



# HEALTH LITERACY

Health literacy of children and adolescents  
in school settings

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Health Literacy. Health literacy of children and adolescents in school settings.

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# INTRODUCTION

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Schools have long been viewed as an important setting for preserving and promoting the safety, health, personal and social development of children and adolescents. In many countries, the first public or community schools were often established by parents, faith-based organisations, charities and cultural groups, for the socialisation and care of the children whose parents had moved into cities during industrialisation of their societies and economies. The social role of schooling continues to be recognised. The Delors Report, for instance, proposed an integrated vision of education based on two key concepts, 'learning throughout life' and the "four pillars" of learning: to know, to do, to be and to live together (Delors et al., 1996). Yet, the changes in the world today are characterised by new levels of complexity and contradiction. Education is expected to prepare individuals and communities for the pressures generated by these changes by giving them competencies that will help them to adapt and to respond. There is a need for rethinking education and learning in the context of social transformation (UNESCO, 2015; OECD, 2019).

## **Social transformation means rethinking education**

Social transformation implies a fundamental change in society in contrast to social change viewed as gradual or incremental changes over a period of time (Khondker & Schuerkens, 2018). The future foundations of education incorporate the principle of sustainable development. UNESCO proposes an understanding of sustainability far beyond the discussions of economic development balanced with environmental or ecological protection. Instead, it is inspired by a humanistic vision of education and development, based on respect for life and human dignity, equal rights, social justice, cultural diversity, international solidarity, and shared responsibility for a sustainable future (UNESCO, 2015). As part of rethinking education, new educational strategies include a focus on Health, Personal & Social Development (HPSD) education. HPSD education is a school curriculum subject designed to develop the knowledge, skills and attributes students need to manage their lives, now and in the future. The programme related to HPSD education covers a range of topics, including many pressing issues facing young people today including mental health, staying safe online, positive relationships, drugs, alcohol, challenging extremism, careers and financial literacy. The subject aims to have a positive impact on a number of outcomes for young people, including their physical and mental health, safety, careers, financial capability and economic wellbeing (Barnard et al., 2016). Hence, it supports the children and adolescents' health, relationships and wellbeing as well as their academic attainment and helps them develop fully as individuals and as members of society. Notably, health literacy forms the foundation of HPSD education.



# CONCEPT NOTE

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The educational system is widely recognised as the most important setting for addressing the promotion of health literacy from an early age (St. Leger, 2000; Nielsen-Bohlman et al., 2004; Benham-Deal and Hodges, 2009; WHO, 2013, 2017a, 2017b; McDaid, 2016; Paakkari & Okan, 2019; Paakkari et al., 2019). Health literacy is a concept that can be widely embraced by schools and is compatible to and easy to link with many topics that are already being successfully addressed, taught and learned within schools and classrooms. Schools throughout the world contribute to the achievement of public health goals in conjunction with their educational commitment (St. Leger, 2001). UNESCO (2015) and WHO (2013), for example, recognise that from an educational point of view, schools contribute to health by: i) creating the conditions for pupils' achievement through the school environment, with proven health benefits later in life; and ii) acquiring health competencies and promoting health literacy with the aim of empowering young and future generations to make healthy decisions. Health literacy is increasingly regarded as an asset for the development of individual, organisational, community and societal health. Yet, the dissemination of the concept in various sectors and fields is slowed down by several factors. The barriers involve different interpretations of the concept of health literacy and its measurement and application. Furthermore, there is confusion about its relation to health education and health promotion. Lastly, it can be analysed from various perspectives as it is content- and context-specific and is closely related to other literacies. However, new agendas in research, policy and practice help bridging these gaps in the rapid evolving field of health literacy.

The aim of the concept note on health literacy is to

- define the key elements of health literacy;
- describe how health literacy has been used in core HPSD curricula, in and across other subjects, in extracurricular and cocurricular activities, in school routines and practices, in community or web-based learning linked to the school and in emerging competency-based curriculum frameworks;
- summarise the research and development work that has been done on how to measure and monitor student learning related to health literacy;
- describe how health literacy addresses the four overarching challenges gender, climate change, youth alienation or equity;
- develop a hypothesis (or propose a process to develop such hypotheses) of the minimum student learning outputs (key functional knowledge, skills, attitudes, normative beliefs, awareness of social influences) needed as a pre-requisite for behaviour change and the development of personal action plans (intentions) in relation to health literacy;
- describe in brief the knowledge, beliefs, awareness of teachers and other school-based or school-linked workers needed and studies documenting current levels of such readiness. In addition, this concept note will suggest ways in which this knowledge about the readiness of teachers and other professionals could be further developed.

This concept note was developed by Kristine Sørensen, Global Health Literacy Academy in collaboration with Orkan Okan, Bielefeld University, with the support of Douglas McCall from the International School Health Network.

# KEY MESSAGES

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This concept note explains the concept of health literacy and applies it to the context of children and health-promoting schools. It indicates ways on how health literacy can be measured and monitored; shows the relevance of health literacy for emerging challenges such as equity, gender, alienation and climate change; highlights important health literacy learning outputs from interventions, and showcases the role of teachers in the advancement of health literacy. Lastly, it discusses future avenues in relation to the development of health literacy for children and adolescents.

- Health literacy is linked to literacy and entails the knowledge, motivation and competencies to access, understand, appraise and apply information to form judgement and make decisions regarding healthcare, disease prevention and health promotion to maintain and promote quality of life during the life course.
- Limited health literacy is detrimental to health across the lifespan. It is a neglected public health challenge. Nearly one-third or more of the population is thought to have limited health literacy according to research in Europe and beyond.
- Effective health literacy interventions as part of, for example, health-promoting school programmes, can positively influence educational and academic performance, which, in turn, can have long-term benefits during the life course.
- A whole-of-society and whole-of-government approach are encouraged as the promotion of health literacy for children and adolescents is typically conducted outside the health sector, for example, as part of formal and non-formal education.
- Recognising and respecting that education is the core business of schools and educational settings, it is paramount that health literacy as an outcome of health education becomes an integral part of curricula from an early childhood.
- Health-promoting efforts should be age- and gender-specific in order to maximise learning output, taking into account the existing health literacy levels of the children and adolescents.
- Proper evaluation of health literacy interventions as well as general measurement and monitoring of health literacy development is encouraged to clarify the impact of these interventions.
- It is encouraged to apply a pragmatic, age-specific focus when developing health literacy measurement for children and adolescents and preferably to involve all relevant stakeholders, such as researchers, teachers, decision-makers as well as children in the development.
- It is important to take into account that health literacy is content- and context-specific when considering the potential outcomes and challenges in the implementation of health literacy interventions.
- The impact of health literacy at the individual as well as the societal level is critical, as improved health and educational outcomes in school increase the potential for better health and human and economic benefits for children when they reach adulthood. These effects may be intergenerational and passed down to future generations.
- Early childhood and early childhood education are yet to be considered important targets for tackling health literacy problems in the life course despite being a critical stage for the establishment of the prerequisites for the skills, behaviours and actions known to be the main components and outputs of health literacy.
- Policy and intervention should focus on early childhood development and on addressing the social determinants of adversity to sustain equitable health literacy development in the life course.



