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Effects of an SEL Program in a Diverse Population of Low Achieving Secondary Education Students

Marion C. Van De Sande^{1*}, Minne Fekkes^{2,3}, René F. Diekstra¹, Carolien Gravesteyn⁴, Ria Reis⁵ and Paul L. Kocken⁶

¹The Hague University of Applied Sciences, The Hague, Netherlands, ²TNO Child Health, Leiden, Netherlands, ³Child Development and Education, University of Amsterdam, Amsterdam, Netherlands, ⁴University of Applied Sciences Leiden, Leiden, Netherlands, ⁵Public Health and Primary Care, Leiden University Medical Center, Leiden, Netherlands, ⁶Department of Psychology, Education and Child Studies, School of Social and Behavioural Sciences, Erasmus University Rotterdam, Rotterdam, Netherlands

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*Correspondence:

Marion C. Van De Sande
m.c.e.vandesande@hhs.nl

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Adolescents' social-emotional skills are associated with positive outcomes in psychosocial health and success in education and work. In this study, we examined the effectiveness of Skills4Life, a Social Emotional Learning program for preparatory vocational secondary education aimed at enhancing self-awareness, social awareness, self-management, relationship skills, and responsible decision making. Low-achieving students with additional educational needs participated in a quasi-experimental study, with an intervention (N = 465) and a control group (N = 274). We assessed the outcomes on social-emotional skills and psychosocial health using self-report questionnaires at pre-test (T0), after finishing the basic module (T1), and after finishing the internship module (T2). Multi-level regression analyses indicated no overall effects on the outcomes at T1 and T2. After completing the entire program at T2, students from non-western backgrounds had significantly unfavorable lower scores on social awareness and relationship skills. Positive effects were found on self-management and preparation for internships in students taught by experienced professional trainers compared to students taught by regular classroom teachers at T2. Alterations in the socio-cultural approach of the Skills4Life program and teacher training are needed to support all students in developing the social-emotional skills that they need for success at school and the workplace.

Keywords: SEL programs, social-emotional skills, adolescents, additional educational needs, ethnic diversity

INTRODUCTION

The 21st-century's complex and dynamic society challenges adolescents' cognitive skills and their social-emotional skills. The enhancement of these skills, such as self-regulation, self-efficacy, and goal-setting, is associated with young people's success in education and work (e.g., Ananiadou and Claro, 2009; National Research Council, 2012). Additionally, strengthening social-emotional skills is also associated with preventing psychosocial health problems, such as depression, anxiety, and aggression (e.g., Botvin et al., 2006; Moffit et al., 2011; Lewis et al., 2013). Social-emotional skills teaching contributes to the health and life prospects of adolescents.

Schools are natural settings for teaching social-emotional skills (e.g., Brackett et al., 2011; Kidger et al., 2012; Durlak et al., 2015). Several Social Emotional Learning (SEL) programs aiming to enhance those skills have been developed worldwide (e.g., Humphrey, 2013; Durlak et al., 2015).

Although those programs use varying definitions of skills, the SEL literature often refers to a comprehensive set of five key competencies (John and DeFruyt, 2015; Berg et al., 2017). These skills are 1. Self-awareness (e.g., self-esteem and self-efficacy); 2. Social awareness (e.g., empathy and perspective-taking); 3. Self-management (e.g., self-regulation and goal-setting); 4. Relationship skills (e.g., collaboration and social problem solving); 5. Responsible decision-making (e.g., considering consequences of and taking responsibility for actions) (Weissberg et al., 2015). When evaluating SEL programs, measuring the impact on these specific skills is important to understand their effectiveness. However, effect studies often report on broad measures of social-emotional skills and do not measure the skills targeted in SEL programs (Ura et al., 2020). Meta-analyses of evaluation studies of SEL programs have identified positive short and long-term effects on such generalized social-emotional skills and psychosocial health outcomes (e.g., Sklad et al., 2012; Durlak et al., 2015; Taylor et al., 2017).

Social-emotional skills development starts at home, in parent-child interactions (Grusec, 2011; Sanders and Turner, 2018). The skills young people develop are rooted in the values, practices, and beliefs of the socio-cultural context in which they grow up (e.g., Bradley and Corwyn, 2002; Chen and Eisenberg, 2012). In non-western socio-cultural contexts, SEL tends to be more aimed at interdependency and focused on others, whereas in Western-European contexts, SEL is more associated with independence and a more self-oriented approach (e.g., Armenta et al., 2011; Kagitcibasi, 2012). Moreover, during adolescence, initial differences in social-emotional skills between students, related to their socio-cultural background, disappear (Aber et al., 2003; Wiley and Siperstein, 2015; West et al., 2020). This disappearance may be the reason for mixed findings in studies on SEL programs that account for differences in students' socio-cultural backgrounds. Meta-analyses found differences in the effects of SEL programs related to students' socio-cultural backgrounds (Domitrovich et al., 2017; Taylor et al., 2017). Another meta-analysis shows that students from low socioeconomic families, in particular, benefit from SEL programs (Wilson and Lipsey, 2007). Nevertheless, considering the socio-cultural contexts in which students live and learn will be important when targeting social-emotional skills.

Other crucial conditions to look at are adolescents' intellectual, emotional-behavior, and learning problems, as these problems are supposed to impede social-emotional skill development (Elias et al., 1997; Goodman and Scott, 2012). Review studies on SEL programs for low achieving students suffering from such problems show positive effects on social-emotional skills outcomes (Garrard and Lipsey, 2007; Cook et al., 2008). These students are supposed to benefit in particular from intrapersonal skills (e.g., self-awareness and self-management) taught in universal SEL programs (Osher et al., 2010). Minor improvement is seen in their interpersonal skills (e.g., relationship skills and social awareness) because of difficulties in transferring them to new contexts (Gresham, 2010).

