, 2009; and Robertson and others, 2015; Review of 14 work-based resilience programmes).

As for young people, children who undertook the resilience programme demonstrated significantly lower levels of depressive symptomatology and hopelessness than their counterparts (Table 1.15, Resourceful Adolescent Program, Shochet and others, 2001; The Strengthening Families Program, Kumpfer, 1998; and The Life Skills Training Project, Griffin and others, 2003). Moreover, this training is particularly important for the youth at risk. The research found that high-risk children who had taken resilience training reported less smoking, drinking, inhalant use, and drug use than did untrained youth (Table 1.15, The Life Skills Training Project, Griffin and others, 2003). What is more, age has been argued as an important factor in improving young people’s resilience (Table 1.15, The International Resilience Project, Grotberg, 1995). For children under 6 years old, parents, teachers, and other adults’ behaviours significantly affect their resilience promotion. In contrast, children aged over 9 years do as much to promote their own resilience as adults do for them.

Table 1.15. Examples of successful interventions for resilience-related skills

Name of work	Age group	Geographic location	Target Life Examples of successful interventions	Major findings	Authors
The International Resilience Project	0–6 years old and 9–14 years old	Used internationally including Japan, Lithuania, Russia, South Africa	Resilience	Project sought to determine roles of parents, teachers, other adults, and children in promoting resilience in children. Findings indicate that adults promote more resilience than children, and that older children promote more resilience than younger children. Findings suggest that, for children 6 and under, resilience promotion depends more on the behaviour of parents and adults; whereas children 9 to 11 do as much to promote their own resilience as do adults.	Grotberg, 1995
The Strengthening Families Program (SFP) A family curriculum targeting children raised in multiple risk families	10–14 years old	US	Coping skills; self-esteem; feelings recognition	Program used behavioural parent training, family therapy, and family skills training. Multiple studies reported positive impacts on children and their families.	Kumpfer, 1998
The Life Skills Training Project (LST)	11–13 years old	US	Drug resistance skills, development of personal and social skills	School-based prevention programmes that taught a range of social skills. The result showed that youth at high risk who received the programme reported less smoking, drinking, inhalant use, and drug use.	Griffin and others, 2003
The Resourceful Adolescent Program (RAP); The Resourceful Adolescent Program–Family (RAP-F)	12–15 years old	Australia	Identifying strengths; controlling stress; developing social support networks; conducting interpersonal relationships	Adolescents in RAP reported: a. significantly lower levels of depressive symptomatology and hopelessness. b. high satisfaction with the programme.	Shochet and others, 2001
The Resilience Program	18 years old and over	US	Resilience capacity	Replacing stressful challenges with positive coping strategies offers a potentially powerful tool to build self-efficacy and cognitive control as well as greater self-awareness.	Delany and others, 2015
Review article of 14 work-based resilience interventions	30–50 years old	US	Resilience	Findings indicate that resilience training: a. can improve personal resilience b. is a useful means to develop mental health and subjective well-being in employees c. has wider benefits, including enhanced psychosocial functioning and improved performance.	Robertson and others, 2015

The Leadership Development Program	Age range not given. Mean age = 49.84 years old	Australia	Management; leadership capabilities	Individual resilience coaching, using a cognitive-behavioural approach enhanced goal attainment, increased resilience and workplace well-being, and reduced depression and stress. Coaching also helped participants increase self-confidence and personal insight, build management skills, and deal with organizational change	Grant and others, 2009
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5. Measuring skills for resilience

In recent years, the growing interest in resilience across disciplines has considerably expanded the resilience literature and the development of several instruments that claim to effectively operationalize the concept. Indeed, reliable and valid instruments are necessary to both measure resilience and to assess the effectiveness of interventions to build resilience skills. Following an extensive review of the resilience literature, a number of measurement tools were tested for appropriateness (some in a variety of contexts and age groups) and appeared to have sound psychometric properties.

Table 1.16 presents existing measurement instruments with the most rigorous psychometric properties for the life skill, resilience.³⁵

Table 1.16. Shortlisted measurement instruments for resilience skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Child and Youth Resilience Measure (CYRM-28)	9–23 years old	Used internationally, including the Gambia, India, Palestine, Russia, Tanzania.	Access to material resources, relationships, identity, power and control, cultural adherence, social justice, cohesion	Scale developed as a culturally and contextually relevant measure of child and youth resilience to facilitate cross-cultural comparison of resilience-related outcomes. Assesses seven domains of resilience: (1) Access to Material Resources, (2) Relationships, (3) Identity, (4) Power and Control, (5) Cultural Adherence, (6) Social Justice, (7) Cohesion.
Jew, Green and Kroger Measure of Resiliency in Children	12–17 years old	US	Future orientation, active skill acquisition, independence/ risk taking.	Instrument emphasizes 12 essential skills considered important to cope adequately with stressors. Scale comprises 35 items distributed among 3 factors: (1) Future Orientation, (2) Active Skill Acquisition, (3) Independence/Risk Taking.
Resilience Scale for Adolescents (READ)	13–15 years old	Italy, Norway	Personal competence, social competence, family cohesion, social resources, structured style	READ was developed by adapting the original Resilience Scale for Adolescents (RSA) items to measure resilience in adolescents. Scale comprises 39 items and has retained its internal structure and subcategories: (1) Personal Competence, (2) Social Competence, (3) Family Cohesion, (4) Social Resources, (5) Structured Style.

35. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lscemena.org.

Connor-Davidson Resilience Scale (CD-RISC)	18 years old and over	China, India, Iran, Korea, Spain, US	Resilience	CD-RISC scale considers resilience as a measure of stress-coping ability. Scale comprises 5 subscales (25 items in total): (a) Hardiness, (b) Developing strategy with a clear goal or aim, (c) Patience, (d) Ability to endure stress or pain, (e) Faith and belief in benevolent intervention ("good luck")
Brief Resilience Scale (BRS)	18 years old and over	US	Ability to bounce back or recover from stress	BRS focuses on the ability to bounce back and recover from stress. Scale comprises 6 items, some worded positively and some negatively.
Adolescent Resilience Scale (ARS)	18–22 years old and over	Japan	Resilience	d. ARS measures the psychological features of resilient youth. Designed for adolescents and young adults, the scale comprises 21 items in 3 dimensions: (1) Novelty seeking, (2) Emotional regulation, (3) Positive future orientation.
Resilience Scale (RS)	53–95 years old	Instrument used and validated in multiple country contexts (Poland, US) and multiple general and clinical samples (immigrant populations, mothers, adolescents, children).	Equanimity, perseverance, self-reliance, meaningfulness, existential aloneness	RS measures resilience as a positive personality characteristic that enhances individual adaptation. It comprises 25 items that measure (1) Equanimity, (2) Perseverance, (3) Self-Reliance, Meaningfulness, and (4) Existential Aloneness

COMMUNICATION

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of communication

The LSCE Framework defines communication as "the sharing of meaning through the exchange of information and common understanding"; and as requiring both verbal and nonverbal skills, and learning throughout life (UNICEF and partners, 2017 p. 76). This "understanding" accords with definitions provided in the well-developed communication literature, which long has recognized the importance of diverse attributes (speaking, reading, writing, and listening) within communication skills. Nevertheless, over the past decades, because of their broad content, communication skills have been the subject of considerable controversy. As Jablin and Sias (2001, cited in Greene and Burleson, 2003) put it, "there are almost as many definitions of communication skill as there are researchers interested in the construct" (p. 820).

Communication skills are considered a multi-dimensional construct that incorporates the knowledge, skills, attitudes, and values required to communicate. A highly influential and widely used model of the communication life skill identifies four subcomponents: linguistic competence (knowing and applying linguistic rules.); sociolinguistic competence (knowing how and when to apply social and cultural conventions); strategic competence (knowing how to implement effective verbal and nonverbal strategies when communication has broken down); and (applying language to the diversity and richness of cultural practices from political speeches to poetry) (Canale and Swain, 1980; Canale, 1983). A model developed to test communication skills divides the subcomponents of communication skills into two groups: organizational knowledge (formal knowledge) and pragmatic knowledge (everyday understanding and application in the real world) (Bachman and Palmer, 1996).



2. Relationship between skills for communication and life outcomes

Communication skills are associated with a broad range of life outcomes. A considerable body of literature identifies positive associations between communication skills and work (Grebennikov and Shah, 2008; Moorea and Morton, 2017). Employer surveys and interviews revealed that the majority of the employers regard written communication as one of the key skills required in a workplace (Moorea and Morton, 2017). Moreover, some studies even report a relationship between communication skills and supervisor perceptions of job performance (Scudder and Guinan, 1989).

A positive correlation between communication skills and educational outcomes also is repeatedly confirmed in the communication literature. Amadi and Paul (2017) investigated the impact of student-teacher communication on students' academic achievement by examining 580 undergraduates from the University of Port Harcourt Rivers State in Nigeria. The empirical results demonstrated a strong positive relationship between the quality of communication between the teacher and student and a student's academic performance (Amadi and Paul, 2017, p. 1102). Teacher-student communication was considered good when the student was active, respected, and in a learner-centred atmosphere. Good student-teacher communication enabled the learners to enjoy and experience high levels of freedom of thought in the classroom (Amadi and Paul, 2017).

3. Development of skills for communication in children and youth

The fact that communication skills are not an inherent trait but are malleable and can be developed throughout the life course is not usually questioned. Rather, questions are more likely to address how and when to facilitate the learning of communication skills. As would be imagined, communication skills begin from very young. Child psychologist and parent educator, Haim G. Ginott, pioneered techniques for conversing with children. According to Ginott, one of the best ways for parents to support children to develop communication skills is through a scaffolding and praising approach (Gottman and others, 1997). This approach involves "being affectionate, enthusiastic, engaged, and responsive to the child" (Gottman and others, 1997, p. 11). This technique also is useful for teachers to adopt with young learners. With appropriate support from adults, children's early experiences of speaking and writing form a solid foundation for literacy, a fundamental prerequisite for more advanced development of communication skills (Cabell, 2013).

As the child develops, the research suggests that it is necessary to increase the complexity of high-quality interactions between children and adults to further build communication skills. Children learn to use more words and communicate in a more complex manner when adults ask children questions; respond to their vocalizations and speech; use complex and rich vocabulary; provide children with more information about objects, emotions, or events; elicit conversations; and engage in other positive speech (Cabell, 2013).

Empirical evaluation research of specific communication teaching and learning programmes has demonstrated that young people at university are able to continue to improve their communication skills (Dallimore and others, 2008; Hinrichs, 1990; Tucker, 2001). The abundance of international and national lifelong learning and adult literacy policies and programmes provide applied evidence that it is possible to continue to learn and develop communication skills throughout one's life. Nevertheless, very limited rigorous research exists on communication skills development in the adult population and the effectiveness of life skill communication programmes on adults.

4. Actively improving skills for communication

Considerable literature promulgates the benefits of communication skills for a wide array of significant life outcomes. Understanding the benefits has motivated the development of numerous communications teaching curricula and training methods, targeting individuals across the life cycle. However, the effectiveness of these training methods has yet to be thoroughly tested. In general, evaluation research on learning communication skills is marred by important limitations, such as small sample sizes and the unsystematic use of validated measurement instruments.

Control trials and rigorously evaluated programmes oriented toward teaching communication skills have found significant positive influences of communication training on young adults' development of their communication skills (Table 1.17). Research on university students has demonstrated that active preparation, participation in class discussion, and small group work are associated with improved oral and written communication skills (Dallimore and others, 2008; Hinrichs, 1990). In a university sociology course, Hinrichs applied active learning of communication skills (writing, speaking, listening) including small-group exploratory discussions, summary of the discussion written in a memorandum format, and small-group discussion to check work for accuracy and completeness. This active, multifaceted approach was found to facilitate development of communication skills more effectively than conventional approaches. Other research at the university level highlighted the effectiveness of service learning on enhancing communication skills (Tucker, 2001). In fact, the service-learning method was found to be particularly useful for those with low communication skills (Tucker, 2001).

Table 1.17. Examples of successful interventions for communication-related skills

Name of work	Age group	Countries in Which Used or Validated	Target life skills	Major findings	Authors
Using discussion pedagogy to enhance oral and written communication skills	18 years old and over	US	Communication-based skills	Research project examines (MBA) students' reactions to in-class discussion as an instructional technique by investigating the effect of participatory practices on development of communication-based skills. Findings: Active preparation and participation in class discussion can be linked to students' reports of improved oral and written communication skills.	Dallimore and others, 2008
Teaching communication skills in context of introductory sociology	18 years old and over	US	Communication skills	Uses a pedagogy involving small group work designed to facilitate development of communication skills (writing, speaking, and listening) in an introductory sociology course. Results of study suggest that this pedagogy is more effective than conventional pedagogies in facilitating development of communication skills.	Hinrichs, 1990
Presentation self-efficacy: Increasing communication skills through service-learning	18 years old and over	US	Presentation self-efficacy	Research supports the implementation of service-learning to enhance and reinforce presentation efficacy for students above that achieved through typical course requirements. Service learning shows promise particularly to help students who have low presentation self-efficacy.	Tucker, 2001

5. Measuring skills for communication

Just as constituent definitions of communication skill have varied, so have measurable attributes. Four different types of measures have appeared in the literature: (a) objective observation, (b) subjective observation, (c) self-report, and (d) receiver-report (McCroskey and others, 1988, p. 109). Self-report scales traditionally have been the most popular and frequent in communication research.

Table 1.18³⁶ presents instruments that measure communication skill at different life cycle stages (from primary school to adulthood) and that exhibit acceptable psychometric properties.

36. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lscemena.org.

