

*Supplementary Material*

**Table 7a – 7t.** Information on the Identified 18 Programs Organized by the 20 Research Projects: Targeted Life Skills, Theoretical Framework of the Program and Further Program Contents, Targeted Population, as well as Results of Effectiveness (+ / - / 0)<sup>1</sup> on Life Skills Development and Other Program Objectives<sup>2</sup>

a) Promoting Alternative Thinking Strategies (PATHS; Malti et al., 2011)					
Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
social relationships; rule understanding; positive social behavior	problem solving	positive self-esteem; understanding of one's emotion	risk and resilience factors	1 year: 46 weekly sessions  Triple-P (Positive Parenting Program)	2 (7.5 years)  Switzerland  $n_{\text{PATHS only}} = 311$ $n_{\text{PATHS + Triple P}} = 254$ $n_{\text{control}} = 299$
effectiveness regarding life skills			effectiveness regarding other objectives: Externalizing behavior		
prosocial behavior (0; teacher, parents, and students' ratings)	--	--	aggressive behavior (+), non-aggressive externalizing behavior (0), impulsivity (+/0), ADHD (+/0)		
social-cognitive skills (0, students' rating)			(mostly by teacher, parents', and students' ratings)		

<sup>1</sup> (+) significantly more favorable values or changes in the experimental group than the control group; (–) significantly less favorable values or changes in the experimental group than the control group; (0) zero effect of the programs.

<sup>2</sup> This review only summarized results on effectiveness of the programs. Some studies provide more results, e.g., on the acceptance of the programs by teachers and/or students, or on the quality of implementation. Please refer to the studies for these results.

**b) Aussie Optimism Positive Thinking Skills Program (Rooney et al., 2013a, 2013b)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
--	--	Identifying thoughts and feelings; exploring the connection between thoughts, feelings, and behavior; learning to think more accurately and positively; relaxation and distraction; constructing a situational fear hierarchy; scheduling pleasurable events	cognitive-behavioral	1 year: 10 weekly sessions  --	4 (9-10 years)  Australia  $n_{\text{experimental}} = 467$ $n_{\text{control}} = 443$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> internalizing and externalizing disorders		
	--	attribution (0)	depression (0), anxiety (0), internalizing symptoms (0)  hyperactivity (+), conduct problems (0)  peer problems (0), prosocial behavior (0)  emotional difficulties (+/0), total difficulty score (+)		

## c) Think Smart curriculum (Johnson et al., 2009)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
refusal skills; assertiveness skills	knowledge on substances; stereotypes and peer normative beliefs	self-management skills	cognitive-behavioral; problem-solving model; informational education approach; cognitive-affective approach; bicultural competence / acculturation theory; risk and protective factors	1 year: 15 sessions --	5 (N/A)  USA  $n_{\text{experimental}} = 245$ $n_{\text{control}} = 222$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> cultural identity; substance use		
assertiveness (0)	normative beliefs (0)  knowledge (0)	--	cultural identity (0)  tobacco, alcohol, marijuana (30-day-use) (0)  use of other harmful legal products (+/0)		

**d) Becoming independent 5+6 (Isensee et al., 2014)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
communication skills; interpersonal relationship skills; empathy; ability to work in a group; refusal skills	problem-solving; critical thinking; decision-making; knowledge on substances; perceived norms; strategies of advertisement	Resistance self-efficacy / coping with pressure to use substances; self-awareness; coping with stress, emotions, problems	social influence theory	2 years: 14 units + 2 workshops, evenly distributed over the years  --	5 (10.37 years)  Germany  $n_{\text{experimental}} = 1179$ $n_{\text{control}} = 1334$
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use and abuse		
--	attitudes (+)  knowledge (+)  normative expectations (0)	refusal self-efficacy (0)	tobacco (incidence) (+)  current frequency (0)		

**e) Information + Psychosocial Competence = Protection (IPSY; Wenzel et al., 2009; Spaeth et al., 2010; Weichold & Blumenthal, 2016)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Assertiveness; communication skills; refusal skills	knowledge on substances; reflection on attitudes and values; advertising strategies; problem solving	Resistance to offers; self-awareness; stress, anxiety, and problem coping strategies	social influence theory; problem behavior theory; developmental tasks; theory of planned behavior; risk and protective factors	3 years: 15 + 7 + 7 sessions --	5 (10.5 years) Germany $n_{\text{experimental}} \approx 533$ $n_{\text{control}} \approx 419$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> School bonding; substance use and misuse		
--	--	--	school bonding, 2-years follow-up: (+)  intention to drink, 2-years follow-up: (+); 30-day use alcohol, 2-years follow-up (+), 4-years follow-up (0)  30-day use tobacco: 2-years follow-up (+), 4-years follow-up (+)  proneness to illicit drugs, 4-years follow-up: (+)		