# HEALTH LITERACY

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Health literacy is a concept that can be widely embraced by schools. Schools throughout the world contribute to the achievement of public health goals in conjunction with their educational commitments.

*St. Leger, 2001*

# DEFINING HEALTH LITERACY

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Enhancing health literacy offers great potential for improving the health of children and providing them with the tools to be more informed and capable consumers of expensive and limited medical resources in adulthood (Winkelman et al., 2016). Scott K. Simonds, who participated in the Will Rogers Conference on Health Education in the U.S. in the 1970s, brought health literacy to attention as an important social policy topic in support of the creation of a better and more just healthcare system that help citizens protect and maintain their health (Simonds, 1974).

Three literature reviews highlight the development of health literacy definitions. The first comprehensive study was conducted by Sørensen et al., focusing on definitions and models (Sørensen et al., 2012) followed by a second review by Malloy-Weir et al. (2016) in relation to interpretations and implications for policy. A third review, by Bröder et al. (2017), concentrated on the analysis of health literacy definitions with relevance for children and adolescents. The definitions presented in this report are selected as relevant, but are not exhaustive. For more details, please refer to the reviews.

## **General health literacy definitions**

Nutbeam (2000) introduced a widely accepted approach to health literacy, grounded in educational theory, describing three levels of health literacy: functional health literacy, interactive health literacy and critical health literacy. This perspective reveals that improving health literacy means more than transmitting information and being able to read pamphlets and make medical appointments. Notably, by improving people's competencies for accessing, understanding and using health information effectively, it is argued that health literacy is critical for empowerment. The classification indicates that these different levels of health literacy progressively allow for greater autonomy and personal development. However, progression between levels is not only dependent upon cognitive development, but also upon the exposure to different information and communication content and methods. In turn, this is influenced by variable personal responses to such communication – which is also mediated by personal and social skills, and self-efficacy in relation to these issues (1998, 2000).

Nutbeam (1998): *"The cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health"*.

The definition by Kickbusch and Maag contextualised health literacy and highlights that health literacy is a critical empowerment strategy for people to be in control over their health, their abilities to manage information and take responsibility. However, schools as a setting is not mentioned specifically. Yet, the definition clearly links up to the setting approach.

Kickbusch and Maag (2008): *"The ability to make sound health decision(s) in the context of everyday life--at home, in the community, at the workplace, the healthcare system, the marketplace and the political arena. It is a critical empowerment strategy to increase people's control over their health, their ability to seek out information and their ability to take responsibility"*.



The European Health Literacy Consortium (HLS-EU) developed an all-inclusive definition based on a comprehensive review of definitions (Sørensen et al., 2012) stating that:

*"Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course – with the support of services and systems".*

While this definition encompasses the public health perspective, it can easily be specified to accommodate an individual approach by substituting the three systemic domains of health: "healthcare, disease prevention and health promotion" with the personal aspects "being ill, being at risk and staying healthy". Furthermore, the definition highlights that health literacy is a relational concept influenced by personal as well as environmental factors.

### **Health literacy defined in the context of children and adolescents**

Over the years, different literature reviews have analysed health literacy concepts and definitions for children and adolescents. In conclusion, they describe that health literacy comprises different dimensions such as abilities, skills, attitudes and commitments as well as knowledge, that together enable a person to competently deal with health information and make health decisions (Perry, 2014; Malloy-Weir, 2015; Okan et al., 2015; Bröder et al., 2017). The following definitions show different conceptualisations of health literacy for children and adolescents.

National Health Education Standards (1995): *"Health literacy is the capacity of individuals to obtain, interpret, and understand basic health information and services and the competence to use such information and services in ways which enhance health".*

Fok and Wong (2002): *"To understand and act upon physical and psycho-social activities with appropriate standards, being able to interact with people and cope with necessary changes and; demands reasonable autonomy so as to achieve complete physical, mental and social well-being".*

Borzekowski (2009): *"Health literacy is not just the ability to read, rather, it is a set of skills that involve recognising, processing, integrating, and acting on information from a variety of platforms. Those between the ages of 3 and 18 can seek, comprehend, evaluate, and use health information, especially if materials are presented in ways that are age appropriate, culturally relevant, and socially supported. The development of health literacy among children and young people can empower this vulnerable and "marginalised" group to be more engaged, more productive, and healthier".*

Paakkari and Paakkari (2012): *"Health literacy comprises a broad range of knowledge and competencies that people seek to encompass, evaluate, construct and use. Through health literacy competencies people become able to understand themselves, others and the world in a way that will enable them to make sound health decisions, and to work on and change the factors that constitute their own and others' health chances".*

Importantly, the dimensions of health literacy focus on conceptual foundations, critical skills, and civic orientation, respectively. The target population for the promotion of health literacy and public health literacy is the entire public, including children and adolescents, not just patients, adults and medical professions (Freedman et al., 2009). Whereas health literacy has traditionally been operationalised as an individual-level construct, newer definitions of health literacy take into account the complex social, ecological, and systemic forces affecting health and well-being (Freedman et al., 2009). The overlapping features of these definitions seem more dominant than the differences (Sørensen & Pleasant, 2017) despite claims of fragmentation and lack of consensus (Mackert et al., 2015).

