Article

Development and Validation of the Digital Addiction Scale for Teenagers (DAST)

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Abstract

We present the development and validation of the Digital Addiction Scale for Teenagers (DAST), describing the pilot study (*N* = 40 students) and main study (*N* = 4493) with Estonian students aged 11–19, in spring 2020. Our aim was to create a scale suitable for psychoeducational assessment of teenagers' behaviour and feelings towards digital devices. We used the mixed research framework . Half of the study sample was collected before the coronavirus crisis (Sample I: 1972 students) and the rest during a distance-learning period (Sample II: 2521 students). We found that factor structure in both subsamples were similar. The DAST shows a negative relationship with emotional school engagement and life satisfaction and positive correlations with school burnout, learning difficulties and screen time. We discuss potential uses of the scale for assessing health-related digital competences.

Keywords

using digital devices, digital addiction, screen time, teenagers, well-being

Introduction

Teenagers spend increasingly more time with digital devices and the internet since new devices and software, learning and leisure environments, and apps for children are being continuously developed. Programme for International Student Assessment (PISA) results showed that the average time spent on the Internet outside of school increased around 9 hours per week between 2012 and 2018 across OECD countries (OECD, 2019). The numbers are on a continuous increase since throughout the world, COVID-19 has resulted in dramatic changes in education with the distinctive rise of e-learning.

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Excessive use of digital devices was already a concern before much of the world moved to educating youth remotely through digital means. Average American 8–12-year-olds spend nearly 6 hours and 13–18-year-olds spend up to 9 hours online daily (Common Sense, 2015). An American survey showed that 37% US teenagers use screens 2 hours or less per day. The children who spent 2 hours or less on screen time were more cognitively capable (Walsh et al., 2018). An Estonian study showed that only 33% of Estonian teenagers use screens in the healthy range of 2 hours (Sukk & Soo, 2018). On average across OECD countries, students who reported being not satisfied with life spent the most time on the Internet outside of school (OECD, 2019).

The addictive aspects of technologies have been acknowledged as a question of students' safety and well-being in the European digital competence model DIGCOMP (Punie et al., 2013) and DIGCOMP 2.0 (Vuorikari et al., 2016) as well as the Estonian Digital Competence in Curricula model (Nevski et al., 2016). Still, these models primarily address the issue of protecting devices and data and only secondarily address the issue of student well-being (Seema & Vinter-Nemvalts, 2020).

Similar to many other countries, all Estonian schools applied remote distance learning during the first coronavirus wave in spring 2020 (HITSA, 2020). The more activities of the real environment are replaced by 'living' in the virtual world, the more important it is to screen student use of digital devices and symptoms of digital addiction and teach healthy screen-use practice to children in a way that causes the least possible harm to their mental and physical health (Seema & Vinter-Nemvalts, 2020).

The goal of the study was to create a relatively short Digital Addiction Scale for Teenagers (DAST) for psychoeducational assessment of teenagers' behaviour and feelings related to digital devices that discriminates between healthy use of digital devices and digital addiction. We assessed structural validity and reliability of the DAST (Study 1 before the crisis and Study 2 during lockdown). We studied the discriminant and external validity in both samples. Relationships with other variables used in the study provide evidence about the degree to which these relationships are consistent with the construct underlying the test score interpretations (AERA, APA, NCME, 2014). We addressed the following research questions:

1. Is the developed DAST scores valid and reliable?
2. Are there links between teenagers' digital addiction, emotional engagement in schoolwork, burnout, learning difficulties, life satisfaction and screen time hours, and if so, what kind?
3. How does the cluster of students who use digital devices in a healthy manner differ from those with digital addiction in respect to digital addiction symptoms, screen time, emotional engagement in schoolwork, burnout, learning difficulties and life satisfaction before the crises and during lockdown?

Teenagers' Digital Addiction

In a digital society, digital addiction or overuse of digital technology by teenagers is a problem tricky to conceptualize and measure. Time spent using digital devices cannot be the only criterion for addiction, especially in a society where using digital devices excessively has become the norm. The border between healthy and unhealthy or addictive use of digital devices lies where the use of digital devices becomes all-encompassing and the overuse of digital devices disturb important areas of life and a person's health suffers (Hasartmängusõltuvuse Nõustamiskeskus, 2018). Digital addiction has been conceptualized as a compulsive need to use digital devices to the extent where it interferes with a person's life and stops them from doing important things (Time to Log Off, 2016).