**f) Information + Psychosocial Competence = Protection (IPSY; Giannotta & Weichold, 2016)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
communication skills; assertiveness	knowledge on substance and on advertising	resistance skills; self-awareness; stress and problem coping strategies	social influence theory; problem behavior theory; developmental tasks	3 years: 15 + 1 + 1 sessions --	5 (10.5 years)  Germany  $n_{\text{experimental}} \approx 645$ $n_{\text{control}} \approx 486$  6 (11.1 years)  Italy  $n_{\text{experimental}} \approx 72$ $n_{\text{control}} \approx 87$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> School bonding; alcohol use		
Assertiveness (+/0)	knowledge on alcohol (0)	resistance to peer pressure (+/0)	school involvement (+/0)		
communication rules (0)	problem-solving (0)	self-esteem (0)	appreciation from others (0)		
			30-day frequency of alcohol (+/0)		
			intention to use alcohol next 12 months (+/0)		

## g) "Fit and Strong for Life" + "Lions Quest" (Menrath et al., 2012)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Fit and Strong for Life: empathy; communication skills	Fit and Strong for Life: critical thinking; problem solving; decision-making	Fit and Strong for Life: resistance skills; self-esteem; coping with stress and negative emotions	social-influence approach	N/A	5 or 6 (N/A)
Lions Quest: behavior in classes/groups; peer / family relationships	Lions Quest: decision-making	Lions Quest: self-esteem; coping with emotions; self-efficacy		--	Germany  $n_{\text{experimental}} = 782$ $n_{\text{control}} = 588$
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use, subjective health		
<i>Teacher's rating:</i>	--	<i>Self-report:</i>	30-day prevalence smoking (+), frequency smoking (+/0)		
assertiveness (+)		individual resources / self-efficacy (0)	30-day prevalence alcohol (+/0)		
tolerance (+)			Quality of life index (0)		
autonomy (+)			physical well-being (0), psychological well-being (0), life satisfaction (+/0)		
communication (+)			parent relations and autonomy (0), social support and peers (-)		
cooperation (0)			school environment (+/0)		
<i>Self-report:</i>			0 strengths and difficulties (0)		
social competences (0)					



## h) Life Skills Training (LST; Velasco et al., 2017)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
social competence; assertiveness	Attitudes; decision-making; critical thinking	Resistance skills; reduce susceptibility to negative influences; decrease motivation to engage in substance use; anxiety reduction skills	social learning theory; problem behavior theory; developmental tasks; risk and protective factors; positive youth development / general competence enhancement framework	3 years: 15 + 10 + 9 sessions --	6 (11.1) Italy $n_{\text{experimental}} = 831$ $n_{\text{control}} = 755$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> Substance use; psychosocial outcomes		
Assertiveness (-/+)	knowledge (+)	skill awareness (+)	anxiety (+)		
	attitudes (0/+)		distress (+)		
	normative beliefs (+)		well-being (0)		
	decision-making (0)		substance use initiation (0)		
	resist advertising (0)		booster frequency of substance use (0/+)		
	risk-taking (0)				

## i) Project ALERT (Clark et al., 2010)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
	outcome expectancies; normative beliefs; intentions to use substances in the future	resistance self-efficacy	health belief model; self-efficacy theory of behavior change; health promotion models	2 years: 11 + 3 weekly sessions --	6 (N/A) USA $N_{\text{Total}} = 4042$ (34 schools were randomly assigned to intervention or control group, distribution on EG and CG not available)
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use		
--	beliefs on consequences (0)  normative beliefs (0)	resistance self-efficacy (0)	Intention of substance use (0/-)		

j) Aussie Optimism Program (AOP; Roberts et al., 2011; Roberts et al., 2018)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
communication skills; assertiveness, negotiation; social support networks; friends and family	decision making; social problem solving, strategies for dealing with interpersonal conflict	Stress coping skills; identifying and linking feelings, thoughts, and behaviors; thinking styles; attributions; decatastrophising; looking for evidence; pleasant event scheduling	cognitive-behavioral	2 years: 10 weekly sessions / year  AOP for Families and Parents	6 (11.05 years)  Australia  $n_{\text{teacher-training}} = 693$ (in 2011) / 809 (in 2018) $n_{\text{teacher-training} + \text{coaching}} = 468$ (in 2011) / 746 (in 2018)  $n_{\text{control}} = 533$ (in 2011) / 601 (in 2018)
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> Internalizing problems, suicidal behavior, substance abuse (+ if teachers received training and coaching)		
prosocial behavior (0)	--	--	depression (0)		
			anxiety (0)		
			difficulty score (0)		
			4-weeks-prevalence of alcohol / tobacco (+)		
			incidence of suicidal ideation (+)		