Considering the variations in the mastery of social-emotional skills amongst students and the variety in effects of SEL programs,

a better understanding is required of enhancing social-emotional skills. In SEL program implementation, students' intellectual, emotional-behavioral, and learning problems and socio-cultural backgrounds need to be considered. In the current study, we evaluated Skills 4 Life (S4L). S4L is an evidence-based Dutch SEL program for adolescents. The S4L-program is focused on acquiring social-emotional skills based on two theories: the social cognitive learning theory (Bandura, 1977), and the rational-emotive therapy (Ellis, 1996). The program teaches all five CASEL competencies. Evaluation studies showed significant positive effects on self-awareness, social awareness, self-management, relationship skills, and substance use (Gravesteyn et al., 2004; Fekkes et al., 2016; Pannebakker et al., 2019). However, teachers and students involved in the study of Pannebakker et al. (2019) indicated that its content demanded too much from low achieving students with limited intellectual and learning abilities. These students more often dropped out of the program. In the previous studies on the S4L program, students' socio-cultural background was not included as a moderator. We adapted the program to the needs of low-achieving students from varying socio-cultural backgrounds who learn both at school and in workplace internships. In adapting the program, these students' limitations in vocabulary, attention span, and working memory and their need to acquire the relevant social-emotional skills for workplace internships were considered.

We evaluated the effectiveness of the adapted S4L-program to test the following two hypotheses: 1. The adapted S4L-program increases all five SEL competencies and psychosocial health outcomes in low-achieving students in preparatory vocational education, learning at school and in the internship workplace; and 2. The increase of the SEL competencies is independent of students' gender, age, educational track, and ethnic background.

MATERIALS AND METHODS

The effectiveness of the adapted S4L program was evaluated using a quasi-experimental pre-test, post-test design. The study was approved by the Dutch Central Committee on Research Involving Human Subjects (CCMO). If parents and students wished to refuse participation, they were asked to inform the school. Participation was declined by 2% of parents and students from a group of 1,233 students eligible for the study.

Study Sample and Procedure

We aimed to adapt the program to low achieving students in the minor selective tracks in Dutch prevocational education, i.e., the Preparatory Vocational Secondary Education Basic (PVSE Basic) track and the Practical Education (PrE) track. In these tracks, students learn both at school and in the workplace. These students require additional education support (Hop and Van Boxtel, 2013; Koopman et al., 2015) due to intellectual, emotional-behavior, and learning problems. In the PVSE Basic and PrE tracks, the proportion of students from low-income families and non-western backgrounds is high (Central Bureau for Statistics Netherlands, 2016; Korpershoek et al., 2016). These

students might experience an accumulation of different forms of deprivation based on the intersection of their personal and background characteristics (e.g., Grollman, 2012; Jagers et al., 2019).

We approached 20 schools with 3,024 students in relevant prevocational education tracks in the urban western Netherlands for participation in the study. Twelve schools eventually agreed to participate (enrollment, 1,233 students). All schools were interested in participating in the intervention. Some schools preferred to start later with the intervention. Reasons were a relatively large number of new and young classroom teachers in a school, change of school management, and moving to another school building. We allocated those six schools to the waiting-list control group; the other six schools were allocated to the intervention group. We included a pre-measurement to control for possible initial differences between the two groups in this quasi-experimental design.

To underpin the adaptation of the S4L program to this target group, individual and focus group interviews were conducted with various stakeholders (i.e., relevant teachers, students, and people from internship workplaces such as shops, restaurants, and cleaning companies) (Bernal et al., 2009). Based on these interviews, several modifications were made, including the use of icons instead of descriptions for social-emotional skills; more straightforward language; more behavioral instruction in S4L lessons; a reduction in the number of exercises per lesson (3–4); more experiential learning exercises; and the inclusion of social-emotional skills relevant for workplace-internships. However, adaptations were kept limited to adhere to the original programs' core elements (Kreuter et al., 2003; Falicov, 2009).

The adapted program consisted of two sequential modules, a basic module (S4L-basic, consisting of eleven 45-min lessons) and an additional internship module to support workplace learning (S4L Internship module, consisting of six 45-min lessons) (see **Supplementary Appendix SA1** for information on the content of the S4L program). Manuals for teachers, student worksheets, and video clips were made available for both S4L modules. Teachers administered the modules in weekly sessions during one school year. For the current study, teachers ($N = 19$) were experienced in working with students in PVSE Basic and PrE tracks. Some were professional trainers of social-emotional skills ($N = 4$); others were regular classroom teachers ($N = 15$). The professional trainers were social workers qualified for teaching social-emotional skills. All the teachers who provided the program were trained in the S4L-basic module (2 days) and the -internship module (1 day). Two 2-h booster training sessions were organized and attended by ten providers (all regular classroom teachers) to ensure program fidelity.

Data Collection

Data were collected during three school years (2014–2017) at three time points (T0–T1–T2).

A total of 739 students in grades 10 and 11 (aged 14–19 years), from whom we had complete data at T0, participated in our study (see **Figure 1** and **Table 1**). Out of 739 participants, 56% were boys, and 44%, girls. Forty-six percent were in the PVSE-Basic track, and the other 54% were in the PrE-track. We used self-

reported ethnicity as an indicator of ethnic background. Forty-eight percent of the students were from Western-European backgrounds (Western-European students) (e.g., native Dutch, or, e.g., Belgian or German). Fifty-two percent of the students were from non-western backgrounds (non-western students) (i.e., Moroccan, Turkish, Surinamese, or others, such as Somalian, Antillean, or Pakistani). The majority of these non-western students were second- or third-generation migrants. Dutch was the language of instruction, and all students were able to express themselves in Dutch. For the majority of these students, Dutch was their first language, and some were bilingual.

At T0 and T3 the intervention and control groups were homogeneous in terms of gender but heterogeneous in terms of age, educational track, and ethnic background (see **Table 1**). In the analyses, we controlled for these differences.

Of the 739 students in our study at T0, 372 participated at T1, and 268 participated at T2 (see **Figure 1** and **Table 1**). Between T0 and T1, 270 students dropped out of the intervention group (59%), and 97 (36%) fell out of the control group (36%). Between T0 and T2, 336 students fell out of the intervention group (73%), and 135 dropped out of the control group (49%). The main reason for dropout was that many classroom teachers had difficulty organizing the measurements in classrooms. In addition, one school did not participate at T1, and two schools did not participate at T2. Other reasons for dropout were individual students changing school or dropping out from school. Non-response analyses indicated no overall differences between dropout and response, except for age (see **Table 2**). Younger students dropped out more often compared to older students. Differences in the attrition of students taught by professional trainers or taught by regular classroom teachers were not identified.