Digital addiction is not found in the Diagnostic and Statistical Manual of Mental Disorders (2013); therefore, officially, it is not a diagnosis. Only gaming disorder – a behavioural addiction to digital games and video games – has been added to the section on addictive disorders in the new International Classification of Diseases, 11th Revision (WHO, 2018).

One argument why internet addiction (IA) has not been included so far as a DSM-5 diagnosis is the probability that creating a separate category for IA will open the door to all kinds of new 'disease' categories (iPhone addiction, virtual reality addiction, etc.), as new technologies develop (Pies, 2009). However, in South Korea, video gaming and IA have been recognized as a disorder since 2007, and treatment programs have been established (Seoul Solution 2014–2016). IA and related addictions have been in researchers' focus in several countries. Despite the difference in terminology, excessive internet use has been found to have a negative impact on children's well-being (Smahel et al., 2020; Vondráčková & Gabrhelík, 2016).

As technology evolves, conceptualizing, assessing and studying teenagers' addiction to digital devices as broadly as possible becomes important and should not be restricted only to internet addiction, addiction to a specific device (computer, smartphone, etc.) or content (games, social media, etc.). Digital addiction is a broad concept that includes such addictions as internet addiction, computer addiction, smartphone addiction, gaming addiction, social media addiction and social networking addiction (Kesici & Fidan Tunç, 2018).

Addiction to the internet, games or smartphones falls under the category of behavioural addiction (Kwon et al., 2013). Researchers are convinced that children and teenagers are more at risk of using technology extensively because they have not yet developed self-awareness and self-control (Gazzaley & Rosen, 2016). According to research from Korea, the most vulnerable target group for internet addiction is adolescents who do not have parental support, who have attention deficit/hyperactivity disorder (ADHD) or other psychological disorders, or who have difficulties at school (Young, 2015).

One type of internet addiction particularly noticeable among young people is the 'fear of missing out' (FOMO; Tomczyk, & Selmanagic-Lizde, 2018). It involves anxiety and an impulsive urge to stay online, receive media messages, and passively or actively participate in information exchange through SNS, online games and Internet services (Przybylski et al., 2013; Tomczyk, & Selmanagic-Lizde, 2018). Modern digital media create the temptation to engage in leisure activities, and some students are unable to resist temptation during their studies (Lepp et al., 2014).

Tomaszek and Muchacka-Cymerman (2020) found a significant but weak relationship between student school burnout and problematic internet use. Walburg et al. (2016) revealed that the 'exhausted from schoolwork' dimension for girls and the 'feelings of inadequacy at school' dimension among boys are related to problematic Facebook use. Peterka-Bonetta et al. (2019) found a relationship between internet use disorder, depression and burnout among Chinese and German college students. Salmela-Aro et al. (2017) used two longitudinal data waves from Finnish adolescents and found that school burnout predicted later excessive internet use and excessive internet use predicted later school burnout.

Measuring Teenagers' Internet Addiction and Related Addictions

The internet addiction research began with the Young (1998) internet addiction test for adults. The adapted questionnaire has been used with teenagers recently with the Revised Chen Internet Addiction Scale (CIAS-R) in Chinese Adolescents (Mak et al., 2014), a 19-item scale with four subscales: compulsive use and withdrawal, tolerance, interpersonal and health-related problems, and time management problems.

The EU Kids Online survey (2020) measured teenagers' 'excessive internet use' (Smahel et al., 2020) with a 5-item questionnaire. As the EU Kids Online survey was non-clinical research, the

investigators discussed teenagers' problematic internet use but did not focus on 'internet addiction' because the term refers to a pathology. They stressed that experiencing any single criterion on its own does not constitute excessive internet use.

Researchers have developed or adapted scales to measure the smartphone addiction of teenagers. Two examples include the Smartphone Addiction Scale (SAS-SV; Kwon et al., 2013) with 10 items and one factor as well as the Smartphone Addiction Proneness Scale for Youth (SAPS; Kim et al., 2014) with a 15-item scale consisting of four subdomains: disturbance of adaptive functions, virtual life orientation, withdrawal and tolerance.