**k) PROmoting School–community–university Partnerships to Enhance Resilience (PROSPER), with: Life Skills Training (LST), Project ALERT, or All stars (Spoth et al., 2007; Spoth et al., 2011; Osgood et al., 2013; Spoth et al., 2013a, 2013b; Spoth et al., 2017)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
LST: prosocial skills; general social skills	LST: strategies for avoiding substance use	LST: peer resistance skills; self-management	LST: social learning theory; problem behavior theory	1 year: 11-15 sessions	7 (11.9)
Project ALERT:	Project ALERT: normative beliefs; knowledge on substances; attitudes of peers, parents, media, others	Project ALERT: resistance self-efficacy	Project ALERT: social influence theory	Strengthening Families Program for parents and youth 10-14 years (in grade 6)	USA $n_{\text{experimental}} \approx 5515$ $n_{\text{control}} \approx 5334$
--					
All stars:		All Stars:			
--	All Stars: perceptions of substance use and violence; normative beliefs; personal commitment	--	All Stars: social learning theory; problem behavior theory		
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives: substance use</b>		
--	--	--	Grade 9: initiation legal / illicit substance use (+), past-month/-years use (+/0), antisocial influence network / orientation (+)		
			grade 10: new users' lifetime initiation / frequency for diverse substances (+), already users' past month alcohol / tobacco use (0), past-year drunkenness (+/0), past-year illicit substance use (+)		
			Grade 11/12 / age 19: initiation illicit substance use (+), diverse use past-month/-year (0/+)		

---

age 21-22: lifetime misuse of illicit drugs / opioid (+),

age 25: lifetime misuse of illicit drugs/opioid at (0)

## I) Life Skills Training (LST; Spoth et al., 2008; Spoth et al., 2014; Trudeau et al., 2016)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
communication skills; assertiveness; boy-girl relationships	Knowledge on substances; substance use norms; social acceptability; avoidance of substance use; decision-making; social pressures, recognizing persuasive strategies, conflict resolution	social resistance; self-management, formation of self-image; recognize anxiety-inducing situations; coping with anxiety and anger	social learning theory; problem behavior theory	2 years: 15 + 5 sessions (+partly some sessions in grade 11)  Strengthening Families Program for Parents and Youth 10–14	7 (12.3 years) USA  $n_{LST-only} = 428$ $n_{LST+family} = 450$ $n_{control} = 347$
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use and misuse; depression		
--	--	--	Grade 12: initiation tobacco (+), alcohol, marijuana (+/0)  Age 19-22: initiation legal, illicit substance use (+), frequencies legal, illicit substance use (+)  depression symptoms (+)  relationship problems (+)		

m) Finnish ESFA programme (Vartiainen et al., 2007)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Refusal skills	Knowledge on substance	--	attitude-social influence-self efficacy model; integrated change model; social learning theory; theory of planned behavior	3 years: 5 + 5 + 4 sessions  Quit-and-Win contest for parents / school personnel; involving parish confirmation camps leaders and school nurses	7 (15 years)  Finland  $n_{\text{experimental}} = 1821$ $n_{\text{control}} = 924$
effectiveness regarding life skills			effectiveness regarding other objectives: Smoking		
--	--	--	Initiation of smoking (0/+)		
			frequency (0)		
			increase of frequency (0)		
			cessation (0)		

## n) New PASE program (Ariza et al., 2008)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Refusal skills	social influences; decision making		social influence theory	3 years: 6 + 6 + 5 sessions  smoke-free school policy actions; parental intervention; community measures: leisure time intermediaries	7 (12.5 years)  Spain  $n_{\text{experimental}} = 690$ $n_{\text{control}} = 603$
effectiveness regarding life skills			effectiveness regarding other objectives: Smoking		
--	--	--	Prevalence regular tobacco use (+)		