Table 1.18. Shortlisted measurement instruments for communication skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description	Authors
Parent report measure to profile conversational skills of pre-school children	12–36 months old	Canada	Responsive and assertive conversational skills	Scale developed for parents to profile the conversational skills of their toddlers and young pre-schoolers between 12–36 months who exhibit expressive skills. Scale items measure parental perceptions of two types of conversational interactions specifically designed (a) to respond to the partner, that is, answer questions and continue the topic of conversation; and (b) to assert, that is, request and initiate topics.	Dallimore and others, 2008
Communicative Adaptability Scale (CAS)	11 years old and over	US	Communicative adaptability	Measures the ability of persons 11 years and older to perceive socio-interpersonal relationships and to appropriately adapt their interaction goals and behaviours. Sophisticated multi-dimensional measure consists of six dimensions: (a) social experience, which assesses affect for, and participation in, varied social settings; (b) social confirmation, which taps maintenance of the other's projected social image; (c) social composure, which measures the degree to which an individual feels relaxed in social situations; (d) appropriate disclosure, which assesses sensitivity to the intimacy level of social exchanges; (e) articulation, which measures the appropriateness of an individual's syntax and semantics; and (f) wit, which taps the use of humor to diffuse social tension.	Hinrichs, 1990
Self-Perceived Communication Skill Scale (SPCC)	18 years and over	France, Russia, Thailand, US	Oral communication competence	Comprises 12 items chosen to measure self-perceptions of oral communication skill in (a) 4 communication contexts: public speaking, talking in a large meeting, talking in a small group, and talking in a dyad; with (b) 3 common types of receivers: strangers, acquaintances, and friends.	Dallimore and others, 2008
Interpersonal Communicative Competence Scale (ICCS)	18 years and over	US	Interaction management	ICCS scale measures verbal and nonverbal communicative abilities and use of compensatory strategies of students in grades 1–5. Assessment of a student's skills is conducted by teachers. Scale measures: Approach/avoidance attitude, Intelligibility, Clarification/repair of output/comprehension of input, Appropriateness of communication, Pragmatic/nonverbal communication.	Hinrichs, 1990

RESPECT FOR DIVERSITY

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS



1. Definition of respect for diversity

There is wide diversity of definitions of the concept of respect for diversity (Banks and others, 2005; Maylor, 2006; Saylik, Polatcan, and Saylik, 2016; Burns, Lyons, and Niens, 2017; Council of Europe, 2017). Most of these definitions are routed in a cosmopolitan belief that each individual born on our planet is a “moral agent entitled to equal dignity and consideration” (Held, 2010, p.10) and on the principles of international Human Rights. In the context of the LSCE Framework, the concept of respect for diversity is based on this moral philosophy that “diversity means understanding that each individual is unique, and recognizing each other’s individual differences” (UNICEF and partners, 2017).

The main difference between the existing definitions of respect for diversity are the social groups that are references; and whether this term refers mainly to ethnic and religious groups (Maylor, 2006) or is understood as broader to encompass the full range of social groups in a society, for example, including gender, disability, and socioeconomic status (Banks and others, 2005). The definition adopted as part of the LSCE Framework for respect for diversity is defined in this broader way and includes “race, ethnicity, gender, sexual orientation, socio-economic status, age, physical abilities, religious beliefs, political beliefs, or other characteristics” (UNICEF and partners, 2017).

The LSCE definition highlights that power dynamics among social groups often result from differential access to resources, social status, and norms within a society and that this gap must be addressed through action. Therefore, similar to the Council of Europe (2017) definition,³⁷ the LSCE concept contains an additional active element that emphasizes that individuals need to be more than passively tolerant, that individuals are expected to “promote the equal worth of peoples, without condescension” (UNICEF, 2007, cited in UNICEF and partners, 2017).

2. Relationship between skills for respect for diversity and life outcomes

Respect for diversity is as much a life outcome of learning as it is a skill. This section therefore explores research that assesses the durability of the effects of learning this skill. Evidence on the durability of skills learned regarding respect for diversity is scarce due largely to the length of time required to collect the data (Beelmann and Hienemann, 2014). Beelmann and others (2010) is a German study that at least follows up students 16 months after their education intervention. The researchers identified long-term effects of training to enhance tolerance of other ethnic groups. These effects were said to be even be greater than those found directly after the study.

A different avenue could be research that assesses the extent to which education interventions in childhood and/or adolescence on respect for diversity prevent hate crime and extremism in adults. This research again is haunted by the long data collection time and the need to rely on self-reported measures regarding intentions of future behaviour. Using self-reported evidence, an association has been found between education interventions on respect for diversity and reduction in future intentions toward extremism and hate crime behaviour.³⁸ There is currently little longitudinal data to test these relationships.

3. Development of skills for respect for diversity in children and youth

Existing research on skills for respect for diversity have been found to be malleable across the life span. Evidence suggests that the typical evolution in a youth from a majority background is that prejudice increases from 5 to 7 years old, then typically decreases from 8 to 10 years old as greater cognitive and social skills develop. Nonetheless, education interventions have been found to be effective across the life course. A systematic review of 32 studies conducted between 1980 and 2010 that assessed education interventions to reduce prejudice of young children under 8 identified that approximately 40 per cent of the interventions positively affected attitudes and improved peer relationships (Aboud and others, 2012). Although, this result demonstrates that training in the early years is challenging, the result also demonstrates that training can be effective for this age group. The magnitude of these effects appears to increase for children aged 8 to 10, suggesting that this age range is a useful time to attempt interventions (Beelmann and Hienemann, 2014). Tolerant attitudes are suggested to stabilize during early adulthood. Nevertheless, adult education has been found to have reduced discriminatory attitudes (Feinstein and Hammond, 2004).

The dominant theory of how respect for diversity is developed in young adolescents is the contact theory hypothesis. This theory suggests that the more contact that people in ‘in-groups’ have with different ‘out-groups’, the individuals in the in-group becomes less prejudiced and develops more favourable attitudes toward the out-group (Allport, 1979). This contact theory phenomenon is widely believed to take place when children meet different social groups in their school and in their classroom (Kokkonen and others, 2010; Janmaat, 2012).

37. The 2017 Council of Europe definition of ‘valuing cultural diversity’: “This value is based on the general belief that other cultural affiliations, cultural variability and diversity, and pluralism of perspectives, views and practices ought to be positively regarded, appreciated and cherished.”

38. In childhood and/or adolescence.

Contact theory has been tested for the development of tolerance toward different ethnic groups and migrant communities, and tolerant attitudes more broadly in school classes across Western countries, with mixed and more complex results (Janmaat, 2014). The findings suggest that, in a wide range of countries, it is contact with second generation migrant groups who are settled and integrated in the country that helps in-group students to develop more generally tolerant attitudes to ethnic diversity (Janmaat, 2014). Increased contact with first generation migrants in schools has different results in different countries and does not always appear to lead to higher levels of tolerance (for IEA ICCS and CivEd studies, see Janmaat, 2012 and 2014 and Isac, Maslowski, and Verf, 2012; for the College Student Questionnaire see Barkley, Boone, and Holloway, 2005; and for the Cultural Intelligence Instrument see Ang, Van, and Koh, 2006).

4. Actively improving skills for respect for diversity

Although a range of teaching practices in both formal and non-formal education exists to develop respect for diversity, few examples of experimental design research have been undertaken in this field to identify the causal relationship between teaching methods and respect for diversity learning outcomes. The instruments discussed in this chapter are used mainly in cross-sectional international studies rather than developed and used within nationally based experimental design studies. Nevertheless, three education studies have been identified that have used experimental design methodology with control groups that demonstrated increases in aspects of respect for diversity.

The first of the successful experimental design projects conducted with language students in secondary education used a critical thinking game that focused on rational appraisals of ethnic and religious prejudices to reduce prejudice (Obiekezie and Timothy, 2011). Finally, there were two university studies: one that tested taking a Psychology in Current Events course (Krings and others, 2015); and another that tested undertaking an Education and Social Justice course (Camp and Baugh, 2016). Both these university courses successfully aimed at developing critical thinking and engaging young people in political and social issues. The results demonstrated increased levels of multicultural sensitivity and activism (Table 1.19).

A wide range of cross-sectional studies have supported the effectiveness of real-life interventions through exchange programs and natural experiments where participants from 'in-groups' are exposed to 'out groups' in schools and classrooms. The following conditions are said to facilitate or enable these benefits: equal status of the groups engaging in the contact, common goals, intergroup cooperation, and institutional support and monitoring (Schlueter and Scheepers, 2010). More recent research has also identified how self-disclosure leading to friendship between participants in different social groups increases the likelihood of reducing both conscious and unconscious bias and stereotyping of 'out groups' (Turner and others 2007).

Table 1.19. Successful interventions to boost respect for diversity-related skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
ECEP effects were generalized to other ethnic groups not part of the study.	11 years old and over	US	Communicative adaptability	Measures the ability of persons 11 years and older to perceive socio-interpersonal relationships and to appropriately adapt their interaction goals and behaviours. Sophisticated multi-dimensional measure consists of six dimensions: (a) social experience, which assesses affect for, and participation in, varied social settings; (b) social confirmation, which taps maintenance of the other's projected social image; (c) social composure, which measures the degree to which an individual feels relaxed in social situations; (d) appropriate disclosure, which assesses sensitivity to the intimacy level of social exchanges; (e) articulation, which measures the appropriateness of an individual's syntax and semantics; and (f) wit, which taps the use of humor to diffuse social tension.	Hinrichs, 1990

Despite the serious and ongoing conflicts, ECEP retained its significant effect 15 months after the programme.	Berger and others, 2016, p. 53	France, Russia, Thailand, US	Oral communication competence	Comprises 12 items chosen to measure self-perceptions of oral communication skill in (a) 4 communication contexts: public speaking, talking in a large meeting, talking in a small group, and talking in a dyad; with (b) 3 common types of receivers: strangers, acquaintances, and friends.	Dallimore and others, 2008
Fostering Ethnic and Religious Harmony through Classroom Language Experience	12–15 years old	Nigeria	Ethnic and religious prejudice	Classroom-based critical thinking game that targeted rational appraisals of ethnic and religious prejudices. The result showed that classroom language experiences could lead to positive changes in ethnic and religious prejudices.	Obiekezie and Timothy, 2011
The Comparative Impacts of Social Justice Education-al Methods on Political Participation, Civic Engagement, and Multicultural Activism	18–21 years old	US	Multi-cultural activism	Participation in social justice education courses is related to increases in political participation and multicultural activism.	Krings and others, 2015
Encouraging Civic Knowledge and Engagement: Exploring Current Events through a Psychological Lens	18–21 years old	US	Multi-cultural sensitivity	Psychology module on current affairs designed in a way to encourage students' discussion. The result showed that students significantly increased their civic engagement, civic knowledge, multicultural sensitivity, and applied thinking skills; and their skills to consider alternative viewpoints, appreciate diversity, monitor current events, and think critically.	Camp and Baugh, 2016

Additional evidence from cross sectional studies also show that there is also evidence for an indirect link of learning on respect for diversity through civic knowledge learnt in citizenship education classes (Galston, 2001; Delli and others, 1996) and educational attainment more generally has also been associated with increased levels of tolerance (Nie and others, 1996).

5. Measuring skills for respect for diversity

The different operational components or attributes of the skill, respect for diversity, from the UNICEF definition for the LSCE measurement instrument were defined within the initial research for the new LSCE instrument as respect for equality; tolerance; recognition for how diverse identities and other factors influence the ability to live together; managing, negotiating, and resolving conflict non-violently; engaging critically with and deconstructing stereotypes of social groups; and caring about and actively promoting the values of respect for diversity. The instruments that have been reviewed at least partially measure the majority of the aspects identified in the UNICEF definition of respect for diversity developed for this initiative (Table 1.20). The measures selected in Table 1.20 have acceptable levels of reliability and validity for social science research. The main limitation of these instruments is that the target age group for these studies typically tends to be older students. Other limitations are the self-reported nature of the cognitive scales that are open for public use, lack of prior use of many of the scales in the MENA region, and lack of use of these items within longitudinal and experimental design research that could prove causality.

Table 1.20. Shortlisted measurement instruments for skills for respect for diversity³⁹

Name of instrument	Age group	Geographic location	Target life skills	Brief description
International Association for the Evaluation of Educational Achievement (IEA) International Citizenship and Civic Education Studies (ICCS)	14 years old	International including Poland, Spain, Sweden, UK	Gender equality, attitudes toward immigrants	IEA ICCS (2009 and 2016) are the most recent IEA data collections on Citizenship for students. These studies investigate the ways in which young people learn to play active roles as citizens at the local, national, and global levels.
Accept-Pluralism Tolerance Indicators Toolkit	14–17 years old	International including Denmark, France, Germany, Netherlands, Sweden, UK	Presentation of self and interaction in school, curriculum and pedagogy, structure of the education system	During 2010–12, in 16 European countries, the ACCEPT PLURALISM project investigated different claims for the accommodation of ethnic, religious, and cultural diversity in school life and in politics. The toolkit particularly investigates two areas of public policy: a. education and, more specifically, challenges that arise in school life; b. politics and related issues.
World Values Survey (WVS)	18 years old and over	International including Spain, Sweden, UK, US	Religious diversity, gender equality, general diversity/ attitudes toward diversity	WVS is a global research project that explores people's values and beliefs; how they change over time; and what social and political impact they have. Survey is carried out by a worldwide network of social scientists who, since 1981, have conducted representative national surveys in almost 100 countries. WVS measures, monitors, and analyses: support for democracy; tolerance of foreigners and ethnic minorities; support for gender equality; role of religion and changing levels of religiosity; impact of globalization; attitudes toward the environment, work, family, politics, national identity, culture, diversity, insecurity; and subjective well-being.

39. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lscemena.org.

EMPATHY

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of empathy

Defining and measuring empathy has been a contested field of science among psychoanalysts (Freud, 1921; Reik, 1948; Kohut, 1959), humanistic therapists (Rogers, 1957), psychologist (Davis, 1983), social and developmental psychologists (Batson, 1987; Hoffman, 2000), and, more recently, social-cognitive neuroscientists (Rameson and Lieberman, 2009; Decety and Moriguchi, 2007).

Although definitions vary among these disciplines, the basic components have similarities. Definitions of 'empathy' usually contain a cognitive component of understanding the feelings of another by imagining his/her perspective and situation. The definitions also contain an affective dimension in which individuals can reproduce these feeling in themselves and simultaneously realize that these feeling are not their own. As a result of these internal processes, individuals are able to sympathize and to act to support the other person. Finally, and in order to help the other person it is necessary to have emotional control so that the individual can help but not become overwhelmed by the feelings of the other.