Researchers have adapted scales originally developed for adults to measure social media addiction and fear of missing out for teenagers. The Persian Bergen Social Media Addiction Scale (BSMAS; Lin et al., 2017) is a one factor scale with six-items. The Fear of Missing Out Scale (FoMOs; Przybylski et al., 2013) has 10 items and one factor and was validated with Bosnia and Herzegovina teenagers (Tomczyk, & Selmanagic-Lizde, 2018). Problematic media use has also been measured from the parent's perspective: A Parent Report Measure of Screen Media 'Addiction' in Children (Domoff et al., 2019).

During the time of development of our Digital Addiction Scale for Teenagers (DAST) and pilot study in fall 2019, no scales existed in any part of the world to measure teenagers' digital addiction. There were some digital addiction scales for adults, such as the Digital Addiction Scale for 19 Years or Older by Dilci (2019) and the Digital Addiction Scale for University Students (Kesici & Fidan Tunç, 2018). During the time of our pilot study, in December 2019, a new digital addiction scale for children aged 9–12 was published: The Digital Addiction Scale for Children (Hawi et al., 2019).

Method

Process of Instrument Development and Construct Validation

The study is based on a mixed research framework for instrument development and construct validation (Onwuegbuzie et al., 2010) with several steps.

Step 1. We conceptualized the construct of interest based on the previous research on children's and adults' IA, smartphone addiction and digital addiction. Two digital addiction scales for adults were translated into Estonian by a professional translator: Dilci's (2019) Digital Addiction Scale for 19 Years or Older, and Kesici and Tunç's (2018) Digital Addiction Scale for the University Students. We also reviewed the Estonian Smartphone Addiction Proneness Scale (E-SAPS18; Rozgonjuk et al., 2016). Those three scales consisted of our first item pool.

Step 2. We identified and described behaviours that underlie the teenagers' digital addiction construct based on theoretical knowledge, observation of Estonian teenagers' behaviour towards digital devices and being mindful of our own behaviour towards digital devices. Three authors of the current study critically assessed the content and suitability of every item in the first item pool for teenagers. We intentionally left out items that expected the respondent to connect their problems with their use of devices, and we considered psychological development and defences (see Miller, 2015). We added some extra items and missing topics into the scale. We discussed all the items and their wording with our own teenaged family members.

Step 3. We developed the initial 17-item version of the scale and sent it to 28 experts to assess its suitability to measure teenagers' digital addiction. We got constructive feedback from three experts, and we made modifications based on their feedback. In addition, a focus group interview was carried out to discuss the items and their suitability for teenagers with four mothers, all with a bachelor degree in education. Since the construct 'digital addiction' invoked resistance in some

adults, we modified the name and instruction of the latent scale – we decided to talk with respondents about 'using digital devices'.

Pilot study. Step 4. We pilot-tested a 15-item version of the instrument with sixth and seventh graders (20 students from each of the two grades) from a secondary school in Tallinn. The testing was coordinated by a psychologist of this school and was carried out during human studies lessons. Participation for students was voluntary, anonymous and not assessed. The students were invited to participate in the development of the 'Using Digital Devices Scale'. Students filled out an online version of the scale and had the option to add their critical comments and suggestions to the scale. Based on the students' feedback, we added one item to reflect FOMO (see Przybylski et al., 2013), changed the wordings of several items and shortened the scale.

Main study

Sample and procedure. Step 5. We designed and field-tested the revised instrument within a large Estonian-wide student study that was agreed with the leadership of 38 schools. Participation for students in this study was voluntary and anonymous. The data were collected before and during the coronavirus crisis from March 5 to April 19, 2020. Estonian-speaking students ($N =$ 4493) all over Estonia from grades 6 to 12, aged 11– 19 years, filled out an online questionnaire. A total of 1965 boys (44%) and 2522 girls (56%) participated. All respondents filled out the same questionnaire, as we could not foresee the outbreak of the coronavirus crisis and the implementation of distance learning during this period of data collection. Therefore, we unfortunately did not ask students specific questions about distance learning.

Since almost half of the participants answered under normal conditions and the other half answered during the first month of the coronavirus crisis, when all Estonian schools started using distance learning, we formed two samples for some analysis. Sample I consisted of 1972 students, and Sample II of 2521 students.