*Health literacy skills start early in life and are part of the process of caring for and educating children, adolescents and young adults.*

*All children should graduate with health literacy skills that will help them lead healthier lives.*

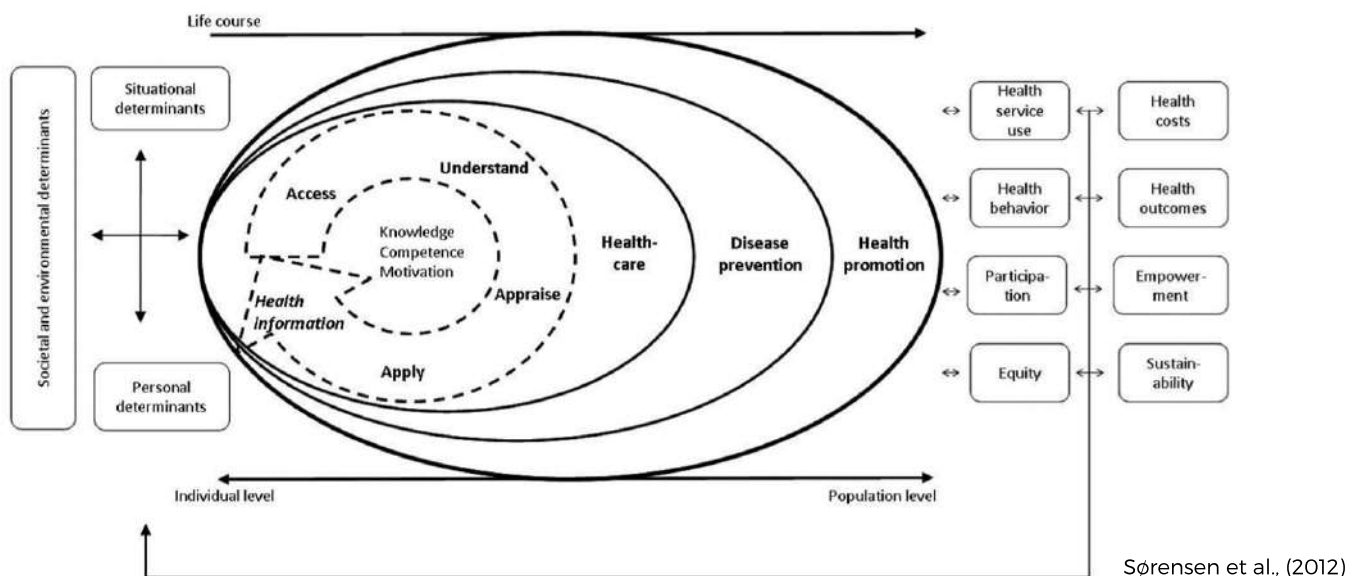
*U.S. Center for Disease Control and Prevention*

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# CONCEPTUAL MODEL OF HEALTH LITERACY

The conceptual model on health literacy developed by the European Health Literacy Consortium (Sørensen et al., 2012) shows that health literacy is influenced by personal, situational and environmental factors and in turn, influences health service use and costs; health behaviour and health outcomes; level of engagement and empowerment; and equity and sustainability. Health literacy develops during the life course and can be studied at individual, organisational, community, and population levels (Sørensen et al., 2012).

The role of schools primarily focuses on learning activities that support disease prevention and health promotion. Hence, the investment in health literacy as an outcome of health education helps to facilitate that children and adolescents obtain the knowledge, motivation and competencies to find, understand, judge and use information to make decisions in terms of their health and the factors influencing health. Speros (2005) has also conceptualised health literacy among young people and emphasised the role of the education system.



According to the World Health Organization (2013), ideally, a health literate person is able to seek and access the health information required:

- to understand and carry out instructions for self-care, including administering complex daily medical regimens;
- to plan and achieve the lifestyle adjustments required for improving their health;
- to make informed, positive health-related decisions;
- to know how and when to access health care when necessary; and
- to share health promoting-activities with others to address health issues in the community and in society.



# HEALTH LITERACY

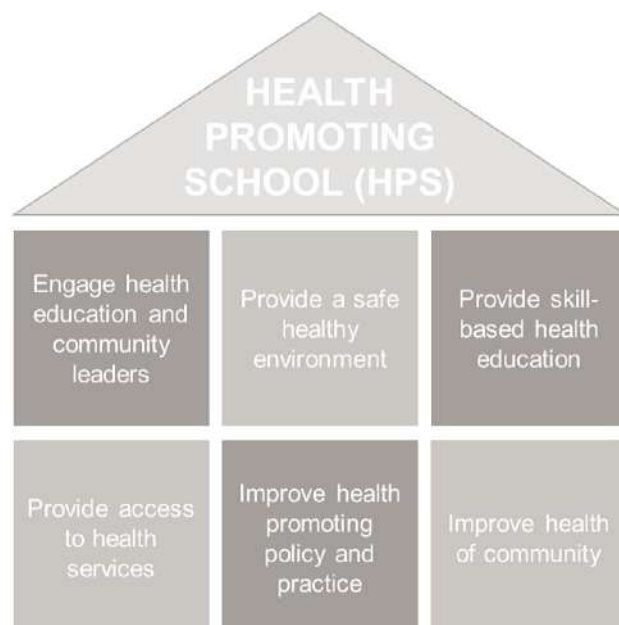
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The concept of health literacy, embedded in modern-day health promotion practices, is grounded in the principles of empowerment, human rights, ethics, values and equity.

*Ardiles, Castelijn, Black and Sørensen (2019)*

# HEALTH LITERACY IN SCHOOL SETTINGS

In the past, health literacy has been defined as a key concept in and central pillar of health promotion (WHO, 2013; 2017b). As such, health literacy can be embedded into the healthy settings approach (i.e. healthy cities, healthy communities, healthy workplaces, healthy schools). In this context, health literacy can be addressed by policies, processes and practices that aim at improving the whole environment within a setting (WHO, 2013). Therefore, when focusing on education and schools, health literacy should not be considered a stand-alone topic in school health promotion and education, but should be integrated into existing setting-based approaches to school health such as the WHO's Health Promoting Schools framework (WHO, 2017) and the US-based Whole School, Whole Community, Whole Child Model (Lewallen et al, 2015). Such whole school approaches to health promotion have existed since the late 1980s in educational systems around the world (Langford et al., 2014, 2015) and have already been discussed in context of health literacy (St. Leger & Nutbeam, 2000; St. Leger, 2001). They involve a holistic approach to the promotion of health in schools and are specifically designed with recognition of the value of inter-, multi-, transdisciplinary and intersectoral approaches and methods for improving the health and well-being of all school actors involved (WHO, 2013). The original HPS model, for example, comprises six components that are central when addressing health promotion within the school setting as illustrated below (WHO, 2017b):



WHO (2017b)

In summary, HPS means that a school aims to promote and enhance its capacities in order to create an overall healthy environment for living, learning and working (WHO, 2017b). HPS is to be understood as a whole-setting approach that is integrative and holistic, and thus including the whole school environment (proximal, distal and immediate factors). This involves the physical, social, mental, emotional and environmental factors that impact on health and well-being within and outside of school (St. Leger, 2000; Benham-Deal & Hodges, 2009; WHO, 2017b). HPS is critical for mitigating the effects of social health inequalities and to enhance health equity (IUHPE, 2009; Kephelopoulos et al., 2014). HPS is considered to be an effective approach to tackle risk factors for noncommunicable diseases (NCDs) by addressing resources and improving capacities of all involved (WHO, 2017b).