Students who dropped out of the study before T1 were not included in the analyses at post-test ($n = 367$). Students who dropped out of the study before T1 and before T2 ($n = 471$) were not included in the analyses at T2. Students of four intervention schools started with the S4L-basic module and continued with the -internship module within one school year ($n = 70$). Students from two intervention schools were only exposed to the S4L-basic module and did not take the internship module due to timetable problems ($n = 59$). These students were included in the analyses at T2 (see **Figure 1**).

Measurements

Students in the intervention and control groups were exposed to the same self-report questionnaires, including similar items from the pre-test. Data were collected during regular classes three times, i.e., before the first lesson of the S4L-basic module, after the last lesson of the S4L-basic module (T1), and after the last S4L-internship module lesson (T2). We informed students in both the intervention and control groups neutrally and identically about the study objectives to minimize responder bias. Both groups were exposed to the same questionnaires, including similar items from the pre-test. We also applied standard procedures such as using robust scales with multiple items and alternating positively and negatively formulated scale items. Students were guaranteed confidentiality and told that only the researchers would read their answers to

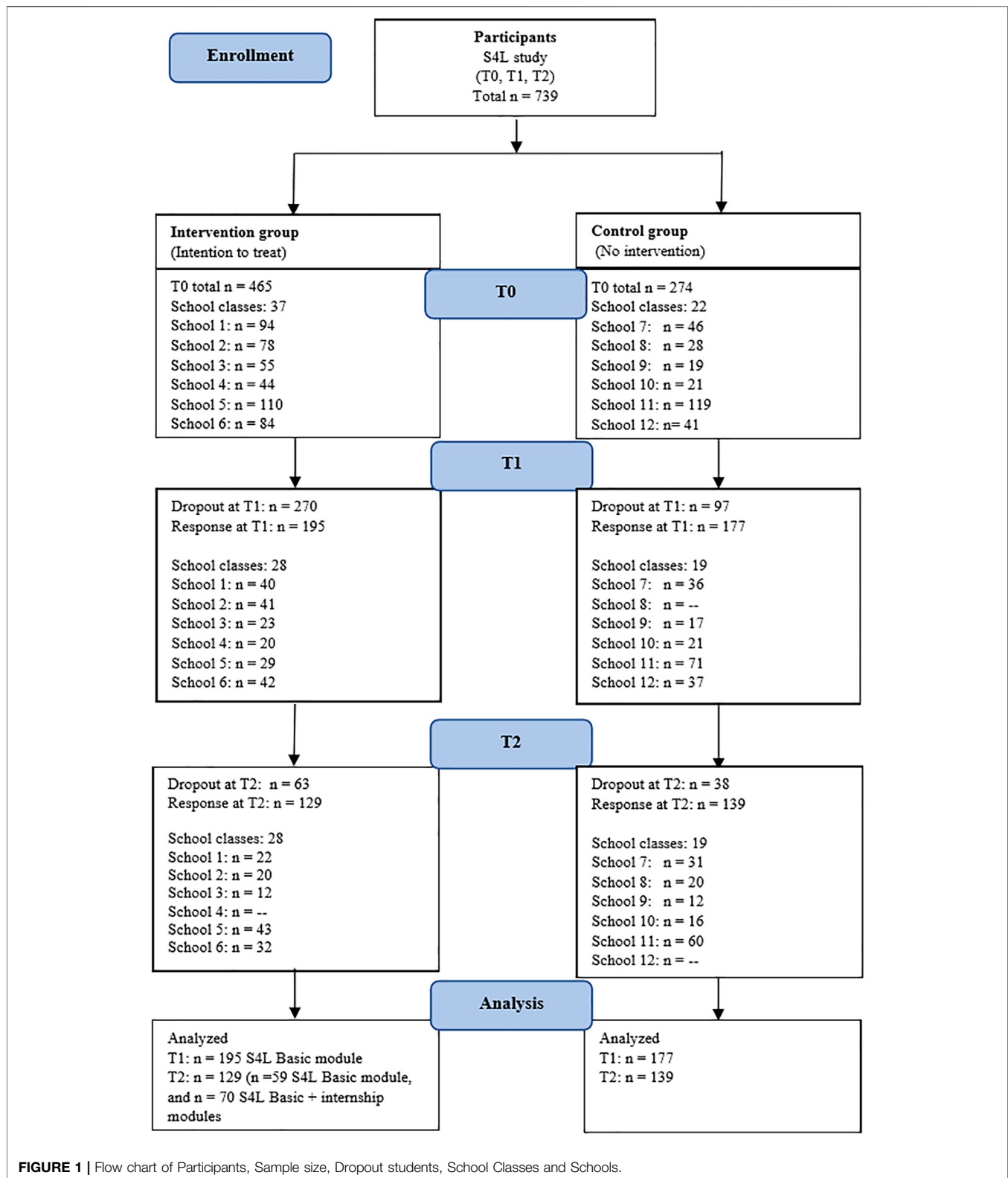


FIGURE 1 | Flow chart of Participants, Sample size, Dropout students, School Classes and Schools.

the questionnaire to prevent socially desirable answering. Research assistants were available to provide clarity on items in the questionnaires if necessary.

The effects of the S4L modules were measured on psychosocial health and the five SEL competencies described by the CASEL group (Collaborative for Academic Social and Emotional

TABLE 1 | Background characteristics participants at T0, T1, and T2

Demographic Characteristic	T0				T1				T2			
	Intervention group		Control group		Intervention group		Control group		Intervention group		Control group	
	n +	%	n +	%	n +	%	n +	%	n +	%	n +	%
Gender												
Male	251	54	162	59	96	50	110*	63*	63	49	81	58
Female	212	46	112	41	96	50	66*	37	65	51	58	42
Age												
≤15	361	80	220	81	144	63	144*	82*	107	86	107*	78*
≥16	91	20	54	19	45	37	32*	18*	17	14	30*	22
Educational track												
Practical Education ^a	311	67	93*	34*	145	75	53*	30*	85	66	63*	45
PVSE-Basic ^b	154	33	181*	64	48	25	123*	70*	43	34	76*	55
Ethnic background												
Western-European ^c	197	43	161*	59*	79	41	102*	58*	51	40	77*	55
Non-western ^d	266	57	113*	41	113	59	74*	42	76	60	62*	45

+Due to missing values, actual numbers may vary

*p < 0.05

^aPractical Education track for students with additional educational needs due to intellectual, emotional-behavior, and learning problems (IQ varying from 60–85, on a 100 point IQ scale).