Measures

For respondents, we called the Digital Addiction Scale for Teenagers (DAST) the Using Digital Devices Scale for Teenagers (UDDST) latent scale. The 10-item scale, compiled by the authors, measures teenagers' level of digital addiction. The scale includes statements that describe some ways of using digital devices and the related feelings. Respondents were asked to assess on a 7-point scale how often these situations occur (*never – very often*). The internal consistency in Sample I had Cronbach $\alpha = .85$; Sample II had $\alpha = .83$.

The Affective Schoolwork Engagement (Salmela-Aro & Upadaya, 2012) adapted into Estonian by Lam et al. (2014). Affective engagement reflects students' feelings at school about learning, boredom or interest and shows intrinsic motivation and attachment to their school with six items on a 7-point Likert scale (*completely disagree – completely agree*). Sample item: 'Time flies when I am studying'. Cronbach alpha in both samples equalled $\alpha = .89$.

School burnout was assessed with an adapted version of the School Burnout Inventory (Salmela-Aro et al., 2009). We used six items on a 7-point Likert scale (*completely disagree – completely agree*). Sample item: 'I feel a lack of motivation for my schoolwork and often think of giving up'. Alpha in both samples was $\alpha = .87$.

Learning Difficulties. The 5-item test was developed by Ene Varik-Maasik and Maria Stepanova for the *Student Survey 2020* of the Tallinn University Centre for Innovation in Education. Respondents were asked to assess how often they have learning difficulties on a 7-point scale (*never – very often*). Sample item: 'Indicate how often you have trouble understanding the meaning of text when reading it'. In our study, $\alpha = .81$ for Sample I, and $\alpha = .77$ for Sample II.

A single-item life satisfaction scale (Cheung & Lucas, 2014) assesses life satisfaction with one question. 'Now imagine a stairway where the lowest step is marked with a zero (0) and the top step is marked with a 10. Which step characterizes your current life?'

We created two questions for assessing screen time and restrictions.

1. How many hours do you usually spend using digital devices during a school day (before and after school)?
2. How many hours do you usually spend using digital devices during a non-school day (weekend, school holidays)?

Results

Step 6. Validate revised instrument: quantitative analysis. To investigate the structural validity of the DAST and to identify the main dimensions, we studied the factorial structure of the scale (Table 1). Principal component analysis was performed separately on two subsamples ($N = 1972$ and $N = 2521$). The Kaiser–Meyer–Olkin Measure of Sampling Adequacy of the first sample was .87 and 0.88 of the second sample, meaning that the size of the samples was suitable for factor analysis (Child, 2006). The scree plot indicated two factors in both samples: emotions/attachment towards digital devices and compulsive use at different places. The first two factors explained 56.02% and 55.95% of the variation of responses. However, the two factors were moderately correlated in both samples ($r = 0.52$ and $r = 0.50$). Since there was a sharp drop in score from one to two components in both samples, we choose a one-factor model for the DAST (SPSS Tutorials, 2019). The mean score of digital addiction was $M = 34.8$ points ($SD = 11.0$). Boys had $M = 33.4$

Table 1. Digital Addiction Scale for Teenagers.

	Sample 1			Sample 2		
	N = 1972			N = 2521		
Items	Factor loadings	M	SD	Factor loadings	M	SD
1. I feel bored if I cannot use my digital device	.667	4.36	1.54	.666	4.25	1.54
2. I feel uneasy when I do not know what my friends are saying on social media	.647	2.91	1.64	.645	2.89	1.62
3. I am grumpy if I cannot use digital devices	.705	3.07	1.59	.701	3.07	1.59
4. I end up spending more time using my digital device than initially planned	.652	4.45	1.63	.658	4.46	1.62
5. As soon as I put my device away, I feel the urge to use it again	.760	3.23	1.57	.759	3.21	1.56
6. I keep an eye on the digital device even when I talk to someone	.671	3.11	1.67	.660	3.06	1.66
7. I use a digital device while eating	.636	3.28	1.76	.635	3.28	1.77
8. I keep an eye on my digital device during lessons	.610	2.84	1.68	.608	2.89	1.66
9. I play or chat on my device while walking on the street	.653	3.02	1.69	.651	2.97	1.68
10. I play or chat on my device when in bed before falling asleep	.592	4.58	1.96	.598	4.64	1.93
Average consolidated result for the DAST		34.99	11.15		34.74	10.93

Table 2. Pearson Correlations Between the DAST and Well-Being Scales.