While health education is central to teaching and acquiring health literacy, such whole school approaches address several environmental factors beyond the classroom level. In the "Health Literacy: the Solid Facts" report (WHO, 2013, 2017b), it was suggested to introduce health literacy into the health-promoting school framework. In the model, WHO describes the compatible levels of influence on children's health and how the educational system can support the enhancement of health literacy in children from an early age, starting in early childhood and continuing throughout the school years. Generally, the HPS approach combines individual behavioural change - which, within the context of health literacy, includes strengthening personal health literacy competencies - and organisational change, which includes changes in educational and school policies. In this context, HPS for health literacy includes three levels that are interconnected with a larger social system as well as the ecological perspective towards the whole school environment: i) a broad health education curriculum, ii) supportive school environments and the ethos of the school as an organisation as well as iii) inter-sectoral partnerships and school-linked health and social services. HPS is embedded into the greater ecologic perspective and aims at addressing macro- (systems, structures, policies), meso- (i.e. schools, staff, services) and micro-level (individuals) action and interaction (IUHPE, 2009, WHO, 2013). These include intra- and interpersonal factors, institutional and community conditions as well as public policy factors (WHO, 2013). Further principles include community participation, partnership, empowerment and health equity (WHO, 2013).

### **The Whole School, Whole Community, Whole Child model**

The Whole School Whole Community Whole Child (WSCC) model serves as a collaborative approach to health and academia that includes 10 components of the school and community (from health education to the social and emotional climate) centering on the whole child and emphasising the role of the community (CDC, 2015a). The WSCC model shows that the connection between health and academia serve as the foundation for the development of quality school health education with a specific focus on health literacy. If properly addressed, the three challenges could positively affect the well-being of future generations i) making quality school health education the new norm; ii) making the case that school health education is key to improving health literacy; and iii) operationally defining quality school health education and establishing relevant measures for determining success (Lewallen et al. 2015; Videto & Dake, 2019).



CDC (2015a)

# HEALTH LITERATE ORGANISATIONS

Recognising the increasing need for people-centred organisations and services, a transformation has started towards the development of health-literate organisations. Based on the two-sided nature of health literacy (Baker, 2006; Parker & Ratzan, 2010; Sørensen et al., 2019), both personal health literacy competencies and environmental and organisational demands and complexities must be addressed in order to sustain healthy action, better health behaviour, health outcomes and health status. This stream of health literacy emerged in the USA a decade ago and has led to defining the ten attributes of a health literate health care organisation (Brach et al., 2012). This approach is sometimes also referred to as the health literacy-friendly settings approach (WHO, 2013; Farmanova et al., 2018) and the responsiveness of settings approach towards individual health literacy needs and demands (Trezona et al., 2017). Illustrated below is the way health literacy involves improving people's skills to meet the system's complex demands (Parker and Ratzan, 2010) as well as developing the system's capability to meet the complex demands of people (Sørensen et al., 2019).



Parker & Ratzan, (2010); Sørensen et al., (2019)

The organisational health literacy and system-level health literacy approach has since been adapted in many countries across the globe (Thomacos & Zazryn, 2013; Koh et al., 2013; Greenhalgh, 2015; Trezona et al., 2017; Meggetto et al., 2017; Vellar et al., 2018; Farmanova et al., 2018; Brega et al., 2019; Pelikan, 2019). The U.S.-based health-literate health care organisation approach (Brach et al., 2012; Brach, 2017) has been adapted to Austrian health care settings and in turn, the organisational health literacy approach has been adapted to Youth Work settings in Austria (Wieczorek et al., 2017) representing the first time that this system-level health literacy approach had been adapted to non-adult settings and shaped along the needs and demands adolescents face acting and interacting with their relevant Youth Work and Service providers and professionals. It has also been suggested to implement organisational health literacy into the whole school environment (Peralta et al., 2017; Okan et al., 2018a; Paakkari & Okan, 2019; Paakkari et al., 2019); and as such, this approach perfectly fits into the HPS framework.

# TOWARDS HEALTH LITERATE SCHOOLS

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In the future, system-level approaches should aim at combining the attributes of health literate organisations and analysing how they can best be integrated into the HPS models. For example, when using the model developed by Wieczorek et al. (2017) - which, in contrast to the original model, contains only nine dimensions instead of ten - the following indicators could be adapted in order to evaluate health literacy within the whole school setting (early adaptation and work in progress of the German “HeLit-Schools” project by Bielefeld University (Germany) which is funded by the German Federal Ministry of Health):

1. Establishing school management policy and organisational structures for health literacy (embedding health literacy into the school organisation)
2. Developing materials, teaching and services in participation with students (approaches have meaning for students)
3. Training school staff (teachers, principals, health professionals) for health-literate communication and quality teaching on health literacy (development for health)
4. Providing a health-promoting and supportive environment (health-literate environment and public health literacy)
5. Applying health literacy principles in health education classroom teaching and learning (increasing the attractiveness and uptake of health issues)
6. Improving health literacy of students and their social environment (personal and distributed health literacy)
7. Improving the health literacy of teachers, principals and all staff (promoting health literacy of professionals)
8. Strengthening health literacy in the school environment and network (establishing health-promoting schools)
9. Sharing experience and be a role model (together for health) (Okan & Bauer, 2019).

It is important to recognise that education, not health, is the core business of schools. Therefore, school health promotion approaches and health literacy approaches in this context in specifically must be adapted to the educational objectives, goals, principles and concepts in place in the educational systems (St. Leger, 2000; Paakkari & Okan, 2019).

