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Abstract

Recently, the use of information and communications technology (ICT) at school has been extensively increased in Finland. This study investigated whether the use of ICT at school is linked to students 'learning outcomes in Finland. We used the Finnish PISA 2015 data (*N*=5037). Cognitive learning outcomes (i.e. science, mathematics, reading, collaborative problem-solving) were evaluated with computer-based tests. ICT use at school, ICT availability at school, and students' perceived ICT competence were assessed with self-rating questionnaires. Frequent ICT use at school predicted students' weaker performance in all the cognitive learning outcomes, when adjusted for age, gender, parental socioeconomic status, students' ICT competence, and ICT availability at school. Further, the effect of ICT use on learning outcomes was more negative in students with higher than lower ICT skills. Frequent use of ICT at school appears to be linked to weaker cognitive learning outcomes in Finland. This may be explained by working memory overload and task-switching during the use of digital technologies. This finding also suggests that even though students with ICT skills are good at mechanical use of digital device, they may not have abilities for a goal-oriented and self-directed use of digital technologies that could promote their learning.

Keywords: digital learning, learning outcomes, comprehensive school, teaching practices.

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El Uso de las Tecnologías en la Escuela y los Resultados del Aprendizaje Cognitivo: Un Estudio basado en la Población en Finlandia

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Resumen

Recientemente, el uso de las tecnologías de la información y la comunicación (TIC) en la escuela ha aumentado considerablemente en Finlandia. Este estudio investigó si el uso de las TIC en la escuela está relacionado con los resultados de aprendizaje de los estudiantes en Finlandia. Los resultados del aprendizaje cognitivo (es decir, ciencias, matemáticas, lectura, resolución de problemas en colaboración) se evaluaron con pruebas informáticas. El uso frecuente de las TIC en la escuela predijo el menor rendimiento de los estudiantes en todos los resultados de aprendizaje cognitivo, cuando se ajustó por edad, género, estatus socioeconómico de los padres, competencia en TIC de los estudiantes y disponibilidad de TIC en la escuela. Además, el efecto del uso de las TIC en los resultados del aprendizaje fue más negativo en los estudiantes con mayores que menores conocimientos de las TIC. El uso frecuente de las TIC en la escuela parece estar relacionado con resultados de aprendizaje cognitivo más débiles en Finlandia. Esto puede explicarse por la sobrecarga de la memoria de trabajo y el cambio de tareas durante el uso de las tecnologías digitales. Estos resultados también sugieren que, aunque los alumnos con conocimientos de TIC son buenos en el uso mecánico de los dispositivos digitales, es posible que no tengan capacidades para un uso orientado a objetivos y autodirigido de las tecnologías digitales que podría promover su aprendizaje.

Palabras clave: aprendizaje digital, resultados del aprendizaje, escuela integral, práctica docente.

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In the Finnish educational system, a fundamental goal is to provide all students equal possibilities for school success, from comprehensive school to high school, regardless of their family background. Further, even university education includes only minor tuition fees in Finland, in order to ensure that students from low- and high-income backgrounds could achieve academic-level education. In line with this, the basic education legislation in Finland strongly postulates that ”teaching methods must promote equality in the society” (Basic Education Act 628/1998). The most recent PISA test in 2015, however, showed that inequality in educational achievements is rapidly growing in Finland (OECD, 2016). For instance, it has been estimated that even more than 6 000 Finnish students do not reach the curricula-related basic skills (OECD, 2016). In particular, the school drop-out of boys and students with low maternal education or immigration background has aroused concern in Finland.

The increasing inequality in learning outcomes is of great societal importance since school drop-out composes a major risk for the accumulation of other risk factors and social marginalization later in life. There is evidence that school failure predicts delinquent behavior, lower socioeconomic status, and social exclusion in adulthood (Chen & Kaplan, 2003; Kokko et al., 2003). Further, poor school performance is found to predict risky health behavior in adulthood, such as smoking (Bryant et al., 2000), excessive alcohol use (Huurre et al., 2010; Pitkänen et al., 2008) and obesity (Alatupa et al., 2010). Finally, poor school performance also predicts psychiatric symptoms such as depression and suicidality in adulthood (Gunnell et al., 2011; Shochet et al., 2006). Taken together, school drop-out predicts lower social capital and poorer physical and mental health that further exacerbate the risk for social marginalization.

Consequently, there has been a strong political debate about why the inequality in learning outcomes is increasing in Finland. Until now, the reasons have been mostly searched from outside the school system. It has been suggested that limited participation in early childhood education, low maternal education or students’ mental health problems might have increased inequality in school performance.

However, it has remained largely uninvestigated whether some factors *inside the school system,* i.e. some learning practices adopted by the school system, might produce inequality in learning outcomes between students and

to expose high-risk students to social marginalization. One such factor might be the increasing use of digital technologies at school.

In the recent years, the Finnish government has implemented a program called "Comprehensive school of the digital era" that aims to modernize the learning environments and to widely utilize digital material in learning (Kaarakainen et al., 2017). Additionally, in Helsinki (the capital city of Finland), it has been implemented a program that aims to increase digitalization in the comprehensive school over the years 2016–2019 (School District Office of Helsinki, 2016). The economic investment of the program is 37 000 000€ (School District Office of Helsinki, 2016). The program states that "digitalization enables the use of novel pedagogical methods for learning and teaching as well as new ways of working that will essentially increase educational effectivity, productivity, and efficacy" (School District Office of Helsinki, 2016). Thus, the financial investments to digital learning methods have been enormous in Finland.

Further, the program states that "the best effectivity of digital learning will be reached if the digital reform passes through the whole organizational culture in schools" (School District Office of Helsinki, 2016). Consequently, the degree of digitalization is at a high level in the Finnish schools. For example, even more than 90% of the Finnish students are estimated to be in highly digitally equipped schools (Wastiau et al., 2013). Despite the enormous economic investments, however, evidence about the association of ICT use at school with students' learning outcomes in Finland is largely lacking.

Previous research about the influence of digital technologies on learning outcomes has included severe methodological limitations (All et al., 2016). Firstly, it has remained vastly without consideration whether implementing ICT use at school as a learning method might have influences on the equality of learning outcomes at the population level. Hence, representative population-based studies have been largely lacking about the link between ICT use and learning outcomes. In many cases, researchers may not have sufficient resources to educate participants for the use of digital technology and various learning applications before the study. Hence, in several studies the participants have consisted of a selective sample of volunteers that are likely to be more digitally-interested and digitally-capable individuals than on average. Secondly, several studies (e.g. Chuang et al., 2009; Martin & Ertzberger, 2013) have not included a control group that had not used digital technologies but instead some more traditional learning methods. This has

seriously limited the study conclusions about the effectiveness of digital technologies. Thirdly, when investigating the influence of ICT use on learning outcomes, many studies (Chen et al., 2008; Ronimus et al., 2014) have adopted an experimental design where the details of ICT use have been carefully adjusted. These findings, however, may not likely be generalized to practical school environments. Specifically, it has been emphasized that there exist a variety of practical challenges in how the use of digital technologies is organized in the classroom (Balanskat et al., 2006). There is also variation in single teachers' knowledge about the use of digital technologies at school (Kaarakainen et al., 2017). Consequently, regarding digital technologies, a review concluded that "more robust, scientific research is needed that provides a clearer picture of their true impact" (Wilson et al., 2009).

Importantly, the use of digital learning methods includes a certain type of pedagogical ideology and learning concept. This appears to have remained without sufficient societal awareness in Finland. Specifically, digital learning methods aim to promote student-oriented learning, so that the responsibility for directing student's learning process is largely transferred from teacher to student. In this way, efficient use of digital technologies for learning purposes requires a high level of self-directedness and goal-directedness from the student. In practice, students need good abilities to set their learning goals, to select appropriate digital applications in order to reach their goals, and to maintain their attention in the *content* of the digital learning material (not merely in the technical use of the device).