^bPVSE-Basic track for students with additional education needs due to intellectual, emotional-behavior, and learning problems (IQ varying from 75–90, on a 100 point IQ scale).

^cWestern-European background: students who identified themselves as, e.g., native Dutch, Belgian, or German.

^dNon-western background: students who identified themselves as, e.g., Turkish, Moroccan, Cape Verdean, Pakistani or Somali.

TABLE 2 | Background characteristics intervention and control group and Dropout T0–T1 and T0–T2

Demographic Characteristic	T0T1				T0 - T2			
	Drop-out	Response	p	Chi square #	Drop-out	Response	p	Chi square #
Gender			0.371	0.162			0.230	0.664
Male	207 (57%)	210 (55.5%)			267 (57.4%)	150 (54.3%)		
Female	156 (43%)	168 (44.4%)			198 (42.6%)	126 (45.7%)		
Total n ##	363	378			465	276		
Age			0.044*	12.922			0.006*	18.238
≤15	297 (81.6%)	299 (79.1%)			367 (79%)	229 (83%)		
≥16	67 (18.4%)	79 (20.9%)			99 (21%)	47 (17%)		
Total n ##	364	378			466	277		
Educational track			0.378	0.148			0.307	0.338
Practical Education ^a	202 (55.5%)	205 (54.1%)			252 (54%)	155 (56.2%)		
PVSE-Basic ^b	162 (44.5%)	174 (45.9%)			215 (46%)	121 (43.8%)		
Total n ##	364	379			467	276		
Ethnic background			0.420	0.75			0.285	0.415
Western-European ^c	174 (47.9%)	185 (48.9%)			230 (49.4%)	129 (46.9%)		
Non-western ^d	189 (52.1%)	193 (51.5%)			236 (50.6%)	146 (53.1%)		
Total n ##	363	378			466	275		

*p ≤ 0.05

Uncorrected

Due to missing values actual values may vary

^aPractical Education track for students with additional education needs due to intellectual, emotional-behavior, and learning problems (IQ varying from 60–85, on a 100 point IQ scale).

^bPVSE-Basic track for students with additional education needs due to intellectual, emotional-behavior, and learning problems (IQ varying from 75–90, on a 100 point IQ scale).

^cWestern-European background: students who identified themselves as, native Dutch, and e.g., Belgian or German.

^dNon-western background: students who identified themselves as, e.g., Turkish, Moroccan, Cape Verdean, Pakistani or Somali.

Learning, CASEL, 2003; Zins and Elias, 2007). The significance of high and low total scores and the possible range of these scores per subscale are included in Table 3.

Psychosocial Health

To measure psychosocial health, we used the self-reported version of the Strengths and Difficulties Questionnaire for

Adolescents (SDQ-A) (Van Widenfelt et al., 2003), which comprises 25 statements measuring mental health and behavior (e.g., emotional symptoms, conduct problems, and prosocial behavior). SDQ-A has three answer categories: “not true,” “somewhat true,” “certainly true” (Cronbach’s $\alpha = 0.80$). Examples of statements were “I get a lot of headaches,” “I am often unhappy,” and “I fight a lot.”

TABLE 3 | Means, Standard Deviations, and Multi-level Model Analyses SEL skills, Psychosocial, and Internship T1–T0

Measure (range) +	n ++	T0 M (SD)	T1 M (SD)	B \$ (T1–T0)	p	n++	T0 M (SD)	T2 M (SD)	B \$ (T2–T0)	d	p
Self-awareness (9–45; <i>higher is better</i>)	367			–0.265	0.617	264			–0.892	–0.18	0.146
Intervention group	192	24.47 (5.84)	24.67 (5.79)			126	24.07 (5.55)	24.86 (5.49)			
Control group	175	24.10 (5.16)	24.81 (5.48)			138	24.78 (5.24)	26.23 (5.00)			
Self-awareness (9–45; <i>higher is better</i>)	369			0.283	0.651	265			–1.104	–0.25	0.043*
Intervention group	194	23.66 (5.10)	24.21 (5.00)			128	23.51 (4.77)	23.96 (4.71)			
Control group	175	23.23 (5.03)	24.00 (4.77)			137	23.47 (5.20)	25.07 (4.69)			
Self-management (9–45; <i>higher is better</i>)	368			–0.531	0.394	267			–1.337	–0.31	0.043*
Intervention group	193	24.90 (6.26)	25.02 (6.03)			128	25.24 (5.49)	24.54 (5.87)			
Control group	175	23.73 (6.16)	23.73 (6.16)			139	24.75 (6.14)	25.78 (5.77)			
Relationship skills (9–45; <i>higher is better</i>)	369			–0.288	0.606	267			–1.406	–0.25	0.013*
Intervention group	193	25.90 (4.86)	25.83 (4.78)			128	25.99 (4.74)	25.41 (4.81)			
Control group	176	25.52 (4.84)	26.33 (4.89)			139	26.18 (4.48)	27.27 (4.96)			
Responsible decision-making (4–20; <i>higher is better</i>)	372			–0.105	0.746	270			0.061	0.00	0.881
Intervention group	195	8.85 (3.14)	9.15 (3.25)			129	8.88 (2.86)				
Control group	177	8.73 (2.95)	9.24 (3.02)			141	8.83 (3.00)				
Self-esteem (10–40; <i>higher is better</i>)	366			–0.122	0.868	269			–0.638	–0.13	0.310
Intervention group	191	20.10 (5.82)	20.09 (5.22)			131	20.33 (5.40)	19.26 (5.47)			
Control group	175	20.65 (5.67)	21.04 (6.11)			138	20.54 (5.82)	20.75 (5.26)			
Self-efficacy (10–40; <i>higher is better</i>)	374			–0.164	0.752	271			–1.007	–0.18	0.149
Intervention group	198	17.69 (5.22)	18.28 (5.23)			133	17.88 (5.17)	18.43 (5.28)			
Control group	176	17.44 (5.21)	18.79 (4.40)			138	17.74 (5.30)	19.56 (5.19)			
SDQ-EBD (0–40; <i>lower is better</i>)	366			1.363	0.092	261			0.727	0.11	0.401
Intervention group	189	12.55 (6.05)	13.43 (6.00)			129	11.67 (5.99)	13.72 (6.69)			
Control group	177	12.44 (6.19)	11.89 (6.26)			132	12.08 (6.23)	12.55 (6.63)			
SDQ Prosocial behavior (0–10; <i>higher is better</i>)	366			–0.347	0.153	262			–0.190	–0.09	0.498
Intervention group	189	7.04 (2.09)	6.85 (2.05)			129	7.19 (2.07)	7.05 (2.02)			
Control group	177	7.12 (1.91)	7.32 (2.00)			133	7.35 (1.72)	7.47 (2.09)			
Involvement internship (7–35; <i>higher is better</i>)						197			0.271	0.04	0.794
Intervention group						102	19.23 (5.33)	20.47 (4.65)			
Control group						95	17.82 (5.56)	19.85 (5.77)			
Preparation internship (21–105; <i>higher is better</i>)						196			–1.945	–0.14	0.330
Intervention group						101	46.05 (10.81)	46.34 (9.64)			
Control group						95	45.42 (10.39)	48.50 (11.06)			