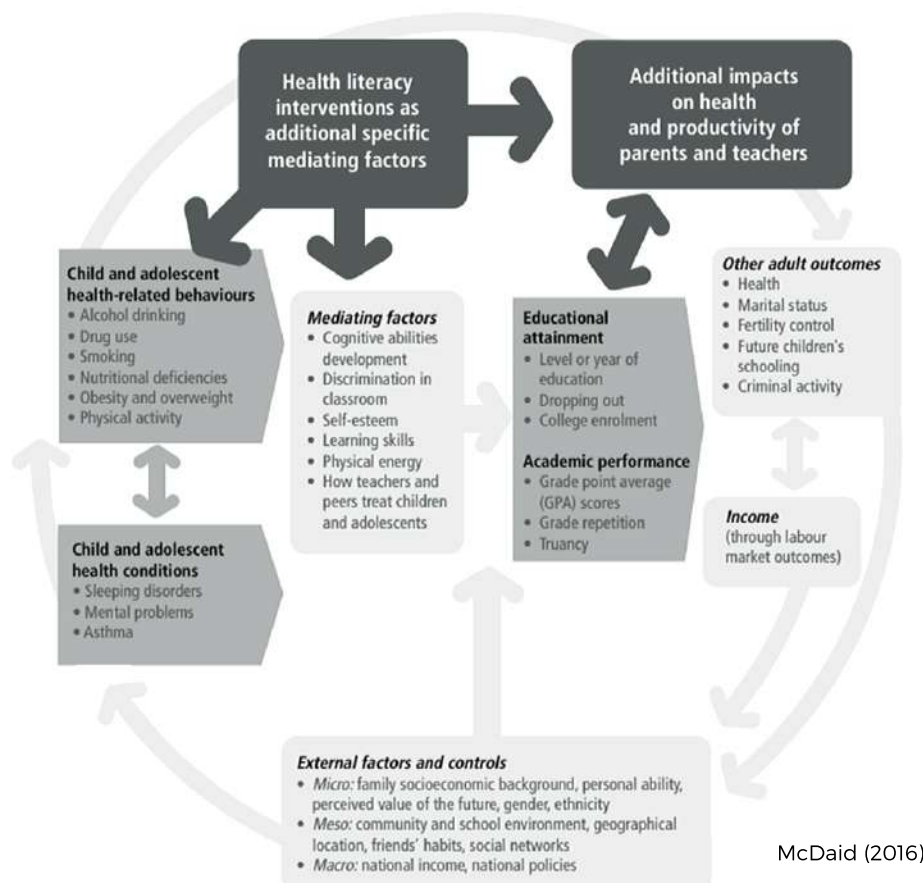




# HEALTH LITERACY LEARNING OUTPUT

In a rapidly-evolving, scientifically-grounded and technology-driven society, the development of health literacy is essential to ensure that the public is motivated and capable of retrieving, making sense of, and applying accurate health-related information in their daily lives and professional activities (Fonseca & Calvalho, 2015). Notably, the development of health literacy skills start early in life and are part of the process of caring for and educating children, adolescents and young adults. All children should graduate with health literacy skills that will help them lead healthier lives (CDC, 2019).

In Policy Brief 19 of the WHO and the European Observatory on Health Systems and Policies titled “Investing in health literacy”, McDaid (2016) analyses the co-benefits of addressing health literacy in the education sector. According to McDaid (2016) and illustrated below, general school-based health promotion programmes can be a vehicle for implementing health literacy in schools. Programmes that include health literacy as a component, such as the Health-Promoting Schools model (SHE, 2019), have been associated with some evidence of impact on educational outcomes. Empowering children to take control and make informed decisions that can influence their health can have immediate benefits for their health and well-being. There are also opportunities for enhancing critical health literacy skills that can last for a lifetime. Improved health and educational outcomes in school increase the possibility of greater economic benefits for children when they reach adulthood as a result of enhanced career opportunities and better physical and emotional health. This better environment, in turn, can have a positive influence on the next generation of children and young people, improving the opportunities for them to develop strong health literacy skills early in life (McDaid, 2016).



### **Creating a culture of health and wellbeing**

Creating a positive health culture would facilitate a higher level of health literacy, helping individuals to build the personal, cognitive and social skills that determine their ability to gain access to, understand and use information to promote and maintain good health (Nutbeam, 2000). School is an important setting in helping students to achieve health literacy. The teaching of health-emphasising critical thinking would help students to understand the issues of 'why', 'when', 'where', 'what' and 'how' in relation to health and health services. (Lee, 2009). Effective educational interventions targeting younger population segments may increase the chance of nurturing a healthy lifestyle throughout life (Fonseca & Calvalho, 2015). It is suggested that learning outcomes should focus on all three tiers of Nutbeam's approach to health literacy including i) functional health literacy, ii) interactive health literacy and iii) critical health literacy (Nutbeam, 2009). Health literacy as an asset aims at supporting children and adolescents in becoming empowered and able to manage their own health.

### **No one size fits all**

The way in which the health literacy field has evolved does not indicate whether a certain level of health literacy is correct or sufficient. In turn, whilst St. Leger (2001) recognised that the health-promoting school framework should make the attainment of health literacy more achievable, the comprehensiveness of health literacy (i.e. all three levels present to a reasonable extent) is largely dependent on the type of school (autocratic or democratic), and the cultural and political practices of the region or country in which the school exists. Yet, schools that demonstrate breadth and depth in how they are led and managed, how the ways they seek to maximise educational outcomes for their students, and how they foster relationships between students and staff provide excellent environments for the increase of empowerment and the achievement of critical health literacy (St. Leger, 2001). Health literacy is a spectrum which is content and context specific and therefore, it is encouraged to focus on personal as well as cultural and environmental factors when designing programmes to advance health literacy for children and adolescents.

### **Defining health literacy as a learning outcome in schools**

Health literacy emerged from within health education and has been defined as the outcome of school- and classroom-based health education (Simonds, 1974). In the U.S., the National Health Education Standards (Joint Committee on National Health Education Standards, 1995, 2007) describe how health literacy can be taught and acquired from K-12. In Europe, Paakkari and Paakkari (2012) define health literacy as a learning outcome in schools by pointing out five core elements: theoretical knowledge, practical knowledge, critical thinking, self-awareness, and citizenship. The five core elements combine traditional health literacy thinking with the personal capacity to assess and engage in one's own health as well as in societal aspects. Health literacy as an outcome of school health promotion and education can be found within the Australian school curriculum as well and drawing upon the above notion of health literacy which defines health literacy within Nutbeam's three tier model of functional, interactive and critical health literacy (Australian Curriculum, Assessment and Reporting Authority, 2012).

