

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)¹ on Life Skills Development and Other Program Objectives²

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 <i>n</i> _{PATHS only} = 311 <i>n</i> _{PATHS + Triple P} = 254 <i>n</i> _{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) (mostly by teacher, parents', and students' ratings)		
social-cognitive skills (0, students' rating)					

¹ (+) 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.

² 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 <i>n</i> _{experimental} = 467 <i>n</i> _{control} = 443
effectiveness regarding life skills			effectiveness regarding other objectives: 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 $n_{\text{experimental}} = 245$ $n_{\text{control}} = 222$
effectiveness regarding life skills			effectiveness regarding other objectives: 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 <i>n</i> _{experimental} = 1179 <i>n</i> _{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 $n_{\text{experimental}} \approx 533$ $n_{\text{control}} \approx 419$
effectiveness regarding life skills			effectiveness regarding other objectives: 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 $n_{\text{experimental}} \approx 72$ $n_{\text{control}} \approx 87$
effectiveness regarding life skills			effectiveness regarding other objectives: School bonding; alcohol use		
Assertiveness (+/0) communication rules (0)	knowledge on alcohol (0) problem-solving (0)	resistance to peer pressure (+/0) self-esteem (0)	school involvement (+/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) Germany $n_{\text{experimental}} = 782$ $n_{\text{control}} = 588$
Lions Quest: behavior in classes/groups; peer / family relationships	Lions Quest: decision-making	Lions Quest: self-esteem; coping with emotions; self-efficacy			
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 $n_{\text{experimental}} = 831$ $n_{\text{control}} = 755$
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use; psychosocial outcomes		
Assertiveness (-/+)	knowledge (+) attitudes (0/+) normative beliefs (+) decision-making (0) resist advertising (0) risk-taking (0)	skill awareness (+)	anxiety (+) distress (+) well-being (0) substance use initiation (0) booster frequency of substance use (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)
effectiveness regarding life skills			effectiveness regarding other objectives: 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		
--					
effectiveness regarding life skills			effectiveness regarding other objectives: substance use		
--	--	--	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 <i>n_{basic}</i> = 956, <i>n_{+parent}</i> = 972, <i>n_{+peer}</i> = 883 <i>n_{control}</i> = 2730
effectiveness regarding life skills			effectiveness regarding other objectives: Substance use		
--	--	--	remain / get non-users (+) frequency of tobacco use (0) drunkenness (+/0) cannabis use (+/0)		

p) POtsdam Prevention at Schools (POPS; Warschburger & 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 $n_{\text{experimental}} = 343$ $n_{\text{control}} = 429$
effectiveness regarding life skills			effectiveness regarding other objectives: 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 <i>n</i> _{experimental} = 621 <i>n</i> _{control} = 345
effectiveness regarding life skills			effectiveness regarding other objectives: 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 $n_{\text{harm-Minimization}} = 1751$, $n_{\text{Life-skills}} = 1529$ $n_{\text{control}} = 1404$
effectiveness regarding life skills			effectiveness regarding other objectives: 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
effectiveness regarding life skills			effectiveness regarding other objectives: 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 & 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 (≥ 13 years) Germany <i>n_{experimental}</i> = 155, <i>n_{control}</i> = 184
effectiveness regarding life skills			effectiveness regarding other objectives: Depression		
--	--	--	depressive symptoms (0)		