Children coming from some backgrounds, however, may not possess these necessary skills for efficient use of digital learning methods. For example, there is evidence that children coming from families with low socioeconomic status have lower levels of executive skills, cognitive control, and working memory capacity (Duncan & Magnuson, 2012; Hackman et al., 2014; Sarsour et al., 2011). In this way, promoting the use of digital learning methods may simultaneously increase inequality in learning outcomes between children coming from different backgrounds. Previously, it has been found that the use of digital technologies has different effects on the learning outcomes among students with higher and lower cognitive abilities (Kalyuga et al., 2003; Paas et al., 2004; Van Merriënboer & Ayres, 2005). Moreover, it appears that digital skills are different between children coming from rural and urban regions (Salemink et al., 2017) and between children coming from high- and low-SES families (Andrews, 2008; Tandon et al., 2012). Nevertheless,

population-based studies (including students with varying backgrounds and varying skill levels) about the link of digital learning methods with learning outcomes are lacking in Finland.

The aim of the present study was to investigate (i) whether the frequency of using information and communications technology (ICT) at school is linked to cognitive learning outcomes in the PISA 2015 test (i.e. reading literacy, mathematical literacy, scientific literacy, and collaborative problem-solving), and (ii) whether the association of ICT use at school with cognitive learning outcomes could be modified by availability of ICT device at school or students' ICT competence. We used the Finnish PISA 2015 data that provides a nationally representative sample of the Finnish 15-year-old students. The age of 15 years is of particular importance in the educational context, because students' learning outcomes at that age largely determine their later educational paths (i.e. whether they apply to occupational school or high school or drop out from the educational track).

Material and Methods

Participants

The participants came from the Finnish PISA (Programme for International Student Assessment) 2015 data. The authors of this study did not participate in the data collection process. The PISA samples were selected in two phases. Firstly, it was randomly selected more than 150 Finnish schools that were teaching students within the target age (i.e. students aged between 15 years and 3 months and 16 years and 2 months, and who were at grade 7 or higher at school). Secondly, on average 42 students within the desired age range were randomly selected in each included school.

In Finland, the desired target population of students included 58 955 students. Of this target population, 2.8% of students were excluded. Hence, the final Finnish sample included altogether 5882 students in PISA 2015 test. In this final sample, 0.5% of the students were at the 7th grade, 13.6% at the 8th grade, 85.7% at the 9th grade, and 0.2% at the 11th grade. A more detailed report about the design of the PISA 2015 can be found elsewhere (OECD, 2017a).

The most common exclusion criteria at school-level were the following: schools that were geographically unreachable; schools where the organization of the PISA assessment was not possible by practical reasons; and schools that

included students only from a specific population (e.g. schools for the blind). At student-level, the main exclusion criteria were as follows: students with limited language proficiency and students with an intellectual or functional disability (assessed by a professional).

In the analyses of this study, all the participants who had full data about the study variables were included (age; gender; the index of economic, social, and cultural status; the index of ICT use at school; the index of ICT availability at school; the index of students' perceived ICT competence; scientific literacy; mathematical literacy, reading literacy; and collaborative problem-solving). The sample in the present study included 5037 students.

Measures

Information and communications technology (ICT). *The index of ICT (information and communications technology) use at school* was evaluated with 9 self-rating items filled by students. The items measured how often the students used digital devices for the following activities: (i) "at school"; (ii) "using email at school"; (iii) "browsing the Internet for schoolwork"; (iv) "downloading, uploading or browsing material from the school's website (e.g.)"; (v) "posting [their] work on the school's website"; (vi) "playing simulations at school"; (vii) "practicing and drilling, such as for foreign language learning or mathematics"; (viii) "doing homework on a school computer"; and (ix) "using school computers for group work and communication with other students". The items were rated with a 5-point scale ranging from 1 (never or hardly ever) to 5 (every day). A higher value of the index of ICT referred to more frequent use of ICT at school.

The index of students' perceived ICT competence was assessed with 5 items rated by students. The items were the following: (i) "I feel comfortable using digital devices that I am less familiar with"; (ii) "If my friends and relatives want to buy new digital devices or applications, I can give them advice"; (iii) "I feel comfortable using my digital devices at home"; (iv) "When I come across problems with digital devices, I think I can solve them"; and (v) "If my friends and relatives have a problem with digital devices, I can help them". The items were rated with a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The index was scaled so that a higher value indicated a higher perceived competence with ICT.

The index of ICT availability at school was evaluated with a 10-item questionnaire filled by students. The questions measured whether the

following digital devices were available at school: (i) desktop computer; (ii) portable laptop or notebook; (iii) tablet computer; (iv) internet connected school computers; (v) internet connection via wireless network; (vi) storage space for school-related data; (vii) USB (memory) stick; (viii) ebook reader; (ix) data projector; or (x) interactive whiteboard. The items were answered with a 3-point scale (1=”Yes, and I use it”; 2=”Yes, but I do not use it”; 3=”No”). The total score of the questionnaire was scaled so that a higher value referred to higher ICT availability of the school.

All the ICT indices were standardized with the mean of 0 and standard deviation of 1 across the OECD countries. The measurement of ICT indexes is more precisely described elsewhere (OECD, 2017b).

Cognitive learning outcomes. The measurement of cognitive learning outcomes (scientific literacy, reading literacy, mathematical literacy, and collaborative problem-solving) included altogether 810 minutes of test items. The students performed various combinations of the test items. For each student, it was selected a 2-hour-long test pattern including four pieces of 30-minute clusters: two clusters in the field of scientific literacy and the other clusters in the fields of reading literacy, mathematical literacy, and collaborative problem solving. All the items were rated with one of the following rating types: closed constructed-response (e.g. writing a single number), open constructed-response (a slightly longer written response), or multiple choice-response (selecting one or more responses from a response set). Further, all the items of PISA 2015 were performed with computer-based tests. The measurement design of the cognitive learning outcomes is described with more detail elsewhere (OECD, 2017b).

Scientific literacy measured students ‘abilities (i) to explain phenomena in a scientific way (in the fields of biology, physics, chemistry, and space sciences), (ii) to assess and design necessary steps in scientific investigations (e.g. to define dependent and independent variables, control variables, and methods to decrease measurement error), and (iii) to interpret and reflect evidence scientifically (to differentiate between scientific hypotheses, observations, and facts).

Reading literacy did not measure the most basic reading skills. Instead, reading literacy assessed the student’s capacity to understand, interpret, integrate, and reflect the content of different types of texts. The text types consisted of continuous texts (e.g. chapters, books), non-continuous text materials (e.g. lists, tables, graphs, advertisements, indexes) and combinations

between them. The texts were placed in personal, occupational, educational, and public contexts, so that the items measured students' abilities to apply their reading skills in various of daily events.

Mathematical literacy referred to students' abilities (i) to formulate contextualized problems into mathematical form, (ii) to employ necessary mathematical computations to solve the problems that have been formulated mathematically (e.g. mental calculation, spatial visualization, modeling mathematical change with appropriate functions), and (iii) to interpret the mathematical results, for example, to apply the solutions in various every-day contexts, to evaluate the reasonableness of the results, and to acknowledge the uncertainty of measurements.

Collaborative problem-solving measured students' abilities (i) to establish and maintain shared understanding about the task with others, (ii) to take the necessary collaborative steps to solve the problem, and (iii) to create and maintain collaborative organization (so that each group member's knowledge could be utilized). Collaborative problem-solving was evaluated with computer-based items where each student was collaborating with computer agents.