Social-cognitive neuroscience has developed this composite definition of empathy into a framework for assessment and separated them into four measurable constructs (Decety and Moriguchi, 2007). The framework comprises (a) affective sharing, in which an individual can feel and reflect the emotions of another person by observing them, for example, by becoming sad when another person is upset; (b) self-awareness, in which an individual is able to separate the emotions of the other from her/his own situation; (c) mental flexibility and perspective taking: a cognitive process in which a person is able to learn about another's situation and to imagine what it would be like to be in that situation; and (d) emotional regulation: the ability to turn down the volume on emotions to be able to take constructive and compassionate action. These measurable constructs have been taken forward and were used in the LSCE instrument field trial.

Recently, empathy increasingly has been understood to be one of the core underlying elements of another life skill in the LSCE Framework: respect for diversity (Council of Europe, 2016). From this lens, empathy is seen as fundamental to understanding other cultures and world views (Wang and others, 2003). Thus, an individual with empathy can "...see the world through another's eyes, hear as they might hear, and feel and experience their internal world..." (Ivey and others, 1993). OECD (2017) identified that culturally empathic learners have the capacity to retain their separate cultural identities while being simultaneously aware of the cultural values and beliefs of people with different cultural backgrounds. Empathy is said to minimize the psychological barriers caused by cultural differences and is "essential to help people to build good relationships and achieve smooth communication" (OECD, 2017, 14).

In the LSCE Framework, use Salovey and Mayer's (1990) definition of empathy: "...the ability to comprehend another's feelings and to re-experience them oneself." Importantly, UNICEF and partners (2017) complete the definition by adding that the concept of empathy is without moral judgment of the other person.

2. Relationship between skills for empathy and life outcomes

Empathy has been described as a prosocial skill that forms the foundations of socially cohesive societies (de Waal and others, 2008). Higher levels of empathy of students aged 12–16 have been found to lead to greater levels of openness to diversity in emerging adulthood (Gerson and Neilson 2014). Analysis of German and Swiss longitudinal data across 35 years demonstrated a significant correlation between empathetic skills measured at ages 12–16 with adult empathy, communication skills, social integration, and relationship satisfaction 35 years later (Steiger, 2014). Additionally, research suggests that having empathy increases the chance of altruistic and adult helping behaviour (Eisenberg and others, 1999; de Waal 2008 and others) and more cooperative and socially competent behaviour (Eisenberg and Miller, 1987; Saliquist and others, 2009; Zhou and others, 2002).

Proficiency in empathetic skills is found to reduce levels of violence. Rigorous research methods consistently have shown low levels of empathy to be associated with higher chances of violent behaviour (see Gates and others, 2016). Evidence also shows that low empathetic skills are associated with higher chances of entering gangs (Dmitrieva and others, 2014; Valdez and others, 2000), violent crime (Deschenes and Ebsensen, 1999), and higher chances of violence toward partners (Calvete and others, 2016) (Van and Dawes, 2007).



3. Development of skills for empathy in children and youth

Empathetic skills are understood to start developing in early childhood through the interaction with parents (OECD 2017). Hoffman describes learning skills for empathy as progressing along a developmental continuum: "...infants mimic emotion through physical mirroring, with virtually no cognitive processing. Later, they gradually develop the ability to take on other roles and imagine the feelings of others" (1984, 285). If the initial development process is normal and successful, Hoffman states that the 'cognitive processing' facet of empathy eventually emerges.

How the skills for empathy changes, if at all, beyond the early stages of child development is contested. Nevertheless, the latest research that analyses and compares changes in empathy throughout the life course (ages 13–72) and across six different longitudinal datasets demonstrates that empathy increases steadily throughout the life span but accelerates after age 40 (Oh and others, 2019). The study by Oh and others (2019) also indicates that younger generations demonstrate higher levels of empathy than do earlier generations, suggesting that younger generations are becoming more empathetic.

Although contested, empathy is understood by educational scholars to be an ability that can be learned through educational programmes in schools (Wang and others, 2003). Various educational programmes developed to enhance empathy focus on (a) training interpersonal perception and empathetic responses, (b) focusing on understanding one's own feelings and then (c) training on the similarities and differences between one's own feelings and another (Castillo and others, 2013; Cotton, 1996).

4. Actively improving skills for empathy

Prosocial behaviour intervention and education strategies are quite widely developed and studied (LoSciuto and others, 1999). However, these concepts usually are much broader than the concept of empathy. Nevertheless, a smaller and more specific set of studies has focused on social and educational interventions that could enhance empathy (Table 1.21). One of the most interesting relative to the LSCE Framework is an educational intervention and experimental research conducted for 1 hour per week on a two-year emotional intelligence programme in Spain for 600 students aged 11–17. This research measured empathy using the Interpersonal Reactivity Index (IRI) (Castillo and others, 2013; Table 1.21). The training involved a variety of activities that (a) improved the accuracy of perceiving one's own and others' emotions; (b) improved effective emotional communication and understanding of emotional processes, and (c) built the students' repertoire of effective regulatory strategies, and (d) encouraged optimal social interactions. The interventions significantly improved the empathy of male students.

A MENA region education intervention that took place in Iran was the study that explored the effects of a cognitive reading course using literary texts on improving empathy, emotional intelligence, and anxiety about foreign language learning. Using the Multi-Dimensional Emotional Empathy Scale (MDEES) empathy test on a sample of 70 English-as-a-foreign-language (EFL) students, the results showed that the cognitive affective reading-based course significantly improved empathy scores (Table 1.21).

A wide array of education interventions has been implemented to attempt to increase empathy. A recent and innovative education intervention has been the training that accompanies the commercial Crystals of Kaydor video game. This training significantly improved empathic accuracy in children aged 11–14 years (Kral and others, 2018). Participatory interventions such as volunteering and community service programmes also positively affected empathy in the US (Lakin and Mahoney 2006) (Table 1.21). Studies are underway to test the extent that dance elements, such as interactional movement, imitation, synchronous movement, and motoric cooperation can develop empathy (Behrends and others, 2012).

In contrast to the above studies, the Roots of Empathy intervention (Table 1) was less favourable. The nine-month programme introduced across North America had a child and parent visit the school class regularly as the basis for teaching the students about empathy (Schonert-Reichl and others, 2012). The results showed significant effects on prosocial behaviour and reductions in aggression more generally but had no significant effect on the specific measures of empathy highlighting the challenges in teaching this skill.

Table 1.21. Examples of successful interventions for empathy-related skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Two-Year Evaluation of the Wood Rock Youth Development Project	6–14 years old	US	Empathy	Risk-focused approach that not only explores facts about dangers but also covers individual's psychosocial well-being, school environment and family relations. The result showed that participants made improvements in perceptions of others. Participants self-reported reductions in substance use and increased school attendance.	LoSciuto and others 1999
Promoting Children's Prosocial Behaviors in School: Impact of the "Roots of Empathy" Program on the Social and Emotional Competence of School-Aged Children	9–12 years old	Canada	Empathy	Social and emotional learning programme that used monthly family visits as the basis for classroom discussions. The result showed that doing the program increased levels of peer and teacher reports of pro-social behaviour. Nevertheless, no significant results were found for the measure of empathy.	Schonert-Reichl and others 2012
Empowering Youth to Change Their World: Identifying Key Components of a Community Service Program to Promote Positive Development	10–13 years old	US	Empathy	The community service learning programme using school-based activities was experienced as both empowering (guided by student initiative, preferences, and strengths) and promoting a sense of community (encouraged cooperation and collective decision making). Results also suggest that participating in the community service programme increased youths' self-reported empathy and willingness to be involved in future community actions, compared to a group of matched controls.	Lakin and Mahoney 2006
Crystals of Kaydor (Crystals): Online Empathy Training Game	11–14 years old	US	Empathic concern	The Crystals training game increased empathic accuracy. It created behaviourally relevant, functional neural changes.	Kral and others 2018
Effects of an Emotional Intelligence Intervention on Aggression and Empathy among Adolescents	11–17 years old	Spain	Empathy	An Emotional Intelligence (EI) training using emotion-focused activities. The result shows that students in the training group demonstrated lower levels of physical/verbal aggression, anger, hostility, personal distress and fantasy in comparison with students in the control group. Additionally, the EI programme was particularly effective for males' empathic abilities. These findings confirm that social and emotional learning interventions were effective in a Spanish academic context and extends the literature of gender-related differences during adolescence.	Castillo and others 2013

Mentoring Factor Evaluation of the across Ages' Intergenerational Approach to Drug Abuse Prevention.	11 years old and 55 years old and over	US	Empathy	The programme used older adults as mentors for youth, providing students community-service activities and classroom-based, life-skills curriculum, and offered support for parents and families. The result shows that student participants demonstrated increased sense of well-being, knowledge about elders, attitudes toward drugs, and positive attitudes regarding community service. Positive attitudes toward school and the future also increased. It also was found to support adults (55 years and older) to maintain active roles in their local communities.	Taylor, A.S. 1999
An Investigation into Emotional Intelligence, Foreign Language Anxiety and Empathy through a Cognitive-Affective Course in an EFL Context	18–27 years old	Iran	Empathy	A cognitive-affective reading-based course using short literary readings. The result showed the course significantly improved subjects' emotional intelligence scores, as measured by MSCEIT (Mayer, Salovey and Caruso's Emotional Intelligence Test); and empathy, as scored on Multi-Dimensional Emotional Empathy Scale (MDEES).	Rouhani 2008
Moving in and out of Synchrony: A Concept for a New Intervention Fostering Empathy through Interactional Movement and Dance	N/A	N/A	Empathy	Dance and movement therapy. Presented body of literature indicated that specific elements of joint movement and dance, namely, imitation, synchronous movement, and motoric cooperation were suitable to foster empathic abilities, particularly in people with empathy deficits.	Behrends and others 2012

5. Measuring skills for empathy

Table 1.22 lists the highest quality instruments for measuring the skill empathy.⁴⁰ The instruments that were reviewed for this list measure, at least partially, most of the aspects identified in the UNICEF definition of empathy. Generally speaking, the measurement tools that follow consistently have been used and adapted in previous and current studies on measuring empathy. Many of these tools have been validated across different countries, including in the MENA region, suggesting their potential use for collecting cross-national data. The Multi-Dimensional Emotional Empathy Scale (MDEES) is useful because it provides strong evidence of their reliability and validity. MDEES has been used extensively including in the MENA region. It targets young people and is relatively cheaply administered. The Index of Empathy for Children and Adolescents (IECA), Computer Attitude Questionnaire (CAQ), Questionnaire Measure of Emotional Empathy (QMEE), and the Basic Empathy Scale (BES) have many of the same qualities as MDEES. However, to the authors' knowledge, these measurement tools have yet to be tested in the MENA region. The recent Adolescent Measure of Empathy and Sympathy Scale (AMES) has had limited international use including no evidence of testing in MENA. The Balanced Emotional Empathy Scale (BEES) was developed for adults so is unlikely to be age appropriate for MENA. Finally, the Scale of Ethnocultural Empathy (SEE) was developed for university students, who are older than the age groups who will be tested in the LSCE study.

40. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lsce-mena.org.

Table 1.22. Shortlisted measurement instruments for empathy skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Index of Empathy for Children and Adolescents (IECA/Bryant's Empathy Index)	6 years old and over	This test has been used internationally, including in Greece, the Netherlands, and Spain.	Affective empathy	IECA includes 22 self-report questions. Index was developed and validated by Bryant (1982) to measure dispositional affective empathy in children 6 years and older. Derived from Mehrabian and Epstein's (1972) adult measure of emotional empathy, IECA was designed to measure emotional responsiveness rather than accuracy of cognitive insight. The scale covers items that tap a range of affective reactions, such as empathy ("Seeing a (boy/girl) who is crying makes me feel like crying"), sympathy ("It makes me sad to see a (boy/girl) who can't find anyone to play with"), and personal distress ("I get upset when I see a (boy/girl) being hurt").
Computer Attitude Questionnaire (CAQ)	9–17 years old	US	Empathy	CAQ assesses attitudes (feelings toward a person, or thing) and prevailing attitudes (dispositions).
<ul style="list-style-type: none"> • 85-item, 5-point Likert-type self-report questionnaire to use with students in grades 6–12. CAQ includes YCCI 7 separate subscales (Computer Importance, Computer Enjoyment, Study Habits, Empathy, Motivation/Persistence, Creative Tendencies, and School) plus subscales for Anxiety and Email Use. CAQ also includes three paired-comparison sets. 	10–13 years old	US	Empathy	Program was experienced as both empowering (guided by student initiative, preferences, and strengths) and promoting a sense of community (encouraged cooperation and collective decision making). Results also suggest that participating in the community service programme increased youths' self-reported empathy and willingness to be involved in future community actions, compared to a group of matched controls.
<ul style="list-style-type: none"> • CAQ Subscales can be used separate from the instrument. 	11–14 years old	US	Empathic concern	Crystals training game increased empathic accuracy. It created behaviourally relevant, functional neural changes.
Adolescent Measure of Empathy and Sympathy (AMES)	10–15 years old	The Netherlands	Empathy	AMES is a 12-item measure using a 5-point Likert scale. AMES measures three domains: affective empathy, cognitive empathy, and sympathy.
Multidimensional Emotional Empathy Scale (MDEES)	11–70 years old	Iran	Empathy	MDEES comprises six subscales: Empathic Suffering, Positive Sharing, Responsive Crying, Emotional Attention, Feeling for Others, and Emotional Contagion. The total scale score is obtained by summing across all the items although six negatively worded items are reverse scored. Reverse-worded items may measure a rather different construct (Boyle and others 2008).

Interpersonal Reactive Scale (IRI)	12 years old and over	IRI has been used internationally, including in France, the Netherlands, and Sweden.	Perspective taking, fantasy, empathic concern, personal distress	IRI has 4 subscales (David 1983), each covering 7 different items. Subscales are: Perspective Taking– tendency to spontaneously adopt the psychological point of view of others; Fantasy–taps respondent's tendency to transpose self imaginatively into the feelings and actions of fictitious characters in books, movies, and plays; Empathic Concern–assesses "other-oriented" feelings of sympathy and concern for unfortunate others; Personal Distress– measures "self-oriented" feelings of personal anxiety and unease in tense interpersonal settings.
Basic Empathy Scale (BES)	14–15 years old	England	Empathy	BES measures empathy for four basic emotions: fear, sadness, anger, and happiness. The measurements correlate more generally with cognitive and affective empathy.
Hogan Empathy Scale (HES)	18 years old and over	HES has been used internationally, including in the Netherlands, Spain.	N/A	HES is a 64-item scale composed of 31 items selected from the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway and McKinley 1943), 25 items from the California Psychological Inventory (CPI; Gough 1964), and 8 items created by Hogan and colleagues.
Questionnaire Measure of Emotional Empathy (QMEE)	18 years old and over	QMEE has been used internationally, including in Finland, Japan.	Affective empathy	QMEE has 33 items that measure affective role-taking empathy. QMEE measures emotional empathy.
Scale of Ethnocultural Empathy (SEE)	18–30 years old	SEE has been used internationally, including in Turkey and US.	Empathy	SEE is a self-report instrument that measures empathy toward people of racial and ethnic backgrounds different from one's own. It covers 4 domains: Empathic Feeling and Expression, Empathic Perspective-Taking, Acceptance of Cultural Differences, and Empathic Awareness. This scale was correlated in the predicted directions with general empathy and values towards people's similarities and differences.