+ Between brackets: range of scale; qualification of scores. All higher scores represent a better outcome, except for SDQ-EBD (Emotional Behavior Disorder), where lower scores are better.

+ + Due to missing values, actual values may vary

\$ Unstandardized beta

* $p \leq 0.05$

Social and Emotional Learning Competencies

We used a Dutch questionnaire measuring four SEL competencies (VPV) (Van der Ploeg and Scholte, 2013). This questionnaire comprised 36 statements distributed equally over four subscales measuring self-awareness, social awareness, self-management, and relationship skills. Items are measured on a five-point Likert scale that ranged from 1 (do not agree at all) to 5 (I entirely agree).

Self-awareness is measured based on items such as “I am quiet and easy to get on with” and “I think before I do something” ($\alpha = 0.85$). Social awareness included items such as “I can see how other people feel” and “I know what I can say to someone and what I cannot” ($\alpha = 0.82$). The self-management-skills subscale comprised items such as “In my free time I do useful and meaningful things”

and “I can concentrate on my schoolwork” ($\alpha = 0.86$). Relationship skills are measured based on items such as “I talk about my problems with my friends” and “I stand up for myself when I argue” ($\alpha = 0.86$).

A scale for measuring responsible decision-making was based on the Dutch life-skills questionnaire (Diekstra and Gravesteyn, 1998). This scale comprises five items on a four-point Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree) and included statements such as “I hold people to their agreements” and “I can invent several reactions in a difficult situation” ($\alpha = 0.71$).

Self-Esteem

Self-esteem was measured using a Dutch adaptation of the Rosenberg Self-Esteem Scale (Van der Linden et al., 1983),

which consisted of ten items such as “I can do things as well as most other people.” The items are answered on a four-point scale ranging from 1 (strongly agree) to 4 (strongly disagree) ($\alpha = 0.89$).

Self-Efficacy

The general belief in self-efficacy was measured using the Dutch adaptation of the General Self-Efficacy Scale (Teeuw et al., 1994), which assesses an individual’s ability to manage or control external and internal threats. It consisted of ten items, for example, “If I’m in a mess, I usually know what to do,” which were measured on a four-point scale ranging from 1 (completely untrue) to 4 (completely true) ($\alpha = 0.87$).

Skills 4 Life Internship

Two subscales were developed to assess internship preparation and -involvement. In close collaboration with the program developers, we constructed 28 items that matched the S4L internship-module goals. The internship-preparation subscale consisted of 21 items, covering knowledge of work application (6 items), self-presentation (4 items), work-orientation (6 items), and initiative-taking at work (5 items) (full subscale $\alpha = 0.87$). Examples of items were, e.g., “I am aware which of my traits are relevant for an internship”; “I know what I want to learn during my internship”; and “I will wait and see what to do when I arrive at work.” The internship-involvement subscale consisted of seven items on attitudes towards internships, such as “I am proud of my internship” and “I enjoy my internship” ($\alpha = 0.75$). A five-point Likert scale ranging from 1 (never) to 5 (always) was used to score all the 28 items on this scale.

Implementation and Program Dosage

To examine program completeness, we used teacher reports on the number of S4L lessons and the exercises per lesson provided. Additionally, two observers randomly and independently observed 20% of the S4L lessons (researchers and trained bachelor students) using predesigned observation protocols containing detailed descriptions of the instruction for each element of a lesson. The mean inter-rater reliability per lesson was 77% (ranging from 63 to 89%).

The completeness of the lessons was 75% for the S4L-basic module and 66% for the S4L-internship module. Experiential learning exercises, in particular, were often omitted in the lessons provided. Only 46% of the experiential learning exercises of the S4L-basic- and 45% of the experiential learning exercises from the S4L-internship module were executed.

In total, 465 students in the intervention group were exposed to the S4L-basic module (T0). All the five SEL competencies are in the first five lessons of the S4L-program. We, therefore, dichotomized the number of lessons in 1–5 vs. five lessons or more for the analyses on dosage. The number of students exposed to 1–5 lessons was 91, and 204 students were exposed to five or more lessons. The S4L-internship module was taught to 199 students, of whom 97 were exposed to five or all six lessons of this module and 102 to

only one lesson. We, therefore, dichotomized the exposure to one lesson versus 5–6 lessons.

Analyses

Based on a prior study of the original program (Pannebakker et al., 2019), the following were needed to detect a medium effect size: a power of 0.80 and an $\alpha < 0.05$, and a population of 155 students both in the intervention group and non-intervention control group.

At T0, T1, and T2, we used Crosstabs and Chi-square analyses to compare the intervention and control group students concerning the four demographic characteristics: age, gender, educational track, and self-identified ethnic background (Western-European vs. non-western).

Analyses of variance (ANOVA) were performed to identify differences in means and standard deviations in outcomes between students in the intervention group and those in the control group at T0, T1, and T2. As described above we corrected for these differences in the analyses.

Using a multi-level model scores were nested within individuals and within classes. As a classroom was the smallest cluster in the sampling design, intra-class correlations (ICC) at the classroom level were analyzed to compare the variation between classroom level and the total variance (Berry et al., 2016). ICC at classroom level varied from 0.017 for self-esteem to 0.118 for self-management.