The index of economic, social and cultural status (ESCS). The index of ESCS was assessed with questionnaires presented for students. The index of ESCS included three factors: (1) highest parental education, (2) highest parental occupation, and (3) family wealth. Parental education was rated with a 7-point scale ranging from 0 (no education) to 6 (theoretically oriented tertiary and post-graduate) on the basis of the International Standard Classification of Education (ISCED) 1997 (OECD, 1999). Parental occupational status was assessed with of the International Standard Classification of Occupations (ISCO-08). Family wealth was assessedwith19 household items measuring, for example, the number of room space, books, works of art, and electronic devices at home. Finally, the index of ESCS was scaled with the mean of 0 and standard deviation of 1 between the OECD countries. A more precise description of the index of ESCS is available elsewhere (OECD, 2017a).

Statistical analyses

The data were analyzed with structural equation models (run with STATA version 15.0). Students' performance in each cognitive learning outcome was treated as latent factor with 10 plausible values, which were based on Rasch

Model, as indicator (manifest) variables. More detailed information about the estimation of the plausible values can be found elsewhere (OECD, 2017a). A separate structural equation model was estimated for each cognitive learning outcome (i.e. scientific literacy, mathematical literacy, reading literacy, collaborative problem-solving). In models 1, we investigated whether the use of ICT is associated with cognitive learning outcomes. Age, gender, and the index of ESCS were controlled for. In models 2, we investigated whether the association of use of ICT with cognitive learning outcomes might be sustained after controlling for the availability of ICT at school and the students' perceived ICT competence. Hence, we added to the predictors the availability of ICT at school and the students' perceived ICT competence. In models 3, we investigated whether the association of ICT use at school with cognition learning outcomes was modified by the students' ICT competence. That is, in models 3, we added the interaction effect between ICT use at school and students' ICT competence in the model. In models 4, we examined whether the association of ICT use at school with cognitive learning outcomes was modified by the availability of ICT at school. Specifically, in models 4, we added the interaction effect between ICT use at school and students' ICT competence in the model.

The goodness-of-fit of the structural equation models was assessed with the values of the Root-Mean-Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker Lewis Index (TLI). It has been showed that the value of RMSEA should be less than 0.06 and the CFI and the TLI should be more than 0.95 (Hu & Bentler, 1999). Additionally, lower values of the χ^2 test of absolute model fit suggest better model fit to the data (Schreiber et al., 2006).

Results

Descriptive statistics of the study variables are shown in Table 1.

Table 1.
Means, frequencies, standard deviations, and ranges of the study variables.

	Mean / Frequency (%)	SD	Range
Age	15.72	0.28	15.25; 16.25
Gender			
Female	2524 (50.1)		
Male	2513 (49.9)		
Index of ESCS	0.28	0.74	-2.91; 3.57
ICT use at school	0.10	0.72	-1.67; 3.63
ICT availability at school	6.92	2.09	0.00; 10.00
Students' ICT competence	-0.08	0.90	-2.71; 1.94
Scientific literacy[1]	539.97	88.68	248.63; 793.90
Mathematical literacy[1]	518.34	73.09	249.64; 737.36
Reading literacy[1]	537.12	82.60	179.26; 749.70
Collaborative problem-solving[1]	542.21	87.24	157.77; 833.18

[1] The mean of the plausible values 1–10.

Table 2 shows the results when examining the association of ICT use at school with students' cognitive learning outcomes. The results revealed that frequent use of ICT at school was associated with weaker performance in all the cognitive outcomes, i.e. lower scores of scientific literacy, mathematical literacy, reading literacy, and collaborative problem-solving (Models 1). All these associations were controlled for age, gender, and the index of economic, social, and cultural status (ESCS). When adjusted also for the availability of ICT at school and students' perceived ICT competence, all the significant associations of use of ICT at school with weaker performance in cognitive outcomes remained the same (Models 2). Further analyses revealed that there were no significant interaction effects between age and ICT use at school, when cognitive learning outcomes were set as dependent variable. Additionally, all the associations of ICT use at school and cognitive learning outcomes were evident among males and females.

Table 2.

The standardized coefficients (B) with 95% confidence intervals of the ICT variables, when predicting students' performance in scientific literacy, mathematical literacy, reading literacy, and collaborative problem-solving with structural equation models.

	Model 1		Model 2	
	B	95% CI	B	95% CI
Scientific literacy				
Age	0.061***	0.035; 0.086	0.060***	0.034; 0.085
Gender[a]	-0.065***	-0.091; -0.039	-0.091***	-0.12; -0.065
Index of ESCS	0.33***	0.30; 0.35	0.32***	0.30; 0.35
ICT use at school	-0.14***	-0.16; -0.11	-0.16***	-0.19; -0.13
ICT availability at school			-0.0095	-0.036; 0.017
Students' ICT competence			0.11***	0.085; 0.14
Mathematical literacy				
Age	0.054***	0.028; 0.079	0.052***	0.027; 0.078
Gender[a]	-0.0063	-0.032; 0.020	-0.034*	-0.060; -0.0070
Index of ESCS	0.37***	0.35; 0.39	0.36***	0.34; 0.39
ICT use at school	-0.11***	-0.14; -0.083	-0.13***	-0.16; -0.10
ICT availability at school			-0.016	-0.042; 0.011
Students' ICT competence			0.12***	0.093; 0.15
Reading literacy				
Age	0.068***	0.043; 0.093	0.067***	0.042; 0.092
Gendera	-0.24***	-0.26; -0.21	-0.27***	-0.29; -0.24
Index of ESCS	0.33***	0.30; 0.35	0.32***	0.30; 0.34
ICT use at school	-0.13***	-0.16; -0.11	-0.15***	-0.18; -0.13
ICT availability at school			-0.016	-0.042; 0.0092
Students' ICT competence			0.13***	0.094; 0.15

Table 2. (Continued)

The standardized coefficients (B) with 95% confidence intervals of the ICT variables, when predicting students' performance in scientific literacy, mathematical literacy, reading literacy, and collaborative problem-solving with structural equation models.

	Model 1		Model 2	
	B	95% CI	B	95% CI
Collaborative problem-solving				
Age	0.066***	0.04; 0.092	0.065***	0.040; 0.091
Gender[a]	-0.25***	-0.27; -0.22	-0.27***	-0.29; -0.24
Index of ESCS	0.27***	0.25; 0.29	0.27***	0.24; 0.29
ICT use at school	-0.13***	-0.16; -0.11	-0.15***	-0.18; -0.12
ICT availability at school			-0.0036	-0.030; 0.023
Students' ICT competence			0.083***	0.056; 0.11

* p<.05 *** p<.001 [a] Female as the reference group. ICT = Information and communications technology. The index of ESCS = The index of economic, social, and cultural status.

Model 1: Adjusted with baseline covariates (age, gender, the index of ESCS).

Model 2: Adjusted also with ICT availability at school and students' ICT competence.

Next, we investigated whether the associations of ICT use at school with cognitive learning outcomes could be moderated by ICT availability at school or students' perceived ICT competence. The findings are shown in Table 3. When cognitive learning outcomes were set as the dependent variable, use of ICT at school had significant negative interaction effects of with (i) student's perceived ICT competence and (ii) ICT availability at school. The negative main effect of ICT use on cognitive learning outcomes was significant after adding its interaction with students' ICT competence to the model. Instead, after adding the interaction between ICT use and ICT availability at school, the main effect of ICT on cognitive learning outcomes was not significant. Taken together, the findings indicated that frequent ICT use was associated with students' weaker cognitive learning outcomes at all levels of students' ICT competence, but this association was more evident at high levels than low levels of students' ICT competence (see Figure 1). Further, frequent ICT use at school was associated with students' weaker cognitive learning outcomes at high levels but not at low levels of ICT availability at school.