**o) Unplugged (Faggiano et al., 2010)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
peer-group attachment, group approach; refusal skills; assertiveness	Knowledge on substances; attitudes; normative beliefs; peer-group allowance and expectancies; decision-making	Coping strategies	social influence approach	1 year: 12 weekly sessions  Curriculum alone vs. activities involving peers (peer arm) or parents (parent arm)	≥7 (≥12 years)  Austria, Belgium, Germany, Greece, Italy, Spain, Sweden  $n_{basic} = 956$ , $n_{+parent} = 972$ , $n_{+peer} = 883$ , $n_{control} = 2730$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> Substance use		
--	--	--	remain / get non-users (+)  frequency of tobacco use (0)  drunkenness (+/0)  cannabis use (+/0)		

## p) POtsdam Prevention at Schools (POPS; Warschburger &amp; Zitzmann, 2018)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
establishment of an "Anti-Teasing-Classroom Climate"	reflecting media techniques / artificial beauties; own eating habits; myths about eating and dieting; problem-solving; motives and consequences of teasing	general and appearance-related / teasing stress coping; diversity and multidimensionality of attractiveness and self-concept; self-esteem, effects of feedback; general well-being and body acceptance; acceptance of strengths and weaknesses	tripartite influence model of body image and eating disturbance; risk factors	1 year: 9 weekly sessions --	7-9 (mean age 13 years, range 11-16)  Germany  $n_{\text{experimental}} = 343$ $n_{\text{control}} = 429$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> eating disorders, internalization		
perception of teasing (0)	attitudes towards dietary (+)  media pressure (+), perfectionism (+), social comparison (+)	--	bulimic (0), drive for thinness (0), body dissatisfaction (0), feeling bad if not doing sports (+)  internalization (0)		

**q) Drug Education in Victorian Schools (DEVS; Midford et al., 2018)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Communication; providing peer support; assertion skills; refusal skills; tactics for peer negotiation	knowledge on substances, mental health, violence, antisocial behavior, sexual vulnerability; normative beliefs; gender norms and differences; assessing risk; strategies to avoid or minimize harm; social and media influences; values; decision making	worries, concerns; positive self-talk; help seeking with adults	N/A (study results)	2 years: 10 + 8 sessions --	8 (13 years) Australia $n_{\text{experimental}} = 621$ $n_{\text{control}} = 345$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> Alcohol use and misuse, associated harm		
--	Knowledge (+) Attitudes (0)	talking to parents (0)	underage initiation (0) alcohol use (+) harms (+)		

## r) KEEP LEFT (harm minimization) and Life Skills Training (LST; Resnicow et al., 2008)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
LST: assertive communication	LST: decision making  KEEP LEFT: decision-making; strategies for limiting frequency / intensity of smoking; analyzing the context and cues of smoking	LST: resisting peer pressure; stress and affect management	LST: social influence theory; social competence theory  KEEP LEFT: N/A	2 years: 8 + 8 sessions  --	8 (14.4 years)  South Africa  $n_{\text{harm-Minimization}} = 1751$ , $n_{\text{Life-skills}} = 1529$ $n_{\text{control}} = 1404$
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> Smoking, harm minimization		
refusal skills (0)	attitudes (0)	--	initiation of smoking (0)		
			frequency (0)		
			perceived harms (0)		

**s) TimeWise (Taking Charge of Leisure Time) and HealthWise (Smith et al., 2008)**

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
relationships	Knowledge on substances and condom use; attitudes; making healthy choices in free time; decision making	anxiety and anger management; self-awareness	prevention theories on multi-directional influences and developmental systems; developmental psychology; leisure studies	2 years: 12 + 6 sessions --	8 (14.0 years) South Africa  <i>n</i> Total = 1350, distribution on EG and CG not available
<b>effectiveness regarding life skills</b>			<b>effectiveness regarding other objectives:</b> HIV/AIDS, other sexually transmitted illnesses; substance use		
--	knowledge of condom use (+)	--	sexual intercourse (0)  condom use / self-efficacy in use (+)  initiation of substance use (0)  frequency tobacco use (+/0)  frequency alcohol use (+/0)  frequency marijuana use (0)		

## t) LARS &amp; LISA (Wahl et al., 2014)

Targeted life skills			Theoretical framework	Duration of classroom-based program component, further program components	Grade (students' age) at program start, geographical location, sample sizes
Communication / interpersonal	Decision-making / critical thinking	Coping and self-management			
Assertiveness; social competence skills	--	linking cognitions, emotions, and behaviors; identifying and challenging negative cognitions	cognitive-behavioral theory; social information processing model	1 year: 10 weekly sessions. --	8 ( $\geq 13$ years) Germany $n_{\text{experimental}} = 155$ , $n_{\text{control}} = 184$
effectiveness regarding life skills			effectiveness regarding other objectives: Depression		
--	--	--	depressive symptoms (0)		