PARTICIPATION

CONCEPTUALIZATIONS, IMPORTANCE, MEASUREMENT INSTRUMENTS, AND EFFECTIVE INTERVENTIONS

1. Definition of participation

Participation is a very broad and contested concept. It could include notions as varied as active citizenship, defined as engagement in civil society, community, and political life (Hoskins, and Mascherini, 2009), and participatory learning (UNICEF and partners, 2017) and could stretch as far as participation in sport (Feigin, 1994). Within the LSCE Framework, participation has been defined less in terms of the location of the participation and more in terms of the process (UNICEF and partners, 2017). UNICEF and partners define participation as "partaking in, and influencing, processes, decisions and activities" (UNICEF and partners, 2017, p. 68, adapted from UNICEF, 2001). UNICEF and partners (2017) suggest that this behaviour



requires positive attitudes, disposition, and interests in participation along with a clear belief that one can make a difference. The transversal skills needed were said to be communication and negotiation. Building from Hoskins, and Mascherini (2009) and Borgonovi and others (2010), the LSCE definition highlights the importance of the quality of the participation. LSCE's definition also acknowledges the need for participation to be anchored in the values of human rights and based on knowledge and critical reflection (UNICEF and partners, 2017).

Participation is elaborated by UNICEF and partners (2017) to be a social behaviour embedded in diverse social environments such as the family, school, work, community, and society. Opportunities for young people to participate are argued to form part of a useful active empowerment strategy within the decision-making processes of these social environments allowing children and young people to have a sense of ownership and control (UNICEF and partners, 2017). Thus, the opportunities for participation are a component of participation equally as important as the proficiency of the student to engage and influence decisions. In particular, the definition in the LSCE Framework (UNICEF and partners, 2017) highlights the need for schools to "allow children to have a say in their education, and requires teachers and head teachers to listen to them and involve them as much as possible in school life" (UNICEF and partners, 2017, p. 26). As a consequence of the importance of the process within the LSCE definition of participation, it will be necessary within the measurement instrument to contain both measures for opportunities for participatory processes as well participatory learning outcomes.

2. Relationship between skills for participation and life outcomes

Participation is both a skill and a life outcome. Learning the skills, attitudes, and values for participation begins in the home (Lauglo, 2016). The school then can have additional positive and/or negative effects on learning these attributes (Hoskins and Janmatt, 2019; Hoskins and others, 2017). Research has demonstrated that if the school provides a safe and open environment for all young people to learn participatory skills, this experience will enable young people, regardless of their background, to learn how to participate in their community and at work (Hoskins and Janmatt, 2019; Hoskins and others, 2017). Unlike many skills that can deteriorate over time, longitudinal research has demonstrated that once a person as young as the age of 11 or 12 has developed the skill to participate, this training is likely to have a positive and durable effect into adulthood (Keating and Janmaat, 2016; Hoskins and Janmatt, 2015; Achen and Blais, 2010). Thus, developing the skill to participate at a school age is likely to lead to the positive life outcome of participation in society.

Research is limited on the relationship between participatory skills and wider life outcomes other than for the skill of participation itself. Longitudinal research has shown that participation in school decision making leads to a more positive experience of school and to more positive health and well-being life outcomes (John-Akinola and Nic-Gabhainn, 2014). Participation in sport also has been found to have long-term benefits on health, anxiety reduction, and well-being (Fejgin, 1994; Dimech and Seiler, 2011). Participation in volunteering has had mixed results for employability and the quality of careers. Some of the research indicated more positive relationships (Wilson and Musick, 2000), whereas other experiences of volunteering particularly in the Middle East, find no positive relationships (Kurtz and Corps, 2012). These mixed results suggest that the type of volunteering and the employers' norms matter.

3. Development of skills for participation in children and youth

Skills for participation are understood by research and educationalists as malleable, and scholars have argued that these skills can be learned throughout an individual's life (Field, 2005). However, life span research on participatory skills is limited. As stated earlier, the home environment and the early pre-school years play very important roles in developing participatory skills (Lauglo, 2016; Persson, 2013, 2014; Kam and Palmer, 2008). From this early age, children learn through interaction and negotiation with their family and by observing and replicating the actions of their parents as role models (Hoskins and Janmatt, 2019). Education and participation levels always have had a strong association (Niemi and Junn, 1998; Emler and Frazer, 1999). However, only in the last 10 years or so has rigorous research identified an additional causal positive effect of learning at school—that surpasses the learning in the home environment—on the development of skills for participation (Hoskins and others, 2008; Borgonovi and others, 2010; Hoskins and others, 2017; Hoskins and Janmatt, 2019).

Scholars have argued that the skills for civic engagement begin to be learned as children start to become aware of the wider world and practice decision making at home and in their schools (Flanagan and Levine, 2010). These skills then are further developed during adolescence as young people take on greater responsibilities and access opportunities to engage in the community. Flanagan and Levine (2010) argue that it is at this point that young people begin to decide the values by which they want to live and the type of world in which they want to live. These two decisions enhance their disposition to participate.

4. Actively improving skills for participation

The evidence shows that young people learn participation skills most effectively through social, collaborative, and interactive methods (Hoskins and others, 2011; Keating and Janmaat, 2016). These methods have been found to be applied effectively from early primary school education to grade 6 and upward (Kus, 2015). For many youth, the school is the first institution and social environment outside the family home that they experience and thus is integral to learn to participate in wider society (Hoskins and others, 2012).

Quantitative research using the IEA CivEd data from five European Union countries (Hoskins and others, 2012), qualitative longitudinal research in the UK (Biesta, Lawy, and Kelly, 2009) and a cross-sectional study in primary schools in Turkey (Kus, 2014) suggest that participatory attitudes are learned through discussion with parents, teachers, and peers about civic topics; classroom discussions; and social participation in school decision-making structures. Young people also learn through observing role models (peers, teachers) and then experiment with acting out these competences in similar contexts. Haste's review (2004) of empirical research on learning participation identified identity formation as central to civic engagement. She argues that to feel ownership of the topic, that is, to define oneself as part of a group of people who hold such beliefs, is central to civic participation. Knowledge by itself is insufficient. For the issues to become salient, the individual needs to become engaged in relevant action. In addition, young people learn the skills to participate in real-world environments, or in contexts that reflect the real world. In other words, even though it is happening at school, the learning needs to be situated (Biesta, Lawy, and Kelly, 2009).

Schools can be understood as participatory communities for learning life skills such as how to live in a diverse society and how to carry out democratic practices (Daniels, 2001). However, school communities are not always open and democratic environments, and schools often are managed through implementing strict rules by using a system of rewards and punishments (Hoskins and Janmatt, 2019, Kus, 2014).

In addition, not all young people are treated equitably by all teachers. Some teachers project differing expectations onto students according to a student's economic status and/or social class or ethnic group to which s/he belongs (Hoskins and Janmatt, 2019). When a young person or social group feels unable to engage openly in classroom discussions or to participate on an equal footing in debates, the learning environment becomes restricted for this individual or group. Such young people thus are pushed to the edge of the community, that is, they are marginalized. For a school to become a truly democratic learning community requires additional effort, time, and, often, personal conversations with potentially marginalized individuals to bring all voices into discussions and decision making. When these additional efforts are not made to ensure that all voices are brought in, other social groups may advance and socially reproduce participatory skills while marginalized young people are left behind (Hoskins and Janmatt, 2019).

A range of teaching practices exist in both formal and non-formal education to improve student participation skills. However, few examples exist of research using randomized control trials that can identify the causal relationship between teaching methods and developing participation skills. The instruments discussed in this chapter are used mainly in cross-sectional international studies and/or longitudinal research rather than being developed and used in nationally based experimental design studies. Nevertheless, this report chronicles four studies that have used experimental design methodology with control groups to test the learning of participation skills (Table 1.23). The topic of interest for two of these studies was the experience of volunteering/service learning as a method for learning participation. The first (Henderson, Brown and Pancer, 2012) (Table 1.23), identified that compulsory volunteering in high schools in Canada had positive impacts on students' levels of civic participation, measured in the study as political involvement, political activism, political interest, and political efficacy. The crucial factors for the volunteering to enable this learning was the commitment to a single placement and a positive experience as evaluated by the student.

The second study on volunteering by Italian young people did not find a significant effect on their participatory skills or levels of volunteering. These results again suggest that the type of volunteering, its duration, and how the experience is evaluated by the student are determinative toward positive learning outcomes (Table 1.23).

The second two studies (Table 1.23) using experimental design research focused on the effect of university courses: Psychology in Current Events (Krings and others, 2015) and Education and Social Justice (Camp and Baugh, 2016). Both these university courses were designed to develop critical thinking and engage with political and social issues. Both studies found that students' levels of participation increased after taking these courses.

Table 1.23. Examples of successful interventions for participation-related skills

Name of work	Age group	Geographic location	Target life skills	Major findings	Authors
Political and Social Dimensions of Civic Engagement: The Impact of Compulsory Community Service	14–17 years old	Canada	Civic engagement	Community Service in high school affected positively the political dimensions of the students' subsequent civic engagement, including political involvement, political activism, political interest, and political efficacy. Nevertheless, the impacts depended largely on two features of the volunteering experience: a. sustained commitment to one placement, and b. a positive experience as evaluated by the student. High school community service seems not to be associated with social dimensions of civic engagement, measured here as involvement in a variety of social, cultural, and religious organizations.	Henderson and others, 2012
Volunteering to Promote Civic Responsibility and Civic Engagement: Does It Work?	15 years old	Italy	Volunteering	Programme using in-classroom training and service activity in a voluntary organization. No intervention effects on civic responsibility. However, the 'training+volunteering' group reported a significant reduction in antisocial behavior.	Santinello and others, 2012
Encouraging Civic Knowledge and Engagement: Exploring Current Events through a Psychological Lens	18–21 years old	US	Civic engagement	Psychology class exploring current social, political and civic issues. The result showed that students significantly increased their civic engagement, civic knowledge, multicultural sensitivity, applied thinking skills, and their ability to consider alternative viewpoints, appreciate diversity, monitor current events, and think critically.	Camp and Baugh, 2016
The Comparative Impacts of Social Justice Educational Methods on Political Participation, Civic Engagement, and Multicultural Activism	18 years old and over	US	Political participation	Engagement in social justice education courses was associated with increased political participation and multicultural activism.	Krings and others, 2015

5. Measuring skills for participation

To monitor and assess whether an intervention designed to increase skills for participation is effective, it is necessary to operationalize and reliably measure participatory skills. The measurable attributes that were developed in the initial stage of the LSCE instrument were: Participation in the school's decision making, actual/intended participation at school/ community/ work, interest in social and civic issues, actual/intended participation in civic engagement, and attitudes toward participation and self-efficacy in the context of participation.

There is considerable coverage of participatory attitudes, dispositions, and behaviour within existing instruments. Nevertheless, the existing instruments are limited in covering cognitive skills and addressing the quality of participation, that is, how informed the engagement was and the levels of reflection and critical thinking applied to the participation activity. These limitations were particularly true for interesting instruments such as the IEA International Citizenship and Civic education Study (ICCS), which provides only public access to its attitude and behavioural instruments.

Table 1.24 presents the existing measurement instruments that have the most rigorous psychometric properties for participation.⁴¹

41. The ranking criterion for selection of instruments comprised five components that were introduced in the section on methodology for instrument selection in the introduction of Chapter 1. Only the two instruments that were considered of medium to high suitability appear in Table 1.8. For more details on all the instruments reviewed, see the online appendix, www.lsce-mena.org.

Table 1.24. Shortlisted measurement instruments for participation skills

Name of instrument	Age group	Geographic location	Target life skills	Brief description
Child and Adolescent Scale of Participation (CASP)	5–22 years old	Australia, Canada, US	Home participation, community participation, school participation, home and community living activities	The CASP (Bedell 2004, 2009) was originally designed to assess children and youth's participation in life following a childhood acquired brain injury.
IEA International Citizenship and Civic Education Studies (ICCS)	14 years old	International including Asian, European, and Latin American countries	Political discussions, community participation, school participation, open classroom discussions	IEA ICCS (2009 and 2016) are the most recent IEA data collection on Citizenship for students in school. Two ICCS explore the approaches in which young people learn to play active roles as local, national, and global citizens.
Programme for International Student Assessment (PISA) 2000	15 years old	International including Australia, Austria, Belgium, Canada	Student sense of belonging; school of attendance	Construct of engagement generally covers an affective component relating to students' sense of belonging at school and how much students identify with and value schooling outcomes; and a behavioural component relating to students' participation in academic and nonacademic activities.
Deliberative Process Perceived Quality Scale (DPPQS)	Age groups were not specified in Mannarini and Talò (2013). Authors use words such as "young people" and "adults" (mean age =24.1).	Italy	Dialogue, knowledge/understanding	DPPQS served as a measure for assessing features of the discursive interaction among participants (dialogue dimension) and the cognitive processes triggered by the group discussion (knowledge/understanding dimension). DPPQS was developed based on the most agreed evaluative criteria drawn from the literature on public participation and deliberative democracy. Six criteria were chosen to evaluate dialogue: equality, trust, respect, disagreement, reciprocity, and common good. Five criteria were agreed to evaluate knowledge/understanding: argument, understanding, collective learning, reflexivity, and topic.
World Values Survey (WVS)	18 years old and over	International including Spain, Sweden, UK, US	Volunteering; political participation	WVS is an international research project that investigates people's values and beliefs, how these shift over time, and what social and political impact they could have. WVS is carried out by a worldwide network of social scientists who have conducted representative national surveys in approximately 100 countries since 1981. WVS measures, monitors, and analyses: support for democracy, tolerance of foreigners and ethnic minorities, support for gender equality, the role of religion and changing levels of religiosity, the impact of globalization, attitudes toward the environment, work, family, politics, national identity, culture, diversity, insecurity, and subjective well-being.