Table 3.

The standardized coefficients (B) with 95% confidence intervals of the ICT variables, when predicting students' learning outcomes with structural equation models.

	Model 3		Model 4	
	B	95% CI	B	95% CI
Scientific literacy				
Age	0.062***	0.036; 0.088	0.060***	0.034; 0.085
Gender[a]	-0.090***	-0.12; -0.064	-0.089***	-0.12; -0.062
Index of ESCS	0.32***	0.30; 0.35	0.32***	0.30; 0.35
ICT use at school	-0.15***	-0.18; -0.12	-0.057	-0.13; 0.014
ICT availability at school	-0.012	-0.038; 0.015	-0.0060	-0.033; 0.021
Students' ICT competence	0.12***	0.094; 0.15	0.11***	0.084; 0.14
ICT use at school * Students' ICT competence	-0.073***	-0.099; -0.046		
ICT use at school * ICT availability at school			-0.11**	-0.18; -0.038
Mathematical literacy				
Age	0.055***	0.029; 0.080	0.052***	0.027; 0.078
Gender[a]	-0.033*	-0.059; -0.0061	-0.032*	-0.058; -0.0050
Index of ESCS	0.26***	0.34; 0.39	0.36***	0.34; 0.39
ICT use at school	-0.12***	-0.15; -0.093	-0.045	-0.12; 0.027
ICT availability at school	-0.018	-0.044; 0.0082	-0.013	-0.039; 0.014
Students' ICT competence	0.13***	0.10; 0.16	0.12***	0.092; 0.15
ICT use at school * Students' ICT competence	-0.074***	-0.10; -0.048		
ICT use at school * ICT availability at school			-0.091*	-0.16; 0.019
Reading literacy				
Age	0.069***	0.044; 0.094	0.067***	0.042; 0.092
Gender	-0.26***	-0.29; -0.24	-0.26***	-0.29; -0.24
Index of ESCS	0.32***	0.30; 0.34	0.32***	0.30; 0.34
ICT use at school	-0.14***	-0.17; -0.12	-0.011	-0.081; 0.058
ICT availability at school	-0.019	-0.044; 0.0067	-0.012	-0.037; 0.014
Students' ICT competence	0.13***	0.10; 0.16	0.12***	0.093; 0.14
ICT use at school * students' ICT competence	-0.079***	-0.10; -0.054		
ICT use at school * ICT availability at school			-0.15***	0.22; -0.082

Table 3. (continued)

The standardized coefficients (B) with 95% confidence intervals of the ICT variables, when predicting students' learning outcomes with structural equation models.

	Model 3		Model 4	
	B	95% CI	B	95% CI
Collaborative problem-solving				
Age	0.067***	0.042; 0.093	0.065***	0.040; 0.091
Gender	-0.27***	-0.29; -0.24	-0.26***	-0.29; -0.24
Index of ESCS	0.26***	0.24; 0.29	0.26***	0.24; 0.29
ICT use at school	-0.14***	-0.17; -0.11	-0.012	-0.082; 0.060
ICT availability at school	-0.0056	-0.032; 0.021	0.0011	-0.025; 0.028
Students' ICT competence	0.090***	0.063; 0.12	0.081***	0.054; 0.11
ICT use at school * Students' ICT competence	-0.064***	-0.091; -0.038		
ICT use at school * ICT availability at school			-0.15***	-0.22; -0.077

* p<.01 *** p<.001 [a] Female as the reference group.ICT = Information and communications technology.

Model 1: The interaction between ICT use at school and students' ICT competence was added to the model.

Model 2: The interaction between ICT use at school and ICT availability was added to the model.

Figure 1.a)

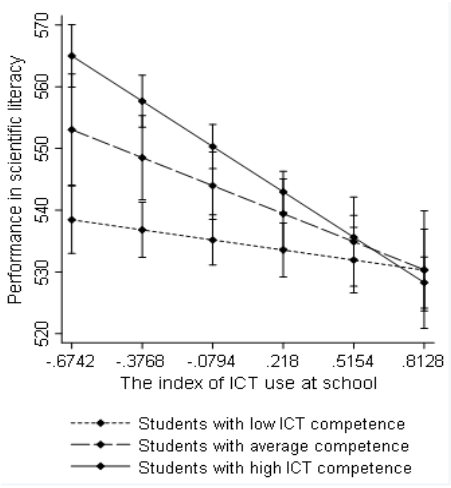

Figure 1.b)

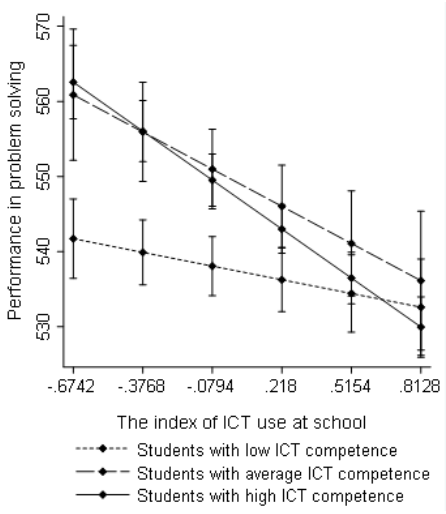

Figure 1.c)

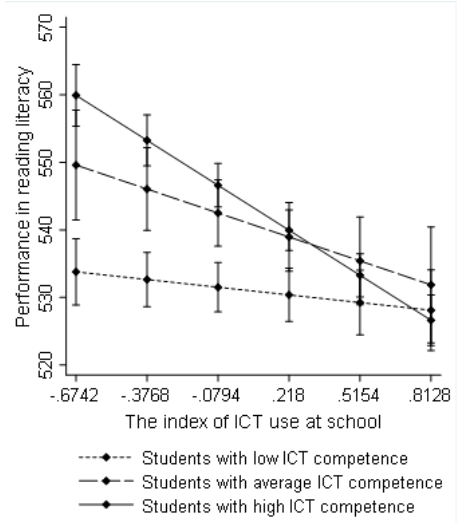

Figure 1.d)

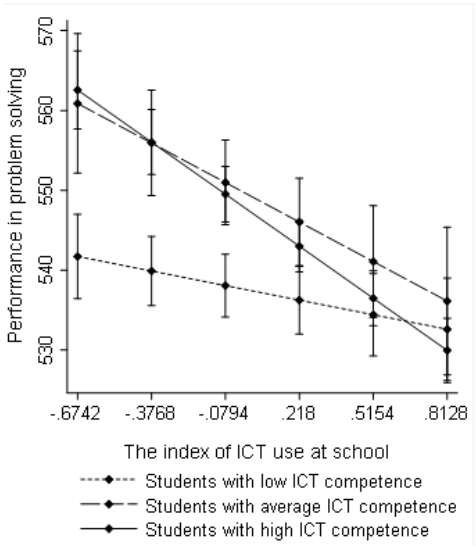

Figure 1. Predicted marginal means with 95% confidence intervals of students' performance in scientific literacy (a), mathematical literacy (b), reading literacy (c), and collaborative problem solving (d) at different levels of ICT use at school (ranging from 10th percentile to 90th percentile) and among students with low (lowest 30%), average, and high (highest 30%) ICT competence. Adjusted for age, gender, the index of ESCS, and availability of ICT at school.

The goodness-of-fit statistics of the models are presented in Supplementary Material. The goodness-of-fit of the models was found to be excellent (CFI=[0.998; 1.000]; TLI=[0.998; 1.000]; RMSEA=[0.001; 0.00017] in all the models).