Multi-level regression analyses were performed to evaluate the programs’ effectiveness at T1 and T2. In the analyses, two levels were included: classroom and individual. Additional analyses were performed to assess potential moderating effects, including interactions between condition, time, and potential moderators. As a second step, all significant interactions were included in a final model.

Additional analyses were performed on the outcome measures only in the intervention group students to investigate a dose-response effect and an effect of teacher experience. All statistical tests were two-sided and deemed to be significant at $p < 0.05$. All analyses were performed with SPSS 23.0 (IBM Corp., 2015).

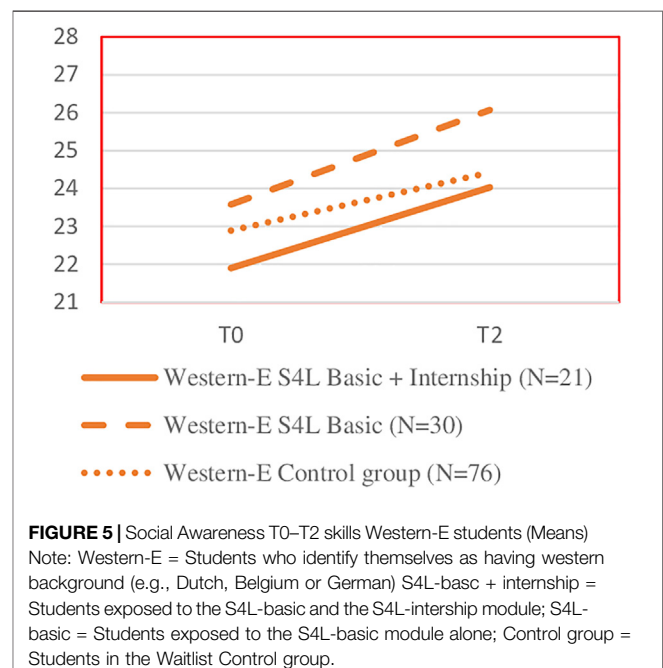
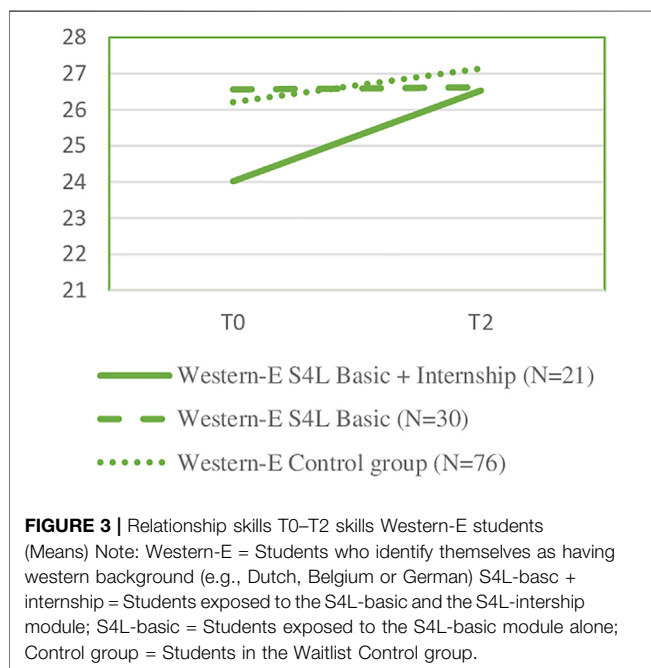
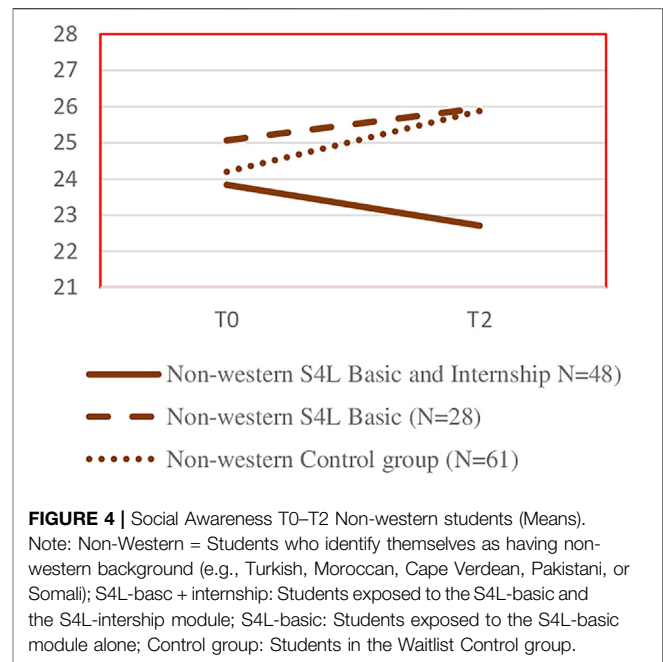
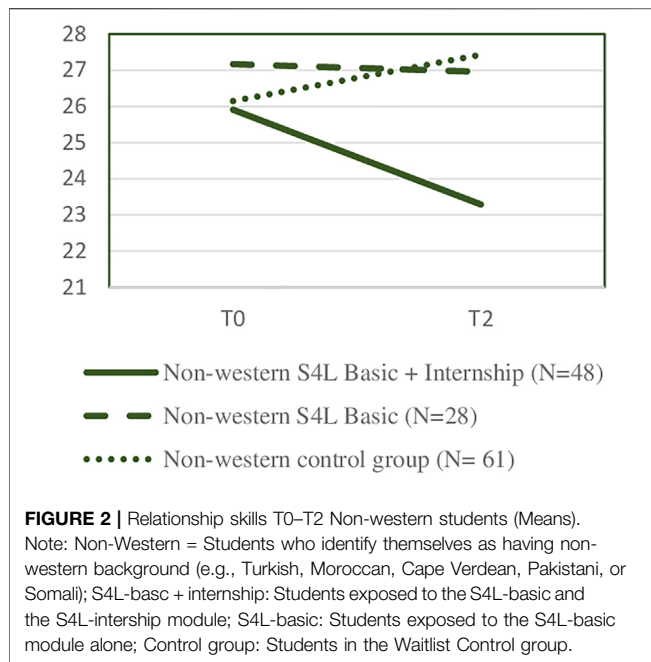
RESULTS

Effects of the S4L-Program

At T1, there were no significant differences between students in the intervention and control groups on the outcome measures (see Table 3, for estimates of multi-level, models, see Supplementary Appendix SA2, Tables 1, 2).