	1	2	3	4	5	6	7
1. Digital addiction	1						
2. Emotional schoolwork engagement	−.25**	1					
3. School burnout	.34**	−.48**	1				
4. Learning difficulties	.30**	−.30**	.51**	1			
5. Life satisfaction	−.21**	.33**	−.40**	−.30**	1		
6. Screen time during schooldays	.34**	−.17**	.19**	.15**	−.16**	1	
7. Screen time during weekends	.34**	−.17**	.17**	.14**	−.16**	.69**	1

Notes. N = 4493. Digital Addiction Scale for Teenagers (DAST), Affective Schoolwork Engagement, School Burnout, Learning Difficulties, Life Satisfaction, Screen time outside of school during school days, Screen time outside of school during weekends, $p < 0.01**$.

points (SD = 10.6) and for girls' M = 36.0 points (SD = 11.2). ANOVA analysis showed that girls had significantly higher mean DAST scores than boys in both samples ($p < 0.001$).

To assess the discriminant and external validity of the scale, we assessed the extent to which the DAST scores relate to scores from instruments that measure theoretically and empirically related concepts. Correlations between the DAST and well-being scales are given in Table 2. Teenagers' digital addiction has a low significant negative correlation with emotional school engagement and life satisfaction and is positively related to school burnout, learning difficulties and screen time outside of school.

Clusters of students. To test the external validity of the scale, we modelled groups of students with similar mean values of several concurrent scales, using a person-centred K-means cluster analysis. In theory, dependence can be defined only if a person experiences symptoms of digital addiction together with difficulties coping with life and school. That means that a high rate of symptoms of digital addiction must occur together with long screen time and low values on well-being scales. We entered into the K-means cluster analysis the following variables: digital addiction, screen time during weekdays, screen time during weekends, emotional schoolwork engagement, burnout, learning difficulties and life satisfaction. We isolated four student clusters for which mean DAST scores were quite different – around 20, 30, 40 and 50 points. These clusters became evident from similar responses in both samples (Supplementary Material 2 and 3).

1. Digitally addicted students. These students' self-assessed symptoms of digital addiction were the highest (clusters' average DAST scores 48 and 50 points). They use screens on average over 5 hours on weekdays and 7 hours during weekends. They are not engaged in learning at school, they feel burned out and they have the biggest learning difficulties and lowest life satisfaction. They formed 18.5% of Sample I and 16.5% of Sample II.

2. Excessive users of digital devices. These students' addiction symptoms were above average (clusters' average DAST 39 and 40 points). They use screens outside of school on average more than 4 hours on weekdays and 6 hours during weekends. However, they are quite engaged in learning and have no learning difficulties. Their satisfaction with life is still quite high. They formed 31% of Sample I and 30% of Sample II.

3. Digital addiction endangered students. These students had below-average digital addiction symptoms (clusters' average 30 and 28 points). They use screens outside of school on average 4 hours on weekdays and 5.5 hours during weekends, but they do not enjoy learning and they have quite high school burnout. Their life satisfaction is low. They formed 25.5% of Sample I and 24.5 % of Sample II.

4. Healthy users of digital devices. These students had symptoms of digital addiction less than other students (clusters' average 23 and 25 points). They used digital devices outside of school on

average 3 hours on weekdays and 4.5 hours during weekends. They enjoy learning the most, have low burnout, and have few learning difficulties and the highest life satisfaction. They formed 25% of Sample I and 29% of Sample II.

We also tested for three- and five-cluster models in both samples and found that despite the fact that these analyses show a different number of clusters with a different number of individuals in each group, students with the highest level of digital addiction and screen time usually had the lowest well-being indicators, and those with the lowest level of digital addiction and screen time had the highest well-being.

Discussion

Development of the new scale that discriminates between healthy use of digital devices and digital addiction in a digital society indicated a paradox. How should we name a scale that points to an addiction when labelling any addiction may cause denial or exaggeration, especially by teenagers (see Miller, 2015)? Therefore, two different names can be used to identify the created scale: from the researcher's third-person perspective – the Digital Addiction Scale for Teenagers (DAST); from the respondents' first-person perspective – the Using Digital Devices Scale for Teenagers (UDDST).

We had the opportunity to explore the structural validity and reliability of the scale scores in two environments and subsamples – before the coronavirus crisis and during the coronavirus crisis. The developed DAST measures digital addiction in both samples with one factor that includes 10 items. However, the factorial structure of the DAST shows that the one factor includes two closely related parts: attachment to digital devices (tolerance, withdrawal, etc.) and compulsive use in different places (while eating, walking, etc.).