Discussion

It was found that frequent use of digital technologies (ICT) at school was associated with weaker cognitive performance in the PISA 2015 test in Finland, i.e. lower scores in scientific literacy, mathematical literacy, reading literacy, and collaborative problem-solving. Further, the negative association of frequent ICT use at school with learning outcomes was more negative

among students with high than low ICT competence. Moreover, the association of frequent ICT use at school with weaker cognitive learning outcomes was more evident at high than low levels of availability of ICT device at school. Taken together, the findings indicate that the negative association of ICT use with cognitive learning outcomes may not be mitigated by increasing students' ICT competence or the availability of ICT device at school. All the associations were sustained after controlling for age, gender, and the index of economic, social, and cultural status.

The association of frequent ICT use with weaker cognitive performance in the PISA 2015 is highly in line with previous studies conducted in other countries. For example, it has been found that frequent computer use in classroom (Carter et al., 2017; Fried, 2008, Hembrooke & Gay, 2003) and writing notes with computer rather than by hand (Mueller & Oppenheimer, 2014) are linked with weaker school performance. Additionally, several studies have found no effect of digital technologies on students' academic achievements (Yang, 2012). Importantly, it has also been demonstrated that using a laptop during a lesson predicts weaker learning outcomes both for the laptop-user and also for the other students who can view their peer using a laptop (Sana et al., 2013). Hence, one student using ICT in a classroom may negatively affect the learning of several other students, too.

The negative association between ICT use at school and weaker learning outcomes may likely be accounted for by working memory overload. Specifically, the most important phase of learning occurs in working memory. Using working memory, a student selects relevant pieces of information from the learning material, compares them to the previous knowledge, and organizes the new pieces of information into coherent schemas (26,41). Next, the new schemas can be moved to the long-term memory, where a learner can retain the new information later when needed (Van Merriënboer &Ayres, 2005; Kirschner, 2002). Importantly, however, the working memory has a highly limited capacity, so that overloading working memory substantially reduces the opportunities for efficient learning (Kalyuga et al., 2003; Kirschner, 2002; Mayer & Moreno, 1998).

The use of digital technologies is suggested to compose a substantial strain for the working memory in many cases (Kirschner & Bruyckere, 2017). That is, the use of digital learning applications requires a variety of cognitive tasks, such as processing the content of the learning material, the technical handling of the device, listening to teachers' guidelines, and cognitive inhibition of

using the device for personal purposes (e.g. social media). However, since multitasking is not possible for the cognitive architecture of the human brain (Kirschner & Bruyckere, 2017; Sweller et al., 2011), different tasks compete with each other for the limited resources of the working memory, so that performing one cognitive task interferes with concentrating on the other tasks (Kirschner & Bruyckere, 2017). Hence, use of digital learning applications may result in continuous task-switching, where resources are not available for the content of the learning material (Kirschner & Bruyckere, 2017). As a result, new information may not be moved to the long-term memory.

Furthermore, the content of digital learning material may impose a severe strain for working memory. That is, most digital learning applications are characterized by a large amount of interacting elements (Van Merriënboer & Ayres, 2005). For example, a single learning task may simultaneously include verbal and pictorial, auditory and visual, dynamic and static pieces of information. Moreover, in many cases, digital learning applications may not allow a learner to process the information freely, but some pieces of the information may appear and disappear from the screen in accord with the digital learning application. Hence, processing the digital learning material may overload working memory and result in less efficient learning outcomes (Kalyuga et al., 2003; Van Merriënboer & Ayres, 2005; Kirschner, 2002).

Previously, it has been suggested that the lack of students 'competence in using technical devices for learning purposes might explain some negative findings related to the use of ICT at school (Carter et al., 2017). However, our findings did not provide support for this suggestion. On the contrary, frequent ICT use at school predicted weaker cognitive learning outcomes especially among students with high ICT competence. This is in line with previous evidence. For example, it has been shown that children coming from families with low socioeconomic status are more prone to excessive screen time, media access, or computer playing (Andrews, 2008; Tandon et al., 2012) but, simultaneously, more prone to weaker learning outcomes (OECD, 2016) and lower working memory capacity (Hackman et al., 2014). In this light, the level of students' ICT skills may reflect inequalities in their family background. Hence, it is of utmost importance to consider that although students with high ICT skills are good at mechanical use of digital device, they may not necessarily have abilities for a goal-oriented and self-directed use of digital technologies that could have positive influences on their learning. For example, students with high ICT competence (i.e. better knowledge about the

use of applications, games, and websites) may be more prone to use the device for other than learning purposes. Taken together, students with high ICT skills may be more likely to come from families with low socioeconomic status and, hence, to belong to the risk group for weaker school success.

In the present study, there were some methodological limitations that are necessary to take into consideration. Specifically, cognitive learning outcomes (i.e. mathematical literacy, scientific literacy, reading literacy, and collaborative problem-solving) were assessed using computer-based tests. Hence, students' skills in using digital technologies may potentially have confounded the performance in cognitive test items. However, when developing the PISA 2015 tests, the aim was to minimize the amount of computer skills needed for conducting the test items (OECD, 2017b). Moreover, students had the possibility to practice the computer-based items and different response formats before starting the test (OECD, 2017b). Overall, the potential effect of students' ICT skills on the test performance in the PISA 2015 has been estimated to be minor (OECD, 2017a). In addition, in our study, the association of the ICT use at school with cognitive learning outcomes sustained even after controlling for students' perceived competence with ICT use. Finally, since the PISA data is cross-sectional, the results do not allow for making any firm conclusions about temporal or causal relationships.

This study had also a variety of substantial strengths. Firstly, we had a comparatively large sample (N=5037) that was representative of the Finnish population of 15-year-old students. Hence, the data provided exceptional possibilities to investigate link of ICT use with learning outcomes in a population-based sample. Secondly, cognitive learning outcomes were evaluated with internationally standardized and objective tests, without any bias deriving from, for example, teacher's rating. Thirdly, we could take into account several potential confounders, such as age, gender, the index of ESCS, students' ICT competence, and availability of ICT at school. Finally, this topic is of particular importance in Finland since in the recent years, extensive economic investments have been implemented in ICT use at school in Finland.

In conclusion, this study found that frequent use of ICT at school is linked with weaker performance in mathematical literacy, scientific literacy, reading literacy, and collaborative problem-solving among 15-year-old students in Finland. This may be explained by working memory overload and task-switching during the use of digital technologies. Further, we found that the

association of frequent ICT use with weaker learning outcomes was more evident in students with higher than lower ICT skills. This suggests that although students with high ICT skills are good at mechanical use of digital device, they may not necessarily have abilities for a goal-oriented and self-directed use of digital technologies that could promote their learning.

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Appendix

Supplementary Material

The goodness-of-fit statistics for all the models.