Chapter 2: Findings From The Evidence Base and Implications for Measurement

The aim of this chapter is to provide analysis of the scientific evidence base from Chapter 1 and draw out the important findings for the purpose of measurement. It will also provide useful findings to help develop a better understanding of the qualities of life skills – the extent to which they are malleable and what education interventions can bring about positive changes in the development of life skills within individuals.

Chapter 2 is comprised of three sections. Section 1 synthesizes the definitions of life skills and their implications for developing measurement instruments. Section 2 consolidates the evidence on the characteristics of life skills; (i) the extent to which and when during the life cycle they are malleable and (iii) the evidence for how they can be taught. Section 3 focuses on measurement instruments. It assesses the availability of existing instruments to measure life skills and reviews the literature on innovation in test development.

DEFINING LIFE SKILLS FOR MEASUREMENT PURPOSES

The scientific evidence base from Chapter 1 began each skill section by providing a definition. However, these original definitions had been developed for the purpose of unpacking the concept of life skills and relating them to the LSCE Framework and not to measurement. The definitions developed within this publication have narrowed down the concept further, identifying the measurable sub-constructs or attributes that researchers have suggested should be encapsulated within the concept of life skills. This process has uncovered a number of common challenges towards the development of life skills measurement instruments.

The common themes and challenges for measurement that have emerged from reviewing the scientific evidence base on definitions of life skills are: (i) the multi-dimensional nature of life skills, (ii) the interlinkages and overlaps between different life skills, (iii) the extent to which they are learning outcomes and/or learning processes, (v) defining the measurable components of a life skill, and (vi) life skills as a real-world performance for both the individual and the common good. The gaps in the evidence base on the definitions were: (i) limited information on proficiency levels or benchmarks for achievement and (ii) limited information on possible cultural differences in the understanding and measurement of life skills.

(i) The multi-dimensional nature of life skills

Each of the life skills has a number of sub-constructs and performing a life skill requires several processes or steps to complete. An example of this is for the life skill of decision making that has four attributes and four steps. Decision making requires belief assessment – for each option, judging the likelihood of specific outcomes if it is chosen; value assessment – judging how well outcomes meet one's goals; integration – combining beliefs and values into coherent decisions, and metacognition – understanding the strengths and limits of one's abilities (Strough and others, 2015). Another example of the multi-dimensional nature of a life skill is problem solving, which is said to require a number of different steps beginning with "recognizing that a problematic situation exists (...). It requires the solver to identify the specific problem(s) to be solved, plan and carry out a solution, and monitor and evaluate progress throughout the activity" (OECD 2015, p.13).

As a life skill contains multiple attributes, it could well be that an individual has two attributes of the skill but not the third or can perform one step of the skill much better than the next step. It is unclear if there is an association between the sub-constructs or different steps/processes within each life skill. It is also unclear if the different steps actually refer to different levels of performance or are related to different proficiency levels in different attributes within the life skill. The challenge regarding measurement in this case is that testing typically looks for internal consistency and coherence. Selecting items for a measurement instrument may actually require other reliability and validity tests such as test and retest or triangulation of different methods (Galloway and others, 2010).

(ii) Interlinkages and overlaps between life skills

The boundaries between the definitions of the different life skills have been described as being porous – with each having a close relationship to and sometimes overlapping with other life skills. Examples of this are creativity, critical thinking, decision making and problem solving that were all described as being closely interconnected. Decision-making skills were described as both an attribute of and crucial for high proficiency levels in the life skill of self-management. Cooperation skills were described as being part of a wider set of social skills. The skill of empathy was considered a necessary skill to enact the skill of respect for diversity. The skill of cooperation was considered a necessary part of negotiation skills whilst the skill of participation was said to need critical thinking, communication and negotiation skills. Thus, it is possible to surmise that it is fairly difficult to establish where one life skill ends and another begins.

It is perhaps not surprising that the life skills are interconnected because of how they are performed in the real world. For example, resolving interpersonal, community or group conflict may require the use of a wide range of life skills such as respect for diversity, empathy, participation, critical thinking, problem solving, creativity, self-management, decision making, resilience, communication and negotiation.

The lack of distinction and considerable overlaps between the life skills makes measurement a challenge as the development of measurement instruments usually requires the establishment of a distinct construct. An example of the difficulties with the overlapping nature of life skills is that if creativity, critical thinking, decision making and problem solving really share a variety or combination of certain attributes, as suggested by the evidence base, it is difficult to know exactly what needs to be measured when developing a measurement tool. This matters because when an education intervention is being evaluated, the test should provide feedback on the extent to which specific outcomes are being learnt. The alternative solution would be to develop education interventions and tests that measure a combination of all the life skills at once although the feedback would be less precise as to what has exactly been achieved.

(iii) Learning outcomes and/or learning processes

A further level of challenge is the ambiguous distinction between the education process and the life skill outcome. For a number of the life skills, the distinction and boundaries between the learning processes (the treatment) and the learning outcome is not always clear. This is in particular the case for the life skills of participation, cooperation and problem solving. For example, participatory and cooperation learning helps to develop participation and cooperation life skills whilst problem solving can be understood as a learning process, a life skill and a process for learning other social and emotional skills (Barry and others, 2017). These fuzzy distinctions will be discussed further in the section on actively improving life skills in cooperation and participation. The main implication of this for measurement purposes is the challenge that it poses for differentiating the measurement of the education intervention/treatment and making sure that this is distinct and different to the measurement of the outcome.

(iv) Defining the measurable components of a life skill

One of the main findings from reviewing the scientific evidence base is that to perform a life skill requires a combination of cognitive and affective elements including attitudes, values, behaviours, dispositions and domain-based knowledge. The definition of life skills used for this publication reflects this finding: life skills are the holistic performance of skills, attitudes, values, behaviours and domain-based knowledge in symphony. An example of a skill that combines cognitive and affective elements is empathy. Empathy is said to contain a “cognitive component of understanding of the feelings of another [and] an affective dimension in which the individual is able to reproduce these feeling in themselves.... and ... emotional control” (see Chapter 1).

The explicit merging of cognitive and affective components within the performance of a life skill challenges current testing modes that attempt to extract the cognitive component from the affective ones. Typical education tests contain a separate cognitive test and a background questionnaire that includes items on attitudes, values and behaviours. Most analyses keep these types of data as distinct constructs. The viability of this approach comes into question in the context of measuring a life skill where the individual must combine these attributes together for successful performance of a life skill. These findings point to a more holistic and explorative approach to instrument development and analysis that does not maintain the dualism and divide between cognitive and effective components. This holistic approach is supported in the literature that suggests that the distinction between cognitive and non-cognitive components is a false dichotomy and that very few processes can really be defined as only one or the other (Gutman and Schoon, 2013).

Individual agency, self-efficacy and motivation towards active use of each of the life skills are common attributes across many of the 12 Life Skills as outlined in the LSCE Framework. The agency of the skill user is regularly emphasized in the description of life skills, for example, the skill of resilience “should enable and transform individuals to be actively engaged in the process” (UNICEF and partners, 2017). Another example is for the life skill of tolerance, where “individuals need to be more than passively tolerant, that individuals are expected to promote the equal worth of peoples, without condescension” (Chapter 1). Thus, life skills are frequently defined in terms of pro-active agency and empowerment that they offer individuals within their daily lives. Test items on self-efficacy and dispositions are well developed in the field of psychology and will need to be drawn on within the instrument development process.

Specific subject knowledge of a given situation in which the skill is being performed – referenced in the literature as domain-based knowledge – was found to also be necessary for high-level performance of a life skill. One example of this from the scientific evidence base is for the life skill of critical thinking, where domain-based knowledge was said to be “essential but not sufficient”. Thus, the scientific evidence from Chapter 1 is not suggesting that specific subject-based knowledge is not important but that by itself it is not enough to be able to perform a life skill. Is it then necessary to test domain-based knowledge of the situation in which the life skill is taking place? This remains an open question.

(v) Life skills as a real-world performance for both the individual and common good

Another commonality between the life skills in the scientific evidence base is that they are defined mostly through individuals performing the skills as actions. These performances take place in real-life contexts, in interaction with others and in everyday life situations such as in the family, school and community. For example, self-management skills are described as being practiced in “personal relationships at home, peer-relationships at school, ... a range of jobs and having your voice heard on decisions that affect one’s life” (Blades and others, 2012). In other words, life skills are defined in practical and applicable ways in everyday environments and less in terms of abstract processing that would be more associated with skills assessed in intelligence tests. The implications for testing are that it is necessary to select test items that are placed in real-world contexts.

Building from the real-world context of the life skills, the specific social need of life skills for society is frequently made explicit within the definition of the 12 Life Skills. An example of this is the definition of critical thinking where the “social function of critical thinking in society” is emphasized. The definition goes on to describe further how critical thinking can “empower the individual to critically assess norms, values, power structures and social media messages and to uncover and resist sexist, racist, extremist, radical and populist influences and pressures, making society a fairer place for all social groups” (Chapter 1). The implication for measurement of the social orientation of the life skills is that values and attitudes need to be captured as part of any life skills instrument and, unlike many existing education tests, the values involved in the test are upfront and explicit.

Although the scientific evidence base in Chapter 1 provides a rich source of information, it also identifies the gaps in the field and these are discussed below.

(i) Limited information on proficiency levels or benchmarks for achievement

Although the elements that need to be measured within a life skill have become clearer throughout the analysis of the literature on definitions, what is noticeable by its absence is a lack of detail regarding what constitutes performance of proficiency levels within each skill. There is an absence of information both in the literature and the scientific evidence base as to what can be understood as necessary levels of performance. For example, what is a level one performance of a life skill like resilience compared to, say, a level three or level five and what level of performance is acceptable or desirable within the population? (Lipman and others, 2011; Lipman and others, 2014; Galloway, 2017). This topic becomes more sensitive again when discussing the attitudes and values needed to perform life skills. For example, are there absolute levels when demonstrating respect for diversity? Is there an absolute optimal/necessary level for young people to have for a socially cohesive society? What levels of respect for diversity are dangerously low? Thus, there is little in the way of information to begin to create benchmarks.

(ii) Cultural differences

What is also not covered in the scientific evidence base is the extent, if any, of cultural differences in performance of life skills. Much of the evidence base on measurement instruments has been developed by OECD and other Western countries largely due to the cost of conducting rigorous studies. Although the LSCE Framework is based on the concepts of life skills from the MENA region, until now the measurement instruments and rigorous testing have most of their origins from OECD countries. There is limited research on and guidance for expectations of potential differences in performances.

BETTER UNDERSTANDING OF THE QUALITIES OF LIFE SKILLS

The evidence base provides important findings regarding the qualities of the life skills and how they relate to life outcomes, the extent of their malleability and how they can be taught. For each life skill the most rigorous quantitative empirical research evidence was reviewed mostly through drawing on longitudinal research and supplementing this with cross-sectional survey data where necessary (see methods for selection of the research in the introduction section of Chapter 1). This research was used to guide these findings, which are synthesized below.

Malleability: It is important when discussing and prioritizing life skills to ensure that the skills to be addressed are changeable and not pre-set at birth (Stecher and Hamilton, 2014). Indeed, in the past, it was believed that skills such as resilience, creativity and empathy were innate. However, the scientific evidence base for the 12 Life Skills indicates that all 12 have been found to be malleable (see Table 2.1). The three factors that have been found to change proficiency levels were: (1) basic material needs (food, water, housing, electricity, safety), (2) social and emotional support and healthy relationships with parents or guardians, and (3) a safe community environment with access to health care, education and positive role models. These factors were seen to change the proficiency levels either positively and/or negatively throughout the life course.

Table 2.1: Likely optimal period to develop the 12 Life Skills

Life Skills	Early childhood	Early adolescence	Mid to late adolescence
Creativity	*	*	*
Critical thinking		*	
Problem solving		*	
Cooperation	*		
Negotiation		*	
Decision making			*
Self-management	*		
Resilience	*		
Communication	*		
Respect for diversity		*	
Empathy	*		
Participation	*		*

The evidence from Chapter 1, nevertheless, suggests that some skills appear to be more malleable and open to interventions at different moments along the life cycle and learning can occur in bursts, and that proficiency levels can potentially get worse. It is necessary to keep in mind when looking at this research that many of these optimal age bands for malleability are contested. In addition, having optimal ages for interventions does not mean that other age groups should not undergo training in these skills but it could be worth considering to emphasize the development of a specific skill when it is likely to have the most effect. It is also worth noting that the average optimal age means that for some young people an older or a younger age intervention may be more effective for them.

For some skills the literature is reasonably clear that early childhood is a critical development phase for learning communication, cooperation, empathy, participation, resilience and self-management. Interestingly, the skill of respect for diversity typically appears to regress for five- to seven-year-olds before increasing in proficiency levels again between 8 and 10 years. For skills such as critical thinking, negotiation and problem solving – although research implies that these skills can be learnt much earlier – the empirical evidence suggests that the optimal age for malleability is between 9 and 14 years. For decision making and participation, mid to late adolescence (as well as the early years) is also considered an important period when these life skills can be developed.

Research on the learning of skills in later life is notable by its absence across the 12 Life Skills. The research mentioned thus far suggests that interventions are successful during adult life (see for example, Feinstein and Hammond, 2004, for respect for diversity) but without these interventions the stability of the proficiency levels are unclear and under researched. One exception is for the life skill of participation where patterns of participation achieved in early adulthood are shown to be fairly durable throughout the lifespan.