At T2, significant negative effects were found on three outcome measures: self-management, social awareness, and relationship skills (see Table 3). It seemed that between T0 and T2, the self-ratings of students in the control group on those outcomes improved. In the intervention group, students’ self-ratings on self-management, social awareness, and relationship skills either decreased or increased to a lesser extent than in the control group.

Significant interaction effects of intervention and ethnic background were found on social awareness ($d = 0.26$, $p =$



0.039) and relationship skills ($d = 0.33, p = 0.009$) (for estimates of multi-level models, see **Supplementary Appendix SA3, Table 1**). In non-western students who completed the S4L-program, additional analyses at T2 (i.e., after exposure to both the S4L-basic and S4L Internship modules) showed significant decreases in social awareness and relationship skills.

The analyses showed at T2 that non-western students who completed the S4L program reported less optimal

scores than Western-European students who had been exposed to the complete S4L-program. Also, non-western students who had been exposed to the S4L-basic module only, reported more optimal scores than non-western students who had been exposed to the entire program. **Figures 2–5** show the changes in means from T0-T2 on relationship skills and social awareness for Western-European (Western-E) and non-western students in the intervention and

control group. Such results were also found at the item level of these scales.

We found no significant interaction effects of intervention and other moderators.

Differences in Effects on Dosage and Teachers' Experience

At T1, additional analyses conducted on intervention dosage (not in a table) found no significant effects of dosage for the S4L-basic module. At T2, we found significant negative effects in the intervention group, largely in students from non-western backgrounds who had been exposed to the complete S4L-program, including the S4L internship module. In this subgroup of students, negative effects were measured on social awareness ($d = -0.38$, $p = 0.044$) and relationship skills ($d = -0.46$, $p = 0.018$) (for estimates of multilevel models, see **Supplementary Appendix SA4, Table 1**).

At T2 (for estimates of multi-level models, see **Supplementary Appendix SA4, Table 2**), analyses of the influence of teachers' experience showed that students who had completed the S4L-basic module only and had been taught by professional trainers showed significant positive effects on self-management ($d = 0.54$, $p = 0.023$). Significant positive effects were also measured on preparation for internship ($d = 0.53$, $p = 0.027$) in students who had completed the S4L-internship module and had been taught by professional trainers. Such positive effects were not found in students whose regular classroom teachers had taught the program.

DISCUSSION

The purpose of this quasi-experimental study was to evaluate the effectiveness of the school-based S4L-program for a population of low-achieving students in the minor selective tracks in prevocational education, i.e., the PVSE-Basic and PrE tracks. We hypothesized to find positive outcomes on psychosocial health and the five SEL competencies defined by the CASEL group (Weissberg et al., 2015): self-awareness, social awareness, self-management, relationship skills, and responsible decision-making. We further hypothesized that these outcomes are independent of subgroups of students according to gender, age, educational track, and self-perceived ethnic backgrounds.

Overall positive effects on the measured SEL skills in students who completed either the S4L-basic module or the complete S4L-program, including the -internship module, were absent. We found some small but significant differential negative effects in a subgroup of non-western students who completed both modules regarding social awareness and relationship skills. Significant positive effects on self-management and internship preparation were found in students taught by professional trainers compared to students taught by regular classroom teachers.

Short and long-term positive effects were lacking in our study, contrary to meta-analyses (e.g., Garrard and Lipsey, 2007; Cook et al., 2008; Durlak et al., 2011; Taylor et al., 2017). However, evaluation studies on SEL programs found varying effects on social-emotional skills related to the socio-cultural backgrounds

of students (Cardemil et al., 2007; Lewis et al., 2016; O'Neil et al., 2011). There are several explanations as to why we found social awareness and relationship skills scores decreased in students from non-western backgrounds who had completed the S4L-program. The first explanation may be related to the dominant western attitudes, values, and behaviors steering the approach used in the S4L-program (Garner et al., 2014; Hecht and Shin, 2015). The self-oriented and independence-focused approach used to teach social-emotional skills may not match the other-oriented and interdependence-focused skills that students from non-western backgrounds possibly learned at home (Kagitcibasi, 2012; Markus and Kitayama, 1991). The difference in approach may have been especially evident when the skills (such as social awareness and relationship skills) are focused on others. Such differences in the skills taught in the S4L program and those learned at home might have led to cultural dissonance and made the students from non-western backgrounds in our study reluctant to adopt the skills taught at school (Aronson and Laughter, 2016). These skills might be perceived as a violation of the values, beliefs, and practices rooting the skills learned at home (Lareau and Cox, 2011; Garner et al., 2014).

A second explanation for the adverse effects we found in non-western students who completed the whole S4L program is that these students may have compared the skills learned at home with the customs and expectations of their colleagues in the internship workplace and with these colleagues' feedback on those skills. Such comparisons may have made the students aware that they have not acquired the skills taught in the S4L-program (Oort et al., 2009; McClimans et al., 2013). The students from non-western backgrounds who were not exposed to the S4L Internship module did not experience any lack of skills since they were not exposed simultaneously to the S4L-program and the modeling of skills by their colleagues in the workplace. Consequently, they did not use the SEL skills taught at school as a frame of reference when comparing their skills with the skills of their colleagues (Heine et al., 2002).

A third explanation may be that the exposure to the complete S4L-program made students in the intervention group more aware and, therefore, self-critical about the competencies targeted than students in the control group. This awareness might have resulted in a shift in the students' perception from being "unconsciously incompetent" to being "consciously incompetent" concerning these competencies (Mezirow, 2009; Masters, 2012). The lower self-ratings on those competencies may well reflect this shift in students with a non-western background. These students in the intervention group might have experienced an accumulation of different forms of social deprivation (Grollman, 2012; Kuo et al., 2020). Possibly the skills teaching approach used in the S4L program did not sufficiently reflect the intersection of students' low educational achievements with their family's minority background and low socioeconomic status and therefore did not provide all the students included in our study with (equal) opportunities to develop the social-emotional skills they need at home, at school, and at work (Nagaoka et al., 2015; Jagers et al., 2019). Establishing equal opportunities for students requires collaboration between schools, students, and parents to understand differences in their perspectives on social-emotional

skills development and tailor SEL programs accordingly (Elias et al., 2019; Jagers et al., 2019).