	χ^2 value	*df*	*p*	RMSEA	CFI	TLI
Scientific literacy						
Model 1	71.400	71	0.464	0.001	1.000	1.000
Model 2	94.377	89	0.328	0.003	1.000	1.000
Model 3	104.835	98	0.300	0.004	1.000	1.000
Model 4	111.320	98	0.169	0.005	1.000	1.000
Mathematical literacy						
Model 1	132.935	71	<.001	0.013	0.999	0.999
Model 2	170.788	89	<.001	0.014	0.999	0.999
Model 3	182.219	98	<.001	0.013	0.999	0.999
Model 4	177.780	98	<.001	0.013	0.999	0.999
Reading literacy						
Model 1	162.957	71	<.001	0.016	0.999	0.999
Model 2	218.350	89	<.001	0.017	0.998	0.998
Model 3	224.626	98	<.001	0.016	0.998	0.998
Model 4	247.120	98	<.001	0.017	0.998	0.998
Collaborative problem-						
Model 1	158.34	71	<.001	0.016	0.998	0.998
Model 2	186.37	89	<.001	0.015	0.998	0.998
Model 3	198.561	98	<.001	0.014	0.998	0.998
Model 4	207.430	98	<.001	0.015	0.998	0.998

RMSEA = the Root Mean Square Error of Approximation. CFI = the Comparative
TLI = the Tucker Lewis Index. *N*=5037

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'What Kind of Education System are We Offering': The Views of Education Professionals on School Refusal

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'What Kind of Education System are We Offering': The Views of Education Professionals on School Refusal

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Abstract

In recent years, there has been a growing concern about the issue of school refusal, particularly given the adverse effects on young people's social, emotional and educational development. School refusal is understood differently within contemporary literature; as a symptom of an underlying mental illness or disorder, or alternatively, as a signal that all is not well in the young person's world. These varying construal's have important implications for education responses to school refusal. This study explores education professionals' views and experiences of school refusal within second level schools in Ireland. The findings from seventeen in-depth interviews highlight the complex nature of school refusal and unique challenges it presents for professionals, young people and parents. Key themes include emotional and psychological distress experienced by young people and their exposure to adverse childhood experiences and trauma; the influence of family socio economic status and unequal access to support services and resources; the pressures for academic achievement and resulting conflictual relationships within the school environment and between home and school. This study highlights the need for trauma-informed approaches in schools and urges future research to consider school refusal within wider debates on social justice and the goals and purposes of education.

Keywords: school refusal, qualitative, education professionals, adverse childhood experiences

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‘Qué Tipo de Sistema Educativo Estamos Ofreciendo’: Visiones de los Profesionales de la Educación sobre el Rechazo Escolar

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Resumen

En los últimos años ha aumentado la preocupación por el rechazo escolar por los efectos adversos que tiene en el desarrollo social, emocional y educativo de los jóvenes. El rechazo escolar se entiende de manera diferente dentro de la literatura actual: como síntoma de una enfermedad o trastorno mental subyacente o, como señal de que no todo va bien en el mundo del/ la estudiante. Estas diferentes interpretaciones tienen importantes implicaciones para las respuestas educativas al rechazo escolar. Este estudio explora las opiniones y experiencias de los profesionales de la educación sobre el rechazo escolar en las escuelas de secundaria en Irlanda. Las diecisiete entrevistas en profundidad realizadas revelan la naturaleza compleja del rechazo escolar y los desafíos que presenta para los profesionales, el alumnado y las familias. Los resultados destacan la angustia emocional y psicológica que experimentan los jóvenes y su exposición a experiencias adversas y traumas infantiles; la influencia de la situación socioeconómica de la familia y el acceso desigual a los recursos de apoyo; las presiones por el rendimiento académico y los conflictos en la escuela y entre las familias y la escuela. Este estudio enfatiza la necesidad de enfoques que consideren las situaciones de trauma en las escuelas, y subraya la importancia de que futuras investigaciones consideren el rechazo escolar dentro de debates más amplios sobre la justicia social y los objetivos y propósitos de la educación.

Palabras clave: rechazo escolar, cualitativo, profesionales de la educación, experiencias infantiles adversas.

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School refusal can be a source of considerable distress for young people and their families. It can impede a young person's social, academic and psychological development resulting in short- and long-term consequences; including mental health difficulties, unemployment and over reliance on welfare services (Havik et al., 2015; Kearney, 2008; Thambirajah et al., 2008). School refusal is defined as a child's motivated refusal to attend school or remain in class for the duration of the school day (Kearney & Silverman, 1996) for reasons associated with emotional distress (King et al., 1999).

A review of literature in the area highlights that the prevailing understanding of school refusal is based on clinical and psychiatric models of distress. These fields tend to endorse a bio-medical perspective, whereby emotional distress is viewed as a 'symptom' of an underlying disorder or illness, rather than signals that all is not well in the young person's world (Gregory & Purcell, 2014; O'Toole & Devenney, 2020; Pelligrini, 2007; Stroobant & Jones, 2006; Yoneyama, 2000). O'Toole & Devenney (2020) have drawn attention to the very negative terms that are attached to young people experiencing school refusal who are often considered to have social 'impairments', emotional 'disturbances', 'maladaptive' thoughts and 'distorted' beliefs. They argue that this language has potentially far-reaching consequences for how young people are viewed and responded to in schools, as well as for how they view themselves. Fundamentally, the medical model serves to locate the problem within individual students and families and re-inscribes deficit perceptions and negative stereotypes.

Increasingly, it is recognised that there are many complex factors at play in understanding school refusal. Children will be hesitant to attend school for a wide variety of reasons (Gregory & Purcell, 2014; Thambirajah et al., 2008). For example, adverse childhood experiences relating to poverty, homelessness, school violence, bullying, violence in the home, bereavement, family separation, divorce, neglect, addiction and neighbourhood violence have shown to be a dominant feature within the school refusal literature (Archer et al., 2003; Kearney, 2008). More recently, Stempel and colleagues (2017) have linked Adverse Childhood Experiences (ACEs; Felitti et al., 1998) with prolonged school absenteeism. These findings contribute to a growing literature on associations between ACEs and negative educational outcomes including disengagement with school, poor school performance and

school absenteeism (Bethell et al., 2014; Burke et al., 2011). Thus, it seems important to recognise the possibility that ACEs or trauma might underpin a young person's school refusal behaviour.

A review of the literature carried out by Lauchlan (2003), reveals a diverse number of issues in relation to schools' responses to school refusal. These include school policies containing a strict code of discipline, policies of streaming resulting in a student being placed in a classroom with troublesome and disgruntled peers and difficult student-teacher relations (formal, impersonal and hostile). Difficulty coping with academic demands, transition from primary to second level school, school size, unpredictability within school structures (frequent change of school staff) and school day (time periods between classes) were also reported to have a significant impact on the young person and school refusal (Thambirajah et al., 2008). These aspects of school culture may be particularly challenging for young people who have had prior exposure to adversity.

Aim of the Study

Set against this background, it is not unreasonable to ask how school refusal is construed within the field of education and how are teachers and other educational professionals responding to the issue? Driven by neoliberal and economic change (1970s), the culture of accountability has placed added strain on the relationships between "parents/students and educators/institutions" in the educational journey of the young person (Biesta, 2010, p.71). Whilst many scholars have highlighted the impact of accountability and performativity agenda's in education, especially in terms of creating a competitive and pressurised culture in schools (Apple, 1979; Ball, 2003; Biesta, 2010, 2017), the potential impact of this in relation to school refusal has not been discussed.

The aim of this study was to explore the views of education professionals in relation to school refusal. Specifically, we sought to explore how school refusal was construed within the Irish context, how professionals respond to young people and families affected by school refusal, and challenges or concerns that professionals experience.

Methods

Participants and Sampling

Participants were professionals working in or supporting second-level schools in Ireland. The current study forms part of a larger research project on school refusal whereby a national survey on school refusal was initially distributed to all second-level schools in Ireland via electronic email (the details of which are reported elsewhere). At the end of the survey, potential participants were invited to take part in one-to-one interviews for this qualitative study. Inclusion criteria were that participants must be professionals who worked in or were supporting second-level schools in Ireland. These included principals, deputy principals, teachers, other school based staff and professionals from outside agencies (e.g. school completion officer). A total of 30 responses were received and were subsequently contacted by the researcher. A final 17 participants agreed to take part in this study: 8 male and 9 female. Participants have been provided with pseudonyms as seen throughout this paper. Personal details have been removed to protect the identity of participants.