Along these lines, the CDC in the U.S. has launched a new approach, with a call to define health literacy in the context of quality school health education. While there is a strong relationship between health education and health literacy, efforts should be made to avoid pitting one against the other according to the CDC. Quality school health education includes the promotion of health literacy. This is important because much of the content knowledge learned today will be meaningless when the elementary students are adults. Hence, a health-literate school focuses on teaching students how to learn about their health, how to use skills that are applicable across many facets of life, and why these are important in their life (attitudes). This should be the foundation of health literacy. In order to support school health education as a strategic avenue for achieving health literacy, these aims must be reinforced through teacher education programmes, accreditation requirements, and advocacy efforts (Videto & Dake, 2019).

# STANDARDS

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The National Health Education Standards from the U.S. are written expectations for what students should know and be able to do by Grades 2, 5, 8, and 12 to promote personal, family, and community health.

The standards focus on students' enablement of functional, interactive and critical health literacy. For each standard, specific indicators are proposed for each grade (Joint Committee on National Health Education Standards (2007).

- **Standard 1:** Students will comprehend concepts related to health promotion and disease prevention to enhance health.
- **Standard 2:** Students will analyse the influence of family, peers, culture, media, technology, and other factors on health behaviours.
- **Standard 3:** Students will demonstrate the ability to access valid information, products, and services to enhance health.
- **Standard 4:** Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
- **Standard 5:** Students will demonstrate the ability to use decision-making skills to enhance health.
- **Standard 6:** Students will demonstrate the ability to use goal-setting skills to enhance health.
- **Standard 7:** Students will demonstrate the ability to practice health-enhancing behaviours and avoid or reduce health risks.
- **Standard 8:** Students will demonstrate the ability to advocate for personal, family, and community health.



# CURRICULUM

Less effective curricula often overemphasise teaching scientific facts and increasing student knowledge. In turn, according to the CDC (2015b), an effective health education curriculum has the following characteristics:

- Focuses on clear health goals and related behavioural outcomes.
- Is research-based and theory-driven.
- Addresses individual and group norms that support health-enhancing behaviours.
- Focuses on reinforcing protective factors and increasing perceptions of personal risk and harmfulness of engaging in specific unhealthy practices and behaviours.
- Addresses social pressures and influences.
- Builds personal competence, social competence, and self-efficacy by addressing skills
- Provides functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviours.
- Uses strategies designed to personalise information and engage students.
- Provides age-appropriate and developmentally appropriate information, learning strategies, teaching methods, and materials.
- Incorporates learning strategies, teaching methods, and materials that are culturally inclusive.
- Provides adequate time for instruction and learning.
- Provides opportunity to reinforce skills and positive health behaviours.
- Provides opportunities to make positive connections with influential others.
- Includes teacher information and plans for personal development and training that enhance effectiveness of instruction and student learning.

According to Videto and Dake (2019), making quality school health the new norm, school health education being the key to improve health literacy, operationally defining quality school health education, and establishing measures of success are all mutually critically important. Collectively, these aspects are about changing the culture and perceptions regarding school health education essentially for rethinking education as part of social transformation towards health-literate societies.



# HEALTH LITERACY AND TEACHERS

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The professional development of teachers is a core pillar of addressing health literacy learning in schools (Peterson et al., 2001; Paakkari, 2015; Velardo & Drummond, 2015). Health literacy was deemed to be important on the level of student learning as well as the level of teacher instruction (Simonds, 1974). The health literacy of teachers is the counterpart of the health literacy of their students (Peterson et al., 2001). In this regard, students consume health information and teachers provide health knowledge and information and prepare school-aged children to handle and use them. Peterson et al. (2001) define teacher health literacy as “the capacity of teachers to obtain, interpret, and understand basic health information and services, with the competence to use such information and services in ways that enhance the learning of health concepts and skills by school students.” If teachers and educators are to engage in teaching health literacy in the classroom, they themselves will need to learn about health literacy during their training (i.e. initial teacher training, academic training and education, vocational training for in-practice teachers) and they need to develop a certain professional skill set towards health literacy. This also includes identifying the needs of their students, teaching techniques (methods, didactics, instructions), and provision of different learning methods.

Teachers need to be prepared to react to the complex needs and demands of students within school and the classroom (Peterson et al., 2011). Student needs comprise complex social, cognitive, emotional, cultural, developmental and of course health-related issues that teachers must pay attention to (Peterson et al., 2001; St. Leger, 2006).

The teachers role in context of teaching health literacy is as important as the student’s role in acquiring health literacy (Velardo and Drummond, 2015). Teachers not only have the capacity and opportunity to educate their students about health issues, but they can serve as role models for them (St. Leger, 2000; St. Leger & Nutbeam, 2000; St. Leger, 2006; Drummond, 2010). However, it is also important that teaching health literacy is not reduced to “simplistic accounts of health and individualism” but to more meaningful methods, that encourage students and are based on participatory principles, especially for developing critical health literacy competencies (Velardo & Drummond, 2015). In this context, teaching health literacy should always be based on teaching the social determinants of health in order to address critical health literacy competencies (Mogford et al., 2011) as defined in the report of the WHO’s Commission of the Social Determinants of Health (CSDH, 2008). By learning about the social determinants of health, students will be enabled to understand, evaluate and act upon the factors that influence their health and change them. This is especially important for addressing the root causes of health inequalities and may lead to greater empowerment and increased health equity (Mogford et al., 2011; Marmot et al., 2012). Teachers, both pre-service and in-service (pre-practice and in-practice) teachers, must be prepared to be able to address such analyses on root causes within the classroom and thereby enable students to understand them.



# MEASURING HEALTH LITERACY

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Health literacy is well-studied in adults, with more than 150 tools available (Health Literacy Tool Shed, 2019). However, child and adolescent health literacy may be different from adult health literacy and should be measured independently (Higgins et al., 2009; Bröder et al., 2017; Ormshaw et al., 2013; Velardo & Drummond, 2017; Guo et al., 2018; Okan et al., 2018b). Still, there is a lack of consensus on the best framework and practice for this measurement. According to Bröder et al. (2017), children's understanding of health, their age-related disease profiles, their embeddedness within socio-ecological contexts, their resource dependency, their social role, characterised by an unequal distribution of power and hierarchical inter-generational relationships, as well as their rights as citizens, including their rights and opportunities for participation, remain underscored in health literacy research. Although many current health literacy measures are validated for use among a broad range of children and adolescents (age 7–18 years) (Ormshaw et al., 2013; Manganello et al., 2017; Guo et al., 2018; Okan et al., 2018b), these measures may be insufficient for several reasons:

1. Many of the broadly-used measures were adapted from adult instruments that identify health literacy as a static correlate to health outcomes defined for adults (Nutbeam, 2008), whereas it might be more relevant to define health literacy as a dynamic asset advancing health behaviours and outcomes (Higgins et al., 2009; Bröder et al., 2017; Velardo & Drummond, 2017; Guo et al., 2018; Okan et al., 2018b).
2. Current measures do not assess the unique and dynamic contexts and processes of children and adolescents; including the nature of their social experiences, individual attributes (e.g. lack of concrete reasoning), or ways in which they navigate a complex, changing health environment (Ormshaw et al., 2013; Manganello et al., 2017).
3. Finally, current measures do not generate contextual data on a broad scale where children typically are—homes, communities, schools—to inform policy and practice (Okan et al., 2018b).