ACTIVELY IMPROVING LIFE SKILLS

So far, the synthesis from the evidence base from Chapter 1 has established that the 12 Life Skills are malleable, it is now important to find out the extent to which education interventions are able to make a difference in developing levels of skills proficiency. Despite considerable recent growth in the teaching and training of life skills and citizenship education, rigorous research is limited on the effectiveness of these activities (Gutman and Schoon, 2017). This is due to the fact that few interventions have been rigorously evaluated and those which have, have been hampered by deficiencies in the capacity to measure the life skills and to assess improvement/change (Stecher and Hamilton, 2014). The more scientific research that has taken place on evaluating the effectiveness of interventions to improve life skills has mostly used the method of experimental design research using randomized control trials, the gold standard in evidence for policy making (Gutman and Schoon, 2013). The findings in Chapter 1 drew almost entirely from the evidence based upon this research design for each of the 12 Life Skills.

In addition, the findings of this section are consistent with the wider evidence base from the LSCE CPF study (see section 3 on the programmatic framework) that uses qualitative evidence and evidence specifically from the MENA region. Although it is the gold standard, experimental design research also has its limitations as it is frequently limited by a small sample size and has focused predominantly on the short-term effects of specific trainings rather than the durability of skill development. Nevertheless, taking these drawbacks into account there are some interesting and quite consistent findings across the 12 Life Skills and these will be discussed below. For all the life skills at least three scientific and rigorous research evaluations had found that teaching and learning projects can improve proficiency in the life skill, a point which is supported by the wider literature in the field (See Gutman and Schoon, 2013).

The good news is that, in the main, the evidence base suggests there are a set of general principles for teaching and learning that will support the learning of life skills and few skills require their own specific methodology to learn (Gutman and Schoon, 2013). These principles include: (i) learning through participation and cooperation, (ii) learning through performing life skills (iii) learning in a safe environment, and (iv) targeted strategies to support disadvantaged youth. These will be explained below.

THE PRINCIPLES OF EFFECTIVE TEACHING OF LIFE SKILLS

(i) Learning through participation and cooperation

Consistently across the evidence base the recurrent theme of how to teach life skills effectively is through the active participation and cooperation of students in the learning process. This is where two life skills (participation and cooperation) have become part of the learning process for all of the 12 Life Skills, as well as being learning outcomes in their own right.⁴²

Learning through participation is the process of actively involving the learner in each step of the learning process. This includes empowering students to take decisions and have a voice in: (1) the preparation of the learning activity, (2) within the learning activity itself (trying out ideas and debating and discussing different perspectives), and (3) in the reflection and evaluation of the learning activity after it has been completed (Sfard, 1998).

Learning through cooperation is the process where students learn to work together, typically in small but diverse groups, and learn how to learn from each other's knowledge and experience to complete a task (Johnson, 1998; Lai, 2012; Johnson and others, 1993; Slavin, 1991). This learning process typically focuses on implementing the values of equity and inclusivity of all members of each group in the learning process.

Learning through cooperation and participation can take the form of learners sharing ideas, challenging each other's preconceptions and working together to solve a real-life problem. Both learning through participation and cooperation form part of constructivist teaching methods that conceptualize learning as a social process developed through social interaction and negotiation of meaning (Richardson, 1997). The consistency of the methods for achieving life skills outcomes lead towards the conclusion that life skills development is interrelated, both in terms of learning methodologies and outcomes.

(ii) Learning through performing life skills

Learning through participation and cooperation, discussed above, provides an opportunity for students to learn these life skills by performing them. This methodology has been referred to as 'learning by doing' – a method which has been considered a useful technique for learning most of the life skills. The scientific evidence base from Chapter 1 has identified various approaches that have been employed successfully for achieving learning life skills by doing life skills – namely through simulation and real-life experience itself.

Simulation of real-world activities is one method for enabling performance of life skills in a school environment. These simulations can encompass many different forms, including mock elections, simulations of United Nations debates on topics such as climate change and more recently, various scenarios created using computer-based gaming. Ideally the simulation is employed after a more theoretical input and then followed by a debrief as explained in the evidence base for the skill of negotiation. Another success factor for simulations is making sure that the participatory activity is as true to life as possible.

Real-life experience is another method for enabling students to learn by practicing life skills. An example of this, from the evidence base, is for the skill of respect for diversity where contact with people from different social groups within the classroom or through school exchanges has been identified as a successful method for reducing bias and stereotyping. The method was said to need careful management to ensure "equal status of the groups engaging in the contact, common goals and intergroup cooperation" (Schlueter and Scheepers 2010).

Another way to bring young people into a real-life environment is to practice skills through volunteering. Volunteering in real-life circumstances through service-learning programmes have also been found to increase life skills. These programmes are not always successful but have, when effective, increased skills in empathy and participation.

42. Problem solving has also been found to be a useful method for developing life skills (see Section 2.1).

(iii) Learning in a safe environment

Coherence on values. The evidence base suggests that there is a need for coherence between the values that are taught and the values embedded in the learning process. Thus, in particular for the skills of respect for diversity, participation, empathy, cooperation and critical thinking, it is necessary for the teaching process to actually practice the values involved in performing these skills. This is discussed in the section on cooperation skills in Chapter 1 with regards to the life skill of respect for diversity when bringing together a classroom of diverse learners.

Open and accepting classroom climate. Building from the coherence on values, an open and safe classroom climate is considered important to enhance and enable participatory and cooperation learning and the development of life skills. For example, for the life skill of critical thinking, it is crucial for teachers to support students to express their divergent opinions, and for teacher to explain and demonstrate that this should not be feared within the classroom environment.

A wide range of cross-sectional studies have supported the effectiveness of real-life interventions through exchange programs and natural experiments where participants from 'in-groups' are exposed to 'out groups' in schools and classrooms. The following conditions are said to facilitate or enable these benefits: equal status of the groups engaging in the contact, common goals, intergroup cooperation, and institutional support and monitoring (Schlueter and Scheepers, 2010). More recent research has also identified how self-disclosure leading to friendship between different social groups is effective in further reducing both conscious and unconscious bias and stereotyping (Turner and others 2007).

Examples from the evidence base of the above success factors are given in Box 1 below.

Box 1.: Principles of effective teaching of life skills

Critical thinking

The essential underlying element for teaching and learning critical thinking is the necessity of an open and accepting classroom climate in which teachers use methods that show students how to identify and embrace divergent opinions without fearing dissent.

Collaborative or cooperative approaches can stimulate cognitive development while nurturing students' ability to work constructively with others. Constructivist approaches that encourage open-ended discussions and place students at the centre of the learning process have also been found effective. Empirical research further suggests that critical thinking can be fostered using real-world or authentic scenarios.

Learning cooperation

Cooperation also promotes the creation of effective inclusive classrooms of diverse learners. Cooperative learning can create a sense of equity in cooperative groups, which can then instill values of equity and justice in society. Teaching students to work with others on social issues can also improve students' tolerance, commitment to civic participation, community acceptance, and conflict resolution abilities. (Johnson, 1998; Lai, 2012; Johnson and others, 1993; Slavin, 1991).

Negotiation

Negotiation training is grounded in models of learning that combine theory, simulations, repeated experimentation, and reflection – called the 'theory-roleplay-debrief' model (Tyler and Kukier, 2016).

Participation

The evidence shows that the most effective and durable methods for young people to learn the skills for participation is through social, collaborative and interactive methods (Hoskins and others, 2011; Keating and Janmaat, 2016). Young people learn the skills to participate in real-world environments or contexts that reflect the real world i.e. the learning – even though it is happening at school – needs to be situated (Biesta and others, 2009). For many young people the school is the first institution and social environment outside the family home they experience and is therefore integral to learning to participate in wider society (Hoskins and others, 2012).

(iv) Targeted strategies to support disadvantaged youth

Although the above principles have been shown to be effective for all social groups, there are some additional methods that have been shown in the evidence base to help in particular disadvantaged students. These are: (1) explicit instructions about the life skills that the students need to learn, and (2) targeted interventions.

Explicit instructions. The evidence base identifies that giving explicit instructions on the learning outcomes is an important success factor for the skills of cooperation and critical thinking. These skills have sometimes been taught implicitly across subject disciplines and as a result have not always been identified and absorbed by all student groups. Explicit instructions are said to include explaining to students what the learning outcomes are, what the skills looks like when they is done well, and how they can demonstrate the skills. The explicit instructions help students know exactly what they are trying to learn, which is particularly helpful for disadvantaged students who may not have observed such skills in their home or community life. These methods are likely to be applicable to the learning of many of the skills as these methods follow general best practices from the current literature on supporting disadvantaged and less engaged students (Biggs and Tang, 2011).

Targeted interventions. Another success factor for teaching disadvantaged young people is the targeting of life skills training at specific sub-groups. Recent research has indicated that educators can generate specific, cost-effective interventions to improve life skills for students, especially those at risk of low achievement and attainment (Dweck, 2008; Walton and Cohen, 2011; Yeager and Walton, 2011; Yeager and others, 2013). The evidence base for the skills of communication and resilience identified that activities targeted directly at low skilled or young people at risk were particularly effective (see Box 2).

Box 2.: Principles of effective teaching of life skills: Supporting less advantaged students

Explicit instructions

Cooperation

The review of the literature on collaboration (Lai and others, 2017) found that educational practitioners recommend explicitly articulating the objectives of fostering cooperation in the classroom, and engage in direct instruction on what good cooperation looks like, including the desired gains in academic and social skills.

Critical thinking

Empirical evidence shows that explicit instruction in critical thinking – as opposed to including it as an implicit goal – produces the highest gains in students' critical thinking capabilities. Students should be aware what they are being taught and are expected to demonstrate critical thinking. Explicit critical thinking instruction can be incorporated into general and/or subject-specific components.

Targeted training

Resilience

Targeted training was found to be particularly important for youth at risk: high risk children were found to report less smoking, drinking, inhalant use and drug use in research than untrained youth (see Table 1; Griffin and other, 2003).

Communication

Targeted efforts have proven useful, particularly among those with low communication skills. Presentation self-efficacy improved most among the least skilled students (Tucker, 2001).

The one skill that may require much more specialized approaches and is more difficult to train is empathy. This is the one skill that appeared to require quite specific programmes to achieve results. Successful training for this life skill include interventions "that improved the accuracy of perceiving ones and other emotions, improving effective emotional communication and understanding of emotional processes, and building the students' repertory of effective regulatory strategies". These interventions are likely to need more than good teaching practices to achieve these results.

MEASUREMENT INSTRUMENTS

Existing instruments. The evidence base contains a review of the existing life skills measurement instruments and a list of those which are most valid and reliable. As explained in the introduction of Chapter 1, the review of the instruments was conducted for a specific purpose: to support the development of new LSCE measurement instruments. The instruments from the evidence base in Chapter 1 were then reviewed a second time and the lead developer was contacted to confirm the publicly available use of the instruments. An overview of coverage from existing measures was made. Table 2.2 provides a summary of this overview. The main findings from this analysis are presented below.

1. The majority of existing reliable instruments are privately owned and not available for public use.
2. There is limited use of innovation in the development of existing instruments and they are dominated by traditional self-report items.
3. There is very limited availability of open access cognitive test items for life skill.
4. Some skills have received more attention than others. The skill of participation is notable by having a rich source of existing instruments. Creativity, decision making, self-management and empathy are also quite well developed. In contrast, the availability of instruments to measure problem solving and communication is low. There are almost no reliable open access existing instruments to measure cooperation, negotiation and critical thinking.
5. Most of the existing tools have not been tested in low-income countries or across different socio-cultural contexts.

Table 2.2: Summary of the review of the existing instruments for the public use

Skills	Estimated coverage from existing resources (%)	No. of highly suitable instruments	No. of open access instruments			If it is open, no. of cognitive and affective		
			Open	No response	Not open	Cognitive test	Cognitive self-report	Affective
Resilience	40%	7	3	3	1			3
Cooperation	0%	6	0	4	2			
Critical thinking	10%	8	1		7		1	
Creativity	60%	3	3			1	2	
Problem solving	25%	7	1	2	4	1		
Negotiation	0%	2	0	1	1			2
Decision making	60%	6	4	2			2	2
Communication	25%	5	2	2	1		2	
Self-management	60%	10	8	1	1		1	7
Participation	80%	7	6	1	1			7
Empathy	60%	10	6	2	2			6
Respect for diversity	50%	7	3	2	2		1	2

Table 2.2 The results of the exercise to identify reliable existing instruments that were open for public use that would be suitable for an assessment of 12–14-year-olds.

The details of the instruments that are available for public use have been made available through the LSCE website.

Due to the lack of existing instruments, a review has been undertaken to identify different methods of assessment for creating new instruments to measure life skills. The findings of this review are presented next.

TYPES OF INSTRUMENTS

To address the lack existing instruments that can currently be used to measure life skills, it is clear that new instruments need to be developed. A literature review of the different assessment types and innovations that could be used in the development of new measures of life skills has been undertaken and the findings are presented below. The review includes (i) observation, (ii) self-reports, (iii) anchoring vignettes, (iv) situation judgement tests (SJTs) and (v) computer-based and serious games-based assessments.

(i) Observations

The type of questions to be used to test life skills is currently under considerable debate within the academic literature. A wide range of question types exist for testing life skills (for a detailed review of the full range of possibilities see Soland and others, 2013). The basic underlying principle of skills testing is that the best predictor of future skill performance is through assessing current skill performance (Lievens and others, 2008). Thus, it is of little surprise that the most desirable method resulting from the academic literature is testing through observation of performance of a life skill. An example of this would be demonstrating problem-solving abilities in a simulation conducted at a test centre developed by employers. Testing of the performance of skills through observation also occurs in classrooms. Examples include testing motivation for reading (Turner, 1995), metacognition (Hennessey, 1999) self-regulation (Whitebread and others, 2009) and collaboration (Dillenbourg and others, 1996). For a more complete review of the literature on testing through observation, see Lai and Viering, 2012.

There are many advantages to testing via observation of performance. The most obvious one is that the test taker is actually performing the skill in real time. It also means that the test taker can demonstrate many different and overlapping life skills within one activity, which enables capture of multi-faceted life skills. Another advantage of observation of performance of skills in classrooms is that the skills are situated in students' everyday environment in scenarios that are relatively normal and meaningful to them (Lai and Viering, 2012).

The challenges with these formats include the cost involved and the subjectivity of the assessment (Soland and others, 2013). Costs are often high due to the fact that each individual has to be assessed on their own or in small groups over an extended period of time. The assessors also have to be highly trained specialists, which necessarily implies an additional burden to undertaking this assessment on a large scale. Concerning reliability, even with the highest quality assessors there is some subjectivity in the assessment results due to the results being based on the individual observations of the assessor (Soland and others, 2013). In order to be able to conduct a large-scale study, national evaluation of students' life skills through observation of performance of life skills is currently not a viable proposition.