Table 1

Background Information of Participants

	Pseudonym	Gender	Professional role	School type
1.	John	Male	Teacher	Private, fee-paying, mixed gender
2.	Anna	Female	Retired Principal	Public, all-girls
3.	Sam	Male	Retired Principal	*DEIS, all-boys
4.	Frances	Female	Principal	Public, mixed gender
5.	Maeve	Female	Deputy Principal	Public, mixed gender
6.	Rachael	Female	Deputy Principal	Public, all-girls
7.	Amy	Female	School Completion Officer	Public, all-girls
8.	Jack	Male	Principal	DEIS, mixed gender
9.	Aoife	Female	Guidance Counsellor	Public, mixed gender
10.	David	Male	Principal	Public, all-boys
11.	Emma	Female	Principal	DEIS, mixed gender
12.	Tanya	Female	Principal	DEIS, all-girls

Table 1 (continued)

Pseudonym		Gender	Professional role	School type
13.	Thomas	Male	Principal	Private, fee-paying, all-boys
14.	Robert	Male	Principal	DEIS, mixed gender
15.	Ethan	Male	Principal	DEIS, mixed gender
16.	Phillip	Male	Principal	DEIS, mixed gender
17.	Lisa	Female	Head Teacher	Public, all-girls

**Note.* DEIS (Delivering Equality of Opportunity in Schools) denotes those schools who qualify for entry into the DEIS scheme, a government funded scheme that provides additional resources for schools serving communities in low socio-economic areas.

Procedure

Participants who arranged contact with the researcher were provided with an information sheet and written informed consent was obtained. Interviews were conducted by telephone and took approximately 50 minutes - 1 hour. Pilot interviews were conducted with a small number of professionals (n=3) to allow for any changes to be made. Interviews were semi-structured and questions were designed to explore the experiences and challenges of working with young people at risk or experiencing school refusal.

Data from interviews (including pilot interviews) were transcribed verbatim, anonymised and analysed using thematic analysis. In this study, a hybrid approach was chosen as the main method of thematic analysis incorporating two contrasting approaches to the analytic process. First, themes and patterns were identified within the data using an inductive or 'bottom up' thematic analysis (Boyatzis, 1998), adopted by Braun & Clarke's (2006) analytic method. In this approach, the emerging themes were driven by the interview data without setting the data into a "pre-existing coding frame" (Braun & Clarke, 2006, p. 12). A 'top down' theoretical process was adopted producing a set of a priori codes as outlined by Crabtree & Miller (1999). By using this approach, the research aims and questions could be examined by allowing the theoretical perspectives to be a central focus of the deductive process while also allowing for initial themes to emerge directly from the data using inductive coding. Within the deductive approach a "template organising style" (Crabtree & Miller, 1999, p.166) was used which included the creation of a template of codes in the form of a codebook derived

from the research questions and theoretical framework used in this study. Any new codes that arose from the inductive analysis process were either included as separate from the a priori codes or used to expand upon the codes created in the codebook.

Findings

The following analysis is based on interviews with seventeen professionals. Key themes have been identified from professional's descriptions and challenges experienced in working with young people and school refusal. These include emotional distress, adversity, family's socio-economic backgrounds and school responses to school refusal.

Emotional Distress and Trauma

All participants reported that emotional distress was a key issue in students' experience of school refusal. Participants reported that young people struggled with a range of mental health issues such as anxiety, depression, self-harm, suicidal ideation, emotional withdrawal, isolation and somatic or bodily complaints. The parent-child relationship was perceived to be a factor with many participants noting an "attachment issue" or "attachment or separation anxieties" as signifying students' difficulty in being away from home. It was evident that teachers were often concerned for young people's welfare as Lisa recalled a student who came to school: "She [the student] came [into school] very upset and I was worried about her mental health and the fact that she had self-harmed before".

School refusal was also linked to a range of psychiatric diagnoses including, "depression", "autism", "Attention Deficit Hyperactive Disorder (ADHD)" and "Reactive Attachment Disorder (RAD)". Thomas also described school refusal as a "condition" that is part of the individual experience of the student:

> …because they have to go on to maturity and try and manage their condition. A lot of these issues that are [at] the root of school refusal, just don't go away. They will have [these issues] in work and they'll have to manage their condition (Thomas).

This suggests there was a tendency to think of school refusal as akin to a condition or disorder that originates within the child. Nevertheless, most participants recognised that the young person's emotional distress was linked to their life circumstances, particularly childhood adversities and traumas: "students that have refused to come to school… they come from families where there were issues... Mum and Dad were separated...maybe Dad wasn't on the scene" (Lisa). Frances reported that family circumstances such as parental separation and divorce proceedings influenced school refusal, acknowledging that families are sometimes "traumatised". She reflected on the impact of bereavement and loss resulting from the death of a family member, stating "I can understand how a young child is reluctant to say goodbye to a parent, and kind of trust the school environment that everything's going to be okay". Emma noted that family difficulties were a "common trend" in school refusal whereby "I don't think they [families] have any child that's a chronic attender if there aren't problems in the family".

However, whilst there was awareness of the challenges faced by families, this did not always translate into a compassionate understanding of their plight. Indeed, families could sometimes be criticized for failing to face up to or deal with their problems: "…there is something systemic somewhere in family systems or family operations … so rather than facing up to whatever was going on, this child just didn't come to school and so that was it" (Aoife). This was particularly evident in the case of families from lower socio-economic backgrounds.

Socio-economic Status

The findings showed that school refusal cuts across social class divides, but those with greater social, cultural, financial capital tend to have the necessary resources to manage the situation and ensure a positive outcome. Frances reported that school refusal can be evident in families "[…] from very wealthy backgrounds [and] from working class backgrounds". Jack commented: "I wouldn't say it's exclusive to one or other [social group]". However, it was evident that there were major differences in how families from different socio-economic backgrounds were viewed. Lisa stated that "the more disadvantaged the background, the less parents want to get involved [with the school]". Conversely, families of higher socioeconomic status were perceived as more motivated and committed to supporting their child in re-engaging

with the school. Aoife commented that "the middle-class parents are more willing to work with us. They trust us a bit more. They probably have had more positive experiences of school themselves; that would be my guess". She also noted that middle class families "…try and resolve whatever the issue is".

Thomas viewed families from higher socio-economic background to be more proactive and motivated in dealing with school refusal. However, he seemed more aware of the differences in resources and social capital that families possessed or had access to.

> I think that a lot of the middle class parents would have a lot more alternatives, are very proactive in the sense that they do everything they can possibly do to motivate their children and they have probably more social networks and links to ensure that their child is motivated to come to school (Thomas).

Thomas also indicated that parents from higher socio-economic background have more choice in accessing private services for assessment and therapeutic supports. They were more "confident" and "engaged" in finding a solution. Furthermore, even when a young person was not attending school, the more resourced families were able to access alternative enriching environments where their young person could learn new skills or try out different roles: "He [student] has done some wonderful work experience in his dad's office and other peoples offices, by virtue of the fact that his dad is trying to motivate him…".

Pressure to Perform

Many participants referred to pressures related to examinations and keeping up with schoolwork as key issues in school refusal. John linked the young person's experience of school refusal to a "pressure to perform … pressure to do the course and pressure within the class". Phillip also commented that young people experiencing school refusal are "…anxious students, their self-concepts would be very low, they are expecting to fail". Anna reflected on the transition from primary to second-level education with corresponding change in curriculum and expectations as key factors contributing to school refusal:

> Now many teachers would try their very best in first year to kind of keep somewhat of the primary school [ethos] going, but the minute they [students] get in, they are told – 'now you are going to do your Junior Certificate' (state examination taken midway through secondary school) and it is all about exams and it is test driven and I think it is a very big jump from…primary to secondary school (Anna).