Compared to students taught by classroom teachers, students taught by professional social-emotion skills trainers showed significant positive effects on two specific outcomes: self-management and internship preparation. Possibly professional trainers were better prepared to model and teach these skills (Jennings and Greenberg, 2009; Schonert-Reichl, 2017). Their experience can have also contributed to more emotionally supportive student-teacher relationships, which may have motivated students to put more effort into the S4L-program (Ruzek et al., 2016). Besides, many teachers in our study experienced both timetable and class-management problems. Tight school schedules negatively affected the dosage and fidelity of the program, which mainly involved the implementation quality of experiential learning exercises, for example, role-plays and practicing skills for the workplace. In particular, such practices can contribute to SEL programs' effects, provided that they are sufficient in number (De Mooij et al., 2020).

Strengths and Limitations

A strength of our study is that we succeeded in including a population of low-achieving students with additional educational needs from low-income families and families from non-western backgrounds on whom skills enhancement programs would potentially have a positive impact (Iversen and Holsen, 2008; West et al., 2020).

Another strength of our study is that, unlike others, it measured effects on all the SEL competencies targeted in the S4L-program (Wighelsworth et al., 2010; Duckworth and Yeager, 2015). These measures enabled us to identify differences in the program's effects on some of the SEL competencies and then to attribute these effects to the subgroup of students from non-western backgrounds.

A potential limitation of our study could have been that the large school in the control group might have affected the analyses. However, as we applied analyses at the classroom level, students from this school were not treated as one group as they were nested in classrooms.

A limitation of our study concerns the number of dropouts. Such dropout rates are not exceptional for research in school settings. Drop-out is associated with early school leaving and the additional educational needs of students in the prevocational education tracks (Wetenschappelijke Raad voor het Regeringsbeleid, 2009; Onderwijsraad [Educational Board], 2013). We found that the dropout rates in the intervention group were higher than in the control group. As only a small number of students participated in the S4L-basic and -internship modules, the negative effects found in a subgroup of these students should be interpreted cautiously. These effects may be an overestimation in students, requiring special attention for whom the school organized the skills training.

The use of self-ratings of the SEL competencies used in our study can be both a strength and a limitation. Self-report instruments are considered beneficial for providing insight into the students' perspective of their SEL competencies

(Podsakoff et al., 2003; Kimberlin and Winterstein, 2008). However, the disadvantage of self-reports is that they are sensitive to subjectivity as they lack objective information on skills performance to be obtained through observations and other informants, such as teachers, peers, parents, and internship colleagues (Achenbach et al., 2008; Duckworth and Yeager, 2015).

Another limitation may be the use of instruments to measure SEL skills with a western socio-cultural approach taken in most of their items that do not match the non-western backgrounds of a substantial number of respondents (Markus and Kitayma, 1991; Berg et al., 2017).

Implications for Practice and Research

SEL programs should acknowledge that differences exist in the mastery of skills amongst students and provide support for low-achieving students. To meet the variety of social-emotional skills that students require, we recommend making this variety an integral part of implementing SEL programs for adolescents (Goodman and Bowman, 2014). Therefore, we recommend schools involving students and teachers, and parents from various socio-cultural groups in the ongoing adaptation and implementation of SEL programs (Kreuter et al., 2003; Falicov, 2009).

In addition to making SEL programs more socio-culturally sensitive, we recommend investing in teachers' competencies to improve program integrity. Another aim of training teachers should be improving their social-emotional skills to become excellent role models (Jennings and Greenberg, 2009; Schonert-Reichl, 2017). Besides, teacher training should focus on the awareness and openness of teachers towards the diversity in social-emotional skills of their students (Bernal et al., 2009; Larsen and Samdal, 2012).

Starting the S4L program at the age of 15–16 might be too late as developing advanced social-emotional skills starts in early adolescence (Steinberg, 2016; Crone, 2017). Coelho and Sousa (2017) found that younger adolescents profited more from skills enhancement than older adolescents. Carroll et al. (2020) found that particularly early adolescents with lower-level skills at the start benefited from an SEL program. Therefore, we recommend beginning with the S4L program in early adolescence and delivering the Internship module when students enter internship workplaces.

Our finding that the self-reports of low-achieving students from non-western backgrounds showed a decline in some of the skills since they were exposed to the complete S4L program merits more research on SEL programs using an intersectionality approach (Nagaoka et al., 2015; Jagers et al., 2019).

We also recommend evaluation studies to measure effects on separate social-emotional skills tailored to the aims of the SEL programs instead of using broad outcome measures comprising several skills (Durlak et al., 2011; Ura et al., 2020). Further research into the instruments used to measure specific social-emotional skills is required to provide insight into the validity of these instruments for students from diverse socio-cultural backgrounds (Duckworth and Yeager, 2015; Elliott et al., 2018).

More research is necessary to understand the consequences of inconsistencies between approaches to learning social-emotional skills used at school and those used in other settings where adolescents live and learn (Bernal et al., 2009; Brown et al., 2018).

CONCLUSION

The current study found that the S4L-program had no overall positive effects on social-emotional skills in a population of low-achieving students aged 14–19 years with additional educational needs in prevocational education. However, negative effects were found on some of the skills in students from non-western backgrounds. These findings indicate that SEL programs do not always meet the needs of all students. Enhancing the socio-emotional skills necessary for students' success in the different contexts for living and learning requires a culturally responsive and integrative approach. For meeting various students' needs, SEL program implementation needs to take account of the intersectionality of different forms of deprivation that students might experience related to their individual and background characteristics. Therefore today's socio-culturally diverse schools need to involve students, teachers, and parents from various socio-cultural groups to implement SEL programs that meet students' needs. We found positive effects when professional trainers taught the SEL program. This finding emphasizes the importance of investing in the training of teachers who provide SEL programs.

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DATA AVAILABILITY STATEMENT

Data will be available in DANS, number: 10.17026/dans-zpz-7kcg after completing the full research project.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Dutch Central Committee on Research Involving Human Subjects (CCMO). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

MV, MF, and PK contributed to the conception and design of the study. MV organized the database. MV and MF performed statistical analyses. MV and MF wrote the first draft of the manuscript. MV and PK contributed to the first draft. All authors contributed to manuscript revision, read and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2021.744388/full#supplementary-material>

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