(ii) Self-reports

Given the current limitations of testing by observation, the dominant format of conducting large-scale assessments of life skills has been through self-reported performance. Self-report takes many forms (Lai and Viering, 2012). Concerning performance of skills, the items/questions can be self-reported behaviour, self-reported disposition/motivation/intended behaviour, or it can be self-reported self-efficacy/self-belief in the performance of the skill (see Table 3.1 for examples). Finally, attitudes and values needed for skills performance can also be measured through self-reports (see Table 2.3 below).

Typically, self-reported items use Likert response formats that employ a rating scale. The scale rates the extent to which individual are likely to perform the skill in the future on a scale going from one extreme to another (Griffith, 2016), for example, 'I would certainly do this/I would probably do this/I would probably not do this/I would certainly not do this' (see other examples in Table 2.3). Alternatively the question the test taker is usually asked is about their level agreement with a statement ranging typically from strongly agree to strongly disagree (see examples in Table 2.3). Other response options include open ended responses and multiple-choice options, for example, the Global Competence Aptitude Assessment (by Hunter and others, 2006).

Table 2.3: Diverse types of self-report and examples

Type of self-report	Example	Response scale
Actual behaviour/ performance of a skill	How often are you involved in each of the following activities? Using the internet to find information about <civic or social issues (e.g. poverty, climate change)>; posting a comment or image regarding <a civic or social issue (e.g. poverty, climate change)> on the internet or social media; sharing or commenting on another person's online post regarding <a civic or social issue (e.g. poverty, climate change)>.	Daily or almost daily/ weekly/monthly/ never or hardly ever
Disposition/ motivation/intended behaviour and performance of skill	Listed below are different ways adults can be active in society. When you are an adult, what do you think you will do? Vote in <local elections>; vote in <national elections>.	I would certainly do this/I would probably do this/I would probably not do this/I would certainly not do this
Self-efficacy or self-belief in the performance of the skill	For each statement, indicate how often it occurs. I can think up multiple ways to solve a problem; I can solve problems even when there is no obvious solution; I can recognize if a problem is going to be difficult to solve.	Almost always/often / sometimes/never
	How much do you agree or disagree with the following statements? I can easily tell how others are feeling; I can understand how people are feeling even before they tell me. I can tell when a friend is angry even if he/she tries to hide it.	Strongly agree/agree/ disagree/strongly disagree
Other attitudes and values needed to perform the life skill	How much do you agree or disagree with the following statements about men and women? Men and women should have equal opportunities to take part in government; men and women should have the same rights; when there are few jobs available, men should have a greater right to a job than women.	Strongly agree/agree/ disagree/strongly disagree

The small number of response options (4 or 5) for self-reported question items has recently been criticised as it has been argued to limit the full range of abilities of on a life skill (Lipman and others, 2014 and Galloway and others, 2017). The difficulty is for students at the top of the range where there is little difference between an above average ability and a student with exceptional skills (Lipman and others, 2014). Lipman goes on to argue that these limitations are particularly strong when there is a desire to measure change. There is said to be a ceiling effect where students already mark themselves quite high and often at the top of the response scale at the outset leaving no space for students to demonstrate improvement. As with the example in Table 1. of actual behaviour, the frequency of times that a skill has been performed is argued to give a more reliable result and have less of a ceiling effect than other forms of Likert response scales (Lipman and others, 2014 and Galloway and others, 2017).

Another criticism often made of the Likert self-reported response scale is that it assumes that each individual understands and scores the response options in similar ways (King and others, 2004). This research suggests that there are differences between individuals and groups of individuals (often based on cultural norms) regarding how people understand and use the response options. One widely used first step towards tackling this issue is to apply commonly understood terminology at the end points of the scale i.e. 'strongly agree' to 'strongly disagree' (King and others, 2004; see the example in Table 2.2). Several more sophisticated attempts have been made to reduce these differences including the development of a method called Anchoring vignettes that will be outlined in the following section.

Other challenges regarding self-reports are the selection of the group of comparison that the test taker uses when rating their ability on skills. Frequently, the test taker is likely to be comparing their performance of skills with their peer group and each individual's peer group is unlikely to precisely reflect the average performance of skills for that particular age group (Stecher and Hamilton, 2014).

As well as unintended differences in individual responses, concerns have been raised over the years that self-report items allow individuals to deliberately overrate their performance towards what is commonly understood to be socially desirable outcomes (Lai and Viering, 2012; Stecher and Hamilton, 2014 and Soland and others, 2013). Social desirability in given responses is particularly the case if the measures developed are for use in high stakes testing such as exams and is still a relevant issue when researching or evaluating the success of an education intervention or an educational system (Stecher and Hamilton, 2014).

However, even after considerable efforts, a more reliable alternative to self-reported behaviour has yet to be found. Despite the wide criticism, there are benefits of using self-reported behaviour. Instruments that use self-reports are: (i) inexpensive to administer, (ii) quick to complete and (iii) a certain number of instruments form part of behavioural, attitude and value scales that have been used widely in psychology, sociology and political science disciplines across many countries over many years and have consistent reliability and validity scores (Soland and others, 2013). Examples of good practice that use self-reports are the IEA International Civic and Citizenship Education Study (2009, 2016), the Grit Scale (Duckworth and Quinn, 2009), the World Values Survey and the Work Extrinsic/Intrinsic Motivation Scale (Ryan and Deci, 2000).

Several innovative approaches to improving self-reported measurements of skills are in the process of being developed and two are discussed below: anchoring vignettes and SJTs.

(iii) Anchoring vignettes

As described in the previous section, there is a concern that individuals and groups of individuals understand and score response scales differently – indeed there is a concern that this leads to cross-cultural differences in measurement scores. The anchoring vignettes method was originally developed in the field of political science to improve cross-cultural comparisons of complex life skills such as self-efficacy (King and others, 2004). The method was used in the background questionnaire on the topic of student motivation for PISA 2012 and was claimed to have improved the comparability of this measure and its association with academic success (Kyllonen and Bertling, 2014).

The theory behind the anchoring vignette is that for each test taker it is possible and indeed necessary to capture how an individual uses a response scale or what is referred to as the individuals' response style. This information can then be used as an anchor to adjust each individuals' score and thus improve the reliability of measurement instrument. The method works as follows: several descriptions of individuals behaviour called 'vignettes' are developed and each vignette indicates a different level of the life skill being tested. The test taker then has to judge on the response scale how they would rate the individuals who appear in the vignettes. This information is then used to align the individuals self-reported scores on this particular life skill.

To provide an example of this method, some of the original vignettes are given below from a seminal study (King and others, 2004). What is provided are two of the five vignettes used to understand test takers response style for the topic of political efficacy.

"[Imelda] lacks clean drinking water. She and her neighbors are drawing attention to the issue by collecting signatures on a petition. They plan to present the petition to each of the political parties before the upcoming election."

"[Moses] lacks clean drinking water. He would like to change this, but he can't vote, and feels that no one in the government cares about this issue. So he suffers in silence, hoping something will be done in the future."

The response options range from (1) no say at all, (2) little say, (3) some say (4) a lot of say, (5) unlimited say (King and others, 2004, p.193).

The self-reported question undertaken before completing the vignettes is: "How much say do you have in getting the government to address issues?" (King and others, 2004, p.194). The same response options are used. The self-reported scores are then adjusted using the information from the responses given on the vignettes.

This approach and its application within the PISA 2012 background questionnaire is contested (von Davier and others, 2017). There are two major assumptions that are said to limit this approach. First, that the vignette and the response to the vignettes are understood in the same way by all individuals and all sub-groups. Second, that people rate other people's behaviour in the same way as they rate their own behaviour (von Davier and others, 2017).

(iv) Situational judgement tests

One promising innovation in terms of improving self-reported measurement has been the development of SJTs. The improvement in reliability is done through by reducing the possibility that the test taker can guess the socially desirable response.

SJTs are measurement instruments that present the respondent with a real-world scenario and ask the individual to select the action that they would most likely take in that given situation (Lievens and others, 2008). A standard

range of response options is provided to the individual to select from. Experts from the relevant field decide the most preferable behaviour prior to the test being administered. The benefit of SJTs in comparison to the standard self-report question items is that it is less easy for the test taker to judge what the correct answer should be and fake the result (Lievens and others, 2008). In addition, the fact that the behaviour options are predefined and the most desirable option is decided by experts beforehand enables the removal of some of the subjectivity involved in comparison to some forms of observation testing (Lievens and others, 2008).

There are existing differences between how SJTs are delivered as tests. For example, the scenario can be delivered as a written text or as a film clip, and there are costs and benefits for selecting the different approaches. Lievens and others (2008) have reviewed the different ways of conducting a SJT and have noted the implications for internal consistency and reliability for the different way of conducting these studies. For more information see Lievens' 2008 review.

Examples of life skills that have been developed and tested using SJTs are empathy, integrity, resilience, interpersonal awareness and communication. Instruments measuring these life skills have been developed and are now in fairly frequent use within job selection for the medical profession (Patterson and others, 2012). One example of an SJT from a medical selection test is given below.

"You are looking after Mrs Sandra Jones, who is being investigated in hospital. You are asked by her family not to inform Mrs Jones if the results confirm cancer. Choose the THREE most appropriate actions to take in this situation (a) Ignore the family's wishes (b) Agree not to tell Mrs Jones (c) Explain to the family that it is Mrs Jones' decision (d) Ask Mrs Jones whether she wishes to know the test results (e) Ask Mrs Jones whether she wishes you to inform the family (f) Inform Mrs Jones that her family does not wish her to have the results (g) Give the results to the family first (h) Give the results to the next of kin first" (Patterson and others, 2012 p.852)

Closer to the field of assessment of the LSCE instrument and to the age group in question, there are also a small number of SJTs that have been developed to measure the life skills of respect for diversity (Griffith, 2016) and social skills such as cooperation (Soland and others, 2013).

Griffith (2016) identifies two instruments that use SJTs to assess respect for diversity. First, the Cultural Intelligence Assessment (Thomas and others, 2015) that gives the test taker a scenario and then asks them to select a behaviour that either demonstrates cultural knowledge, cultural skills or metacognition. Second, the Cross-cultural Social Intelligence Test (Ascalon and others, 2008) that asks test takers to select the culturally appropriate behaviour after a given scenario that has been already rated by experts according to the level of empathy and no ethno-centric behaviours. These SJTs are, however, not publicly available.

SJTs have also been developed for young people in schools to test their social skills such as cooperation. Soland (2013) identifies an interesting example of one such instrument – the Mission Skills Assessment Instrument – which has been developed by Educational Testing Services. The example scenario given by Soland is where the students are involved in a group task and one student provides a very badly written contribution just before the deadline. The test taker is then given four actions that they could undertake. The options included informing the teacher and suggesting to the student how they could rewrite the work. The examples of tests developed for the life skill of respect for diversity and social skills demonstrate the potential for testing of life skills through SJTs.

A recent systematic review of 1,000 citations of empirical research on SJTs found that in the field of employment SJTs are more predictive of future success than either cognitive scores or personality tests (Patterson and others, 2012). Success in employment was measured in a number of ways in different studies including task performance (core technical proficiency), contextual performance (dedication to job, initiative and interpersonal skills) and overall job performance (criteria validity undertaken by supervisors). Also, compared with cognitive tests, SJTs have been found to be fairer and less skewed towards the majority groups in a population with minorities and women performing equally well or better than dominant groups (Lievens and others, 2008). Additionally, test takers have a strong preference for SJTs in comparison to cognitive tests (Patterson and others, 2012). Nevertheless, it should still be noted that the academic reviews find that observations of actual performances continue to be the most effective method of testing of skills (Patterson and others, 2012).

Further limitations of SJTs are that they are frequently affected by the multi-dimensional characteristics of the life skills that they are aiming to measure and they rarely obtain high levels of internal consistency. Traditional reliability tests are therefore not recommended and alternative forms such as comparing with other tests and retesting of the items are seen as better alternatives (Griffith, 2016). Further limitations of SJTs are that they remain susceptible to both faking and coaching, and the developments of scenarios can place high demands on the test taker in terms of their reading ability (Lai and Viering, 2012). Finally, the definition of who is the expert to make the judgement on the correct behaviour is also subjective and there can be different cultural interpretations of the 'ideal' response (Griffith, 2016).

(v) Computer-based and serious games-based assessments

Another innovative way that performance of a life skill can be captured and assessed is through the adaption of serious games (Michael and Chen, 2005). Serious games are defined as games where the objective is educational (Michael and Chen, 2005) and can be designed to teach and or assess 21st century skills (Romero and others, 2015). In terms of assessment they can take the form of placing the individual in an authentic looking virtual reality and asking the test taker to perform the skill. The principles of this approach are the same as observation of performance and SJTs. First, a scenario or simulation is developed and then the test taker needs to perform or select the correct behaviour to succeed.

The testing of any skills using gaming methodology is very much in its infancy with the vast majority of computer-based testing of skills currently not fulfilling the potential of the technology and ending up like a paper and pencil test but just appearing online (Masters, 2013; Quellmalz and others, 2009). The gains for these limited technological assessments are the efficiencies in speed of analysis of data, the option for fast feedback to students (Ramalingam and Adams, 2018) and the potential to personalise the experience according to the ability of the test taker, which is important when there is a high degree of variability in the proficiency of the students (Soland and others, 2013).

Certain developments have been made to make better use of the technology, for example, some developments have been made in the testing of digital literacy skills within the OECD PISA 2012 digital reading assessment that assessed digital text navigation (OECD 2012a). In this assessment the student had to navigate through a specifically created website to find the text needed to answer the question. The PISA assessment in 2015 assessed simultaneously collaboration and problem solving using a simulation in which the test taker had to collaborate with their partner who is a computer-generated avatar to solve the problem (Soland and others, 2013).

In addition, there have been some developments on testing scientific inquiry through computer-based assessment where the test taker has to conduct experiments in a virtual laboratory. These virtual assessments enable the test taker to conduct experiments that would be impossible or too dangerous to conduct in the real world (Masters, 2013). Examples of highly advanced virtual assessments are in the field of medicine and the testing of skills for surgery (Masters, 2013). The potential from data collected via computer-based assessments and serious games are high as the whole process of the performance of the skill, including initial errors, can be captured, recorded and analysed (Ramalingam and Adams, 2018).

Research and development of assessment of life skills through serious games is very much in its infancy. There is, however, one example of progress for the life skill of empathy called 'Crystals of Kaydor', developed for children aged 11–14 years. The purpose of getting young people to play the game is to assess the test taker's learning processes of empathy and to measure the extent to which they have learnt empathy from playing the game (Herold, 2013). So far controlled trials have demonstrated that using the training that accompanied the game developed a significant increase in the capacity of young people's skills in empathetic accuracy and brain scans demonstrated a change in young people's neural activity (Kral and others, 2018). Nevertheless, as of the date of going to press, there is no published research on the effectiveness of this game for assessment purposes. For more details on this game see the section on empathy in the evidence base.

The challenges in the use of serious games for assessment are, first, the huge costs involved in developing a virtual environment to perform the skills and securing the necessary technology for the test takers to use it. Second, there appear to be equally large challenges in developing the methodologies to make use of the mass of data collected for assessment purposes. The technology has the potential to capture every interaction the test taker has made in the virtual environment but the knowledge to develop this data into reliable assessments is currently lagging. Third, it is difficult to establish whether demonstrating a skill in a virtual environment will be replicable or performed the same way in the real world.

Challenges going forward in measuring life skills

- **Multi-dimensional characteristics of life skills:** The fact that life skills are described as having multiple attributes may well contribute to the fact life skills measurement instruments may not be as internally coherent as traditional cognitive educational measures. Early examples of new measures of life skills using SJTs have found this to be the case (Galloway, 2017). This will be a challenge for developing new instruments. The literature has suggested using different ways of testing reliability such as the use of testing and retesting and or triangulation with other methods such as observation to verify the reliability of new instruments. Considering these alternative options may well be a useful way to proceed.
- **The distinction between cognitive and non-cognitive needs to be re-examined:** The dichotomy that separates cognitive and non-cognitive test items needs to be reconsidered in order to produce useful measures of life skills. Life skills contain a combination of knowledge, skills, attitudes and values that are performed together and to try to artificially separate these processes is unlikely to provide useful measures in the long term.

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- **Proficiency levels and benchmarking:** There is little in the way of evidence to guide instrument development on expected proficiency levels of the different life skills. There is currently not enough research and development to classify the proficiency levels of life skills and to indicate an absolute level or benchmark on the levels of attainment, which are necessary. At this stage, one of the few possibilities is to create average levels of performance of the life skills for a country and compare students or sub-groups of students within the population to that average. If the study is then completed, again some years later, the benchmark could be the average score obtained from that country from the first round of conducting the study.
 - **Measuring change:** Further difficulties have been highlighted with creating instruments that measure change or skill development within an individual. The current response scales for self-reports typically do not provide sufficient variation to measure change (Lippman and others, 2014). Further experience in learning a skill can also lead to a decline in response rates when an student realizes their proficiency level on this skill is perhaps not as high as they had first thought (Lippman and other, 2012; Herman, 2016; Duckworth and Yeager, 2015).
 - **Cultural differences in life skills:** The cultural differences in life skills are under researched as most measures have been developed within wealthy OECD countries. There is little research to indicate if life skills are performed in the same way in different countries or regions. There are also questions as to whether respondents also have the same response style in different countries and regions. One innovation has been to use anchoring vignettes to try to reduce the effects of cultural differences. This method is still contested and requires further development to be certain of its usefulness.
 - **Self-reporting items still the most useful in the field:** There has been a lack of research, development and innovation on better measures of capturing skills and reducing the limitations of self-reported skills. SJTs provide another promising innovation to reduce desirable responses given by test takers but this method is still in its infancy and requires further development.

Chapter 3: Conclusions

Teaching and learning life skills, when done effectively, is incredibly important for empowering children and young people to achieve in education, employment, personal goals and enabling them to have a say in decisions that affect their lives. Not everyone has the chance to learn positive life skills. This publication, however, has provided compelling evidence that it is possible through education to enable all children and young people regardless of their background to become more proficient on these skills. This highlights the necessity for mainstreaming life skills in education systems and more broadly within non-formal education activities. Nevertheless, to date, few education systems have integrated life skills into their education systems. Some of the reasons for this are challenges concerning the lack of knowledge as to what life skills are, how they can be taught and how they can be measured, assessed and evaluated.⁴³

WHAT ARE LIFE SKILLS?

- Life skills are transferable skills that enable individuals to deal with everyday life, and to progress and succeed in school, work and societal life.
- They are comprised of skills, attitudes, values, behaviours and domain-based knowledge which need to be applied in harmony with each other.
- They can be learnt throughout life though there are different optimal ages for when interventions are most likely to be effective.
- Life skills are frequently defined in terms of the empowerment that they offer individuals in their daily lives. They are also understood in terms of their social benefits and their contribution towards societal change.
- Each of the life skill has a number of sub-constructs and performing a life skill requires several processes or steps to complete.
- The boundaries between the different life skills are fluid with each having a close relationship and sometimes overlapping with other life skills.

HOW CAN LIFE SKILLS BE TAUGHT?

The literature on education interventions generated a set of basic teaching principles that appeared to be effective for the teaching of life skills.

1. Learning through participation is the process of actively involving the learner in each step of the learning process. This includes empowering students to take decisions and have a voice in: (a) the preparation of the learning activity, (b) within the learning activity itself (trying out ideas and debating and discussing different perspectives), and (c) in the reflection and evaluation of the learning activity after it has been completed.
2. Learning through cooperation is the process where students learn to work together, typically in small but diverse groups, and learn how to learn from each other's knowledge and experience to complete a task. This learning process typically focuses on implementing the values of equity and inclusivity of all members of each group in the learning process.
3. Learning through practicing life skills
 - a. Simulation of real-world activities. Ideally the simulation is employed after a more theoretical input and then followed by a debrief. Another success factor is making sure that the participatory activity is as true to life as possible.
 - b. Real-life experience requires careful management of the experience to ensure that the desirable learning outcomes are achieved.
4. Learning in a safe environment
 - a. Coherence between the values being taught and the values embedded in the teaching and learning process.
 - b. An open and accepting classroom climate is crucial for teachers to support students to express their divergent opinions and for teacher to explain and demonstrate that this should not be feared within the classroom.
 - c. A conducive school climate that build upon and reflects what is being promoted in the classroom, providing room for both teachers and students to voice their opinions on issues such as school management.

43. Another reason for lack of implementation of life skills in particular in developing countries education systems can be due to the lack of resources.

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5. Targeted strategies to support disadvantaged children and young people
 - a. Explicit instructions that include explaining to students the learning outcomes, what the skills looks like when they are done well and how they can demonstrate this skill. These methods are useful for all students but are a necessity for students that have not had the chance to learn about these life skills in their home environment.
 - b. Targeted interventions that target life skill training at specific sub-groups at risk of low attainment and dropping out of school.

These principles need to be applied within the specific programmes/activities tailored towards the specific life skills learning outcomes.

ASSESSING LIFE SKILLS

Quality measures for assessing life skills would enable education decision makers and practitioners to track current levels and distribution across target populations, identify progress of policies and programmes designed to enhance these skills, as well as to inform on the nature and scope of potentially useful interventions. In addition, these instruments could enable research to identify sub-groups who need more support in the learning of life skills. Nevertheless, significant research and development is required to develop quality assessment instruments on life skills.

STATE OF THE ART ON CURRENT INSTRUMENTS

- Most existing valid and reliable instruments are privately owned and not available for public use. This is particularly the case for cognitive test items.
- Some skills have received more attention in measurement development than others with skills such as cooperation, negotiation and critical thinking having almost no existing instruments that have found to be reliable and open for public use.
- There is limited use of innovation in the development of existing measures and they are dominated by traditional self-report items.
- The majority of the existing tools have not been tested in low-income countries or across different socio-cultural contexts.

THE CHALLENGES IN MEASURING LIFE SKILLS

The review of the evidence highlighted a series of challenges regarding the development of future measurement instruments on life skills.

- **Multi-dimensional characteristics of each life skill:** Each individual life skill is described as encompassing multiple and possibly distinct attributes. This will contribute to the fact life skills measurement instruments may not be as internally coherent as traditional cognitive educational measures. Multiple measures may well be needed to capture the different components of a life skill. The added value of life skill measurement compared to traditional cognitive measures undertaken in exams or in large-scale assessments are that they capture the richness and complexity of the practicing of skill in real life. Nevertheless, different ways of measuring reliability such as the use of testing and retesting and or triangulation with other methods such as observation to verify the reliability of new instruments need to be considered.
- **The distinction between cognitive and non-cognitive test items:** Life skills contain a combination of knowledge, skills, attitudes and values with cognitive and non-cognitive elements that are performed together. Separating the cognitive and non-cognitive test items needs to be reconsidered in order to produce useful measures of life skills.
- **Proficiency levels and benchmarking:** There is little current evidence or guidance on expected proficiency levels of the different life skills in general or age specific. There is not enough research and development to classify the levels of the life skills and to indicate an absolute levels or benchmark on the levels of attainment, which are necessary. In addition, one could question whether it is possible or even desirable to determine absolute levels. At this stage, one of the few possibilities when evaluating the education system is to create the average levels of performance on the life skills and compare students or sub-groups of students within the population to that average. If the study was then completed, again some years later, the benchmark could be the score from the first stage of undertaking the test.

- **Measuring change:** Further difficulties have been highlighted with creating instruments with the purpose to measure change or skill development within an individual. The literature suggests that the current response scales for self-reports typically are said not to provide enough variation to measure change (Lippman and others, 2014). Further experience in learning a skill can also lead to a decline in response rates when a student realises perhaps their proficiency levels on this skill is not as high as they had first thought (Lippman and others, 2012; Herman, 2016; Duckworth and Yeager 2015). Research and development are required on measuring change.
- **Cultural differences in life skills:** The cultural differences in life skills are under researched as most measures have been developed within OECD countries. There is little research to indicate if life skills are performed in the same way in different countries or regions and the social-cultural dimensions that may contribute to different scores. There are also questions as to whether respondents also have the same response style in different countries and regions.
- **Self-reporting items are currently still the most useful in terms of cost-benefit:** As observation of skill performance is so expensive self-reported test items continue to be the most useful method for the collection of large-scale data on life skills. Further development and innovation towards better measures of capturing skills beyond self-reporting at a reasonable expense is still required.

INNOVATION IN ASSESSMENT

The basic underlying principle of skills testing is that the best predictor of future skill performance is through assessing current skill performance (Lievens and others, 2008). This is why testing through observation of performance is still considered the most reliable and valid forms of testing. Due to the expense of this format, the field is dominated by self-reported question items which are low cost and easy to administrate but widely critiqued for being influenced by social desirability, individuals deliberately misrepresenting themselves and cultural differences in response styles. Nevertheless, there is a range of different forms of self-reports and response format options and some inroads have been made to improve the quality. Notable recent innovations are:

1. Anchoring vignettes are used to reduce differences in response styles and asks participants to rate other people's behaviour in a given scenario before rating their own. The data on the ratings on other people is used to understand participants' individual response style.
2. Situational judgement test are used to reduce errors created through participants giving socially desirable or deliberately wrong answers. It develops a scenario and asks the participants what they would do in this given situation. Situational judgement tests have been found to be predictive of future success in employment and are a better predictor than either cognitive scores or personality tests (Patterson and others, 2012).
3. Computer-based assessment is the use of virtual reality/serious games testing of life skills. Nevertheless, most computer-based testing of skills does not fulfil the potential of the technology and ends up as online versions of a paper and pencil test. The greatest barriers to achieving the technological potential in skills testing are the huge costs involved in developing a believable virtual environment to perform and demonstrate skill proficiency and the difficulties in developing the necessary methodologies to make use of the mass of data collected within the virtual environment created.

FUTURE DIRECTIONS

The ultimate objective of improving the measurement of life skills is to i) facilitate the integration of life skills in to education systems through the curricula and assessment (what is not tested is not taught) and ii) to develop a better understanding of the level of life skills that students have acquired in order to enhance the learning and life outcomes for all children and young people. Despite the existing challenges regarding measurement of life skills, recent innovation and development in the field suggest that it is possible. Concerted effort from policy makers, practitioners and researchers is required to integrate life skills into education systems and non-formal learning settings and to collaborate to generate the global knowledge and evidence on how to effectively integrate and measure life skills.

Appendix 1

VARIABLE INFORMATION

1. **Politic trust** is a combined indicator that asks about citizens' attitudes (1 = a great deal, 2 = quite a lot, 3 = not very much, 4 = none at all) towards a list of political institutions in the WVS database, including the police, the government (in your nation's capital), political parties, and parliament.
2. **Association** is comprised by multiple question items that measure participants' memberships (0 = don't belong, 1 = inactive member; 2 = active member) in a list of voluntary organizations, including church or religious; sport or recreational organisation; and art, music or educational organization.
3. **Gender equality** is a combined indicator that asks participants' attitudes (agree = 1, neither = 2, disagree = 3) on the following statements: when jobs are scarce, men should have more right to a job than women; if a woman earns more money than her husband, it is almost certain to cause problems; and having a job is the best way for a woman to be an independent person.
4. **Support for democracy** measures citizens' attitude towards democracy as a way of governing the country by asking their attitudes towards (1 = very good, 2 = fairly good, 3 = fairly bad, 4 = very bad) four research questions: having a strong leader who does not have to bother with parliament and elections; having experts, not government, make decisions according to what they think is best for the country; having the army rule; and having a democratic political system.

VARIABLE RECODING INFORMATION

The key principle of recoding is to use a higher score to denote a positive attitude. In light of political trust, the order of the answer scale is reversed. In terms of gender equality, the answer scale is only reversed for the last question item: having a job is the best way of a woman to be an independent person (disagree = 1, neither = 2, agree = 3). A positive answer on this question is more likely to represent the support for the equality of gender.

When it comes to support for democracy, I select everything important for democratic values. As presented above, a 'very bad' value equates to very important for democratic values for the first three items; whereas a 'very good' value equates to very important for democratic values for the last item. Therefore, only the polarity of responses to the last item is reversed, with the aim of using a higher score to predict a positive attitude towards democratic values.

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