Robert also questioned current approaches in education, which he felt were "…trying to make everybody fit into the same type of box or the same type of category". He questioned the value that society places on the Leaving Certificate and how academic performance is seen as all important: "in our society, if you do not get your Leaving Cert[ificate] you kind of feel that you are a failure". The Leaving Certificate is the state examination taken at the end of second level schooling in Ireland; it determines entry to University as well as other education or employment options. Anna also remarked on the levels of stress associated with the Leaving Certificate examination as "…it is so stressful because we have made students believe their whole life depends on it and there's no other way". Aoife commented on the pressures of academic performance on relations between young people and parents as: "Parents identify their own self-worth and their children's self-worth in academic achievement, and they want to be able to say - 'they [child] got five hundred and twenty points' and that can be a lot of pressure, sometimes" (Aoife).

Participants recounted the pressures parents seemed to be under to ensure their son or daughter returned to school. For example, David recalled a boy whose "family would drag him; coax him into the classroom to keep him in there". He noted that: "It has been quite distressing at times with the father dragging him in … and the father going out and the boy roaring and crying and crying and so on" (David).

This incident was distressing for everyone present – the boy, his parents and school staff.

Strained Relationships

Difficult and strained relations between school personnel and students/parents and between school and support services were evident in the experiences of most participants in this study. Participants spoke of the impact of school

refusal on teacher-student relationships. John expressed a sense of frustration in "trying to make them [students] catch up … and they are missing course curriculum and that is one of the most frustrating things about school refusal" and adds, that he feels "quite helpless" in getting the young person to engage in the course curriculum. Lisa, recalled how her teaching staff would often feel under pressure when the young person returned to school after a long period of absence and commented "… staff are coming to me and saying that it is not fair on other students, this student is coming in and he is upsetting the dynamics of the class and taking up my time…". By contrast, Rachael describes the young person's experience within the classroom as one of fear and embarrassment particularly at the anticipation of "being singled out … that idea that you might be spoken to in front of the class".

The pressure on teachers to complete curriculum course work was prevalent in all accounts. School leaders expressed a "genuine concern" for their teachers who feel "responsible" and "accountable" for the young person to complete their state examinations. Maeve referred to the non-completion of project components and curriculum-based assessments as a result of school refusal, which contributed further to stress and frustration amongst her teaching staff:

> I know that some of our teachers would be extremely stressed about that and those who have a project component to their subjects, which is more and more of them, and the teachers get really stressed around [school projects]. They [the students] haven't got their science workbook done, or they haven't got their religion project done, they haven't got their CBA's (Curriculum Based Assessment) done. [So], the teachers get really, really stressed about that when a student doesn't come in and some of our teachers will give a considerable amount of extra time to their students [who have missed classes] (Maeve).

Participants' spoke about strained relations between schools and outside support services (child protection and family support services, social work and psychological services). While most participants expressed appreciation for the supports these services offer, the pressure of liaising with a large and diverse array of services was evident in all accounts: "You have so many services involved and a lot of them are kind of barking instructions at the

school …" (Francis). Rachael felt that sometimes there were too many agencies involved:

> I mean every single agency imaginable was on that [school refusal]. So, therefore, she [young person] literally would be collected and brought into school by her father as agreed by case conferences. […] She desperately, at the same time, wanted to feel she belonged to something. So, the school kind of put out all the stops to make her feel welcome but invariably she sat with me in my office (Rachael).

Some participants grappled with what the role and duty of schools should be, asking are we "care providers" or "education providers"?

> I always remind everybody when we are really worried about somebody, our main soul focus in this school is we are education providers, we are not care providers… So, there's a certain point - we can provide scaffolding and support - but there is a point where we say CAMHS [Child and Adolescent Mental Health Services] will have to take over, the medical services have to take over, this is not our job (Tanya).

The statement below also depicts key issues such as pressure on schools to maintain contact with families (e.g. phone calls and house calls) and difficult relations between schools and parents:

> … schools are told that social services say you keep ringing [the family], you keep affirming the child, keep in contact with them. That is very difficult to do if the child actually has blocked your number or if the child doesn't want to engage with the school… You find that parents, on some occasions, are not necessarily going to open their door really to the school looking for support (Thomas).

Challenges with "communication" between teachers and parents in relation to school refusal were reported by Anna to be "very difficult". Other participants felt that parents were under pressure when it came to the decision-making process in issues relating to school refusal and that "[…] parents feel as if they have been cast adrift" (Frances). Maeve remarked that despite the best efforts of schools and parents working together, student engagement was difficult to maintain:

> I have found that suggestions that we made and programmes that have been tailor-made to the interests of the student have been responded to very enthusiastically by the student and their family. There would be initial improvement, vast improvement in the attendance but it tapers off [decreases] unfortunately (Maeve).

School Responses

Participants reported using a wide range of policies and practices to support students having difficulties attending school. Efforts were made to track and monitor student attendance, and to link with outside agencies as necessary. Thomas remarked that "there would be custom and practice whereby we contact every parent with a child absent" when responding to school non-attendance.

> Every morning, [parents] get an email or a text message to say your child isn't in or your child is late. … If your child is absent for two days you get an email, or you are asked to contact the school to let us know what is happening (Thomas).

Jack referred to the involvement of a Home School Community Liaison officer and a School Completion officer. These are school personnel who work closely and individually with young people and their families usually within disadvantaged school communities. Staff in these roles aim to promote cooperation between families and school, to support children attendance and participation in education, and to foster positive attitudes toward lifelong learning. Jack noted: "so we put in a huge amount of effort and time into tracking the student who has poor attendance and trying to get them back in".

Participants noted a range of strategies to support students when they feel overwhelmed. In some schools these included the provision of a "personal time-out pass" a "stress ball" and access to designated "relaxation room" in the school. These strategies were attempts to ensure the school was perceived as a safe and calm space for the student. Another school used an "attendance matters" strategy, which aimed to promote full attendance. This involved placing the names of students who have had full attendance on the inside of the front door of the school: "we want to get the idea into students minds that full attendance is what's required, so it's not okay to actually miss a day here and miss a day there" (Emma). The implementation of weekly wellbeing

programmes was also used as a positive approach to young people's mental health and wellbeing, while other participants followed a "Code of Behaviour" and reduced timetables in working with young people and school refusal. However, these strategies were often not effective and some participants expressed frustration and a sense of "failure", as Frances noted: "I had two successes [in student attendance] and all the others have been failures". Other participants noted that medication had worked to help students cope with school related worries:

> Sometimes they need medication, because in two of the success cases it was medication that got them over the threshold of the door of the school… Anxiety beta blockers that kind of thing, to actually get them in, and then a reduced timetable can work as well. We have tried everything under the sun, and I suppose sometimes it works, but I feel in the last two years, I haven't had much success (Frances).

Nevertheless, Anna voiced concern about the use of medication. If students need medication to get them to school, she wondered what this says about the contemporary education: "we would have first year [students] on medication... so, what kind of education system are we offering is the big question... and what is the purpose of our education system?".

Discussion

This study highlighted that in educators' experience, there is considerable emotional distress, trauma and adversity associated with school refusal; and this is often heightened or aggravated by social inequalities. It also highlighted the pressure to achieve academically, which was felt not only by students, but by teachers and parents as well. These pressures can cause tensions in relationships and although schools were doing all they could to support young people experiencing school refusal, on the whole, they felt their efforts were largely futile. These findings have important implications for how education professionals think about and respond to students experiencing school refusal.

Their experience of responding to school refusal prompted some professionals to question what "kind of education system we are offering", when attending school evidently causes so much distress. Professionals, for