The study showed the DAST scale has a discriminant validity, as the scale scores are slightly but still significantly related to scores from instruments like affective school engagement, school burnout, life satisfaction and learning difficulties, which indicates the measured concept is theoretically and empirically related to but not the same as the other used constructs (see Onwuegbuzie et al., 2010).

The study supported the external validity of the DAST. Those students who have the highest DAST scores and use screens the longest have the lowest level of well-being, while students with the lowest DAST scores and use digital devices less than other students have the highest well-being score. The results support the theory that the border between healthy and addictive use of digital devices lies where the use of digital devices becomes all-encompassing and the overuse of digital devices disturbs important areas of life and the person's health suffers (Hasartmängusõltuvuse Nõustamiskeskus, 2018).

A Chinese study conducted during the COVID-19 outbreak separated teenagers into three groups (those with internet addiction, those who showed problematic use and those who showed normal use) and discovered that in all the groups, frequency and duration of recreational use of electronic devices during the crisis were significantly higher than those before the epidemic (Dong et al., 2020). They measured internet addiction with Young's Internet Addiction Test (IAT).

In our study, we formed four cluster groups based on several concomitant variables in two samples. Interestingly, the digitally addicted group in Estonian Sample 2 perceived addiction symptoms a bit less than the digitally addicted group in Sample 1, even though their screen time was greater during lockdown. The healthy users in Sample 2 perceived digital addiction a bit more than students in Sample 1, even while both groups used screens outside of school on average the same amount of time. Therefore, we can conclude that awareness of personal digital addiction symptoms seems to be better in the healthy group.

In the assessment grid of the DIGCOMP (Ferrari, 2013) digital competence called 'Safety', there are some examples of knowledge and skills a person should have for maintaining their health in a digitally rich environment. 'Is able to manage the distracting aspects of working / living digitally' is one example of such skills. The problem is that these skills are procedural and require metacognitive knowledge that is more hierarchically complex than factual knowledge or understanding and require learning sub-skills, but the corresponding sub-skills are not addressed in the digital competence models (Seema & Vinter-Nemvalts, 2020).

To conclude, at least in the Estonian sample, the DAST seems to be a valid and reliable scale for screening student use of digital devices and digital addiction. It helps us to discriminate between students who have healthy or addictive use of digital devices. It seems that a DAST scores around 20 points reflect a healthy use, while a DAST around 50 points shows digital addiction. Still, the scale should be used together with well-being scales. A quantitative methodology is able to show linear relationships, but development means qualitative changes. A quantitative scale cannot show what a thing or phenomenon is or how it develops (Toomela, 2011). Miller (2015) has stated that there is a qualitative change, not only a quantitative change from use, excessive use and abuse or addiction.

The developed scale may be used as a preventive measure in human studies classes from the student's first-person perspective (the 'I' perspective) to support reflecting on personal use of digital devices and for assessing health-related digital competence. Since the test is intended for use for several grades, future research should provide norms for each grade level subgroup.

Limitations

As the last step, we critically evaluate the instrument development/construct evaluation process and product. The main study was a cross-sectional survey, not a longitudinal study; therefore, we can only compare subsamples – those who took the survey before and those who took it during the COVID-19 outbreak. During lockdown, using digital devices for communication and learning has been a new reality. Therefore, some DAST items may need modification to express the distance-learning experience more specifically.

We completed seven steps from 10 phases of mixed research for scale development and validation as suggested by Onwuegbuzie et al. (2010). Future research should validate the instrument with a qualitative analysis phase and mixed analysis phase. It will also be important to assess convergent validity of the scale with internet and smartphone addiction scales. It may be useful to adapt the DAST to other cultures to further validate the scale and the digital addiction construct.

Ethics Statement

Ethics committee approval was not obtained. Data collection methods were not intrusive nor presumed active participation or identification of the subject.

The focus group interview was focused on the scale development, not on persons. Discussion was voluntary and was not recorded.

During the Pilot study and Main study, any informed consent from parents was not sought, but informed consent was agreed with the leaders of all participating schools.

Participation for students was voluntary, anonymous and was not assessed. The research complies with the regulations and procedures arising from the Personal Data Protection Act.

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Supplemental Material

Supplemental material for this article is available online.

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