Lane and Aldoory (2019) propose making use of more dynamic, pragmatic, and solution-centred framework based on nine recommendations (see table on next page) from the Glasgow and Riley's criteria (2013). Meeting these recommendations will require time, commitment, and a reframed understanding of health literacy as a dynamic construct from clinicians, researchers, educators, funders, and other relevant stakeholders. Lane and Aldoory (2009) also suggest that stakeholders from each sector should convene a national working group, including children and adolescents, to redefine health literacy as it makes sense based on stakeholders' perspectives, developmental theories, existing literature, and public health priorities. Once these studies are conducted, stakeholders need to publicly disseminate new measures (and action-oriented scoring protocols) for broad use.

Along these lines Okan et al. (2018b) encourage using a mixed-method design combining both subjective and objective measurement approaches when studying children's health literacy. This would allow for the comparison of results and would secure the validity and reliability of the instruments. In addition, children's and adolescents' meaningful involvement in health literacy research could be beneficial in terms of gaining a better understanding of children's views, interests, perceptions, feelings, interactions, and worlds to qualify measurement and intervention development.

Finally, research highlights the importance of meeting the specific health literacy needs of children and adolescents (Borzekowski, 2009; Velardo, 2015). This includes development of materials and information that are suited to younger age groups and provided in ways that engage and empower them or improve uptake (Levin-Zamir et al., 2011). This may well foster an improvement in the development of health literacy throughout life, beginning in early childhood. Furthermore, the results suggest that there is a meaningful relationship between health literacy and adolescents' health behaviours (Fleary et al., 2018). To fully understand the role of health literacy in adolescents' health decision-making, future research should use comprehensive definitions and measures of health literacy, and integrate health behaviour and adolescent development theoretical frameworks in study design (Ormshaw et al., 2013; Paakkari et al. 2016; Paakkari et al. 2018; Guo et al., 2018; Okan et al., 2018b).

### Recommendations for Development and Validation of Pragmatic Health Literacy Measures for Children and Adolescents

Glasgow and Riley's Criteria for Pragmatic Measures	First Steps for Health Literacy Measures Development
Related to theory/model Advances understanding and interpretation of results to promote scientific understanding	Reach a consensus on the framework/definition of health literacy, then develop measures that match that definition Recruit a validation study sample that is large and diverse enough to conduct advanced path analysis to ensure that desired theoretical constructs are addressed
Psychometrically strong Have good reliability, validity, trustworthiness	Conduct factor analyses to test and confirm new framework/definition Establish consistent benchmarks that align with framework and uniquely categorize children and adolescents by health literacy status Develop and assess reliability, validity, and trustworthiness of both quantitative and qualitative measures
Important to stakeholders <sup>a</sup> Involves stakeholders on ongoing basis to satisfy differing priorities	Recruit an interdisciplinary team of invested stakeholders in both redefining health literacy and as part of the team developing new measures and hold regular stakeholder meetings Involve children and adolescents as stakeholders in all phases of development, formative testing, and validation to ensure that tools are relevant, understood, and measure what is intended
Low respondent/staff burden <sup>a</sup> Kept brief and inexpensive (in terms of both time and cost)	Test multiple administration methods that do not require oral administration (e.g., online/telephone surveys, semi-structured phone interviews, open-ended questions) Maintain use of a universal precautions approach by incorporating technological advances (read-aloud features, pictures, interactive games) Use item response theory and strategic skip patterns to reduce number of items
Actionable <sup>a</sup> Appropriate for use and immediate interpretation in busy, "Real-World" settings	Collect both qualitative and quantitative data using rapid data collection method (e.g., brief interviews) to ensure that data are desired by and relevant to end user Identify a "common core" of measures that can be administered more broadly if the whole battery will not be feasible to administer Establish simple scoring metrics and use of rapid data analysis techniques to enable quick identification and interpretation key findings
Sensitive to change <sup>a</sup> Reliable over time, valid so that progress can be tracked and intervention effects detected	Ensure that constructs are dynamic in the newly identified framework/definition Observe a subsample over a long period (3-5 years) and administer instruments yearly Assess hypothesized interactions between developmental phases and health literacy constructs
Broadly applicable Feasible for anyone to complete, so that it can be administered equitably and used to compare sub-groups and settings	Recruit a nationwide sample across multiple age groups from locations outside the clinical setting that are frequented by children/adolescents (e.g, schools, sports teams, church youth groups) Conduct extensive pilot testing to ensure acceptability and relevance
Serves as a benchmark Useful across settings/subgroups and publicly available to address public health goals	Develop an online, publicly available repository to store measures, publish scoring instructions, and hold other members of the field accountable for contributing tools Publish adaptation protocol for specific topics (i.e., nutrition literacy)/subgroups (i.e., children with diabetes) Ensure that scoring system aligns with pre-established thresholds/benchmarks
Unlikely to cause harm Invokes minimal unintended consequences or liability	Establish explicit protocols to ensure codes of conduct are followed Employ developmental experts to monitor study proceedings and ensure that the potential for harm is minimized

Note. <sup>a</sup>Glasgow and Riley (2013) consider these "required" criteria for pragmatism.

A black and white photograph of a group of diverse children of various ethnicities and ages, smiling and laughing joyfully. They are outdoors, with a blurred background of trees and foliage. The children are looking towards the camera, creating a warm and positive atmosphere.

# HEALTH LITERACY

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The most effective means to improve health literacy is to ensure that education about health is part of the curriculum at all levels of education.

*Nielsen-Bohlman et al. (2004). A prescription to end confusion*



# HEALTH LITERACY AND EQUITY

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## Equity

According to the WHO (2019a, 2019b), the advancement of health literacy in populations provides the foundation on which citizens are enabled to play an active role in improving their own health, engage successfully with community action for health, and push governments to meet their responsibilities in addressing health and health equity. Meeting the health literacy needs of the most disadvantaged and marginalised will particularly accelerate progress in reducing inequities in health and beyond. Efforts to raise health literacy during the life course will be crucial in whether the social, economic and environmental ambitions of the 2030 Agenda for Sustainable Development are fully realised.

A core aim of improving health care is to provide equitable care that does not vary in quality due to personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status (Nielsen-Bohlman et al., 2004). Eliminating the barriers of health literacy is an essential ingredient in the effort to increase health equity and reduce health disparities. It takes a whole-of-society approach to meet the challenge of aligning the demands and complexities of the health care system with individual skills and abilities across the spectrum of public health and clinical delivery. Hence, health literacy is critical in the effort to achieve health equity (Logan et al., 2015) and has a strong ethical underpinning (Paakkari and George, 2018). In order to bridge the gap, work with local communities is recommended (Roberts, 2015).

## Gender

Research on health literacy and gender is in its infancy. So far, the research is demographically widely represented and is related to a wide range of topics concerning health such as general health literacy, the life course perspective, e-Health, mental health literacy, non-communicable diseases, healthcare, treatment and medication management as well as risk factors and health promotion (Sørensen, 2017). Health literacy is integral to, for example, gender-specific diseases and reproductive health. It is also suggested that gender and health literacy are associated with dietary habits, healthy eating and eating disorders (Hosokawa et al., 2016). Information processing may also be gender-specific (Lee et al., 2013). Research reveals that health literacy cannot be taken for granted and may be gender-specific, calling for tailored interventions for men and women when needed.





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### **Alienation**

Limited health literacy is called the silent epidemic (Parker & Ratzan, 2010). There are many hidden barriers related to managing health and navigating health services. One cannot identify the health literacy of a person by their appearance or educational level. A person may have an orderly appearance, speak articulately, and appear to understand what is going on, however, this does not mean that they truly do. Approaching care is done best with the understanding that even those who are well-educated may still struggle with health-related information. The language used in the health field is not commonly used in everyday language and even those with higher educational backgrounds may not understand what their diagnosis means or what is being asked of them. Even someone who normally manages health information well may have increased difficulty under certain circumstances. When a person is feeling anxious, or overwhelmed with too much information, they may not be able to understand or use health information as well as usual (AHCQ, 2015). In terms of hard-to-reach groups, educational resources and information programmes only reach migrants to a limited extent, often because of economic and social barriers. Lack of affordable second-language courses for adults, for example, creates a barrier for migrants who want to improve their literacy (WHO, 2013). It is paramount that health literacy as an outcome of health education is offered to all from early childhood for overcoming health literacy barriers later in life (Okan, 2019).

### **Climate change**

Climate change is a threat to wildlife and the environment and is one of the most pervasive threats to human health. Research shows that people with higher levels of health literacy are more likely to engage in mitigation behaviours (Villagran et al., 2010). Furthermore, in this context, health literacy is often identified as environmental health literacy seen as the capacity for people to make health-protective decisions using available environmental data and to engage in community and public policy debates on the subject (Finn & O'Fallon, 2017). Researchers predict greater environmental health literacy will lead to better health outcomes and reduced health disparities by empowering individuals and communities to take steps to avoid harmful exposures and lower their disease risk (Finn & O'Fallon, 2017). It is recommended to educate people about health risks of global warming and climate change starting from childhood continuing through the life course (Villagran et al., 2010).

# FUTURE AVENUES

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Health literacy is content- and context-specific. With its multiple dimensions, it can be applied in a wide range of settings in which children and adolescents are located. Health literacy is applied as a concept across the world including countries of all levels of income and resources.

Generally, limited health literacy is a public health challenge in many countries. In the Netherlands, a country with a high level of resources, around 30% of the population faces difficulties in managing health and health services. In Denmark, the proportion is 40% and in Bulgaria, more than 60%, according to the European Health Literacy survey (Sørensen et al., 2015; Svendsen et al., 2019). In Afghanistan, a regional study showed that more than 75% of participants had limited health literacy (Harsch et al., 2019). All of these studies used the European Health Literacy Survey Questionnaire. The same trends were seen in population studies in Asia (Duong et al., 2017). The findings suggest health literacy is a spectrum considering population health literacy. Studying specific dimensions of health literacy may show wider variations depending on the content and context. Notably, the WHO in Southeast Asia launched a toolkit to advance health literacy in low- and middle-income countries to mobilise the efforts at community levels (Dodson et al., 2015).

While parts of the health literacy concept are general, such as accessing, understanding, appraising and applying information, cultural sensitivity and environmental factors are influential and local adaptation is therefore recommended. Whereas previous studies have focused mostly on health literacy and healthcare, health literacy is not yet part of mainstream discourse in educational settings. It is therefore encouraged to involve relevant stakeholders in its application in educational research, policy and practice to further enhance its beneficial link with health promoting schools and health education in general.

Research has shown the potential benefits arising from health literacy interventions for children and adolescents in the early age and education sectors. In addition, it is relevant to include interventions conducted in kindergartens, play groups, after-school activities and non-formal education activities such as engagement in sport clubs, music schools, and the scouting movement (McDaid, 2016).

To enable health for all in the future, health literacy should be addressed in order to enhance school-based health literacy action:

- Embedding health literacy into whole school approaches and addressing environmental factors that impact development, health and learning of school-aged children.
- Curriculum development, which makes analyses of available national school curricula necessary in order to evaluate if HL can be embedded into existing topics, i. e. media literacy education, information literacy education, digital literacy education, critical thinking, ethics and civic education.
- Development of learning and teaching standards and outputs adapted to regional, national and local education systems.
- Promotion of teacher training and education regarding health literacy.
- Improvement of the organisational health literacy of schools, including evaluation of effectiveness.
- Cross-ministerial collaboration of ministries on national and state levels to create and implement health promotion and education policies.
- School-based research on health literacy of all actors involved in the school environment.
- Routine measurement of health literacy in classrooms and schools, as well as monitoring of health literacy development over the course of the school years.

# JOINT EFFORTS

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*The illiterate of the future will not be the person who cannot read. It will be the person who does not know how to learn, de-learn and re-learn.*

*Alvin Toffler*



# HEALTH LITERACY FOR ALL

face the challenge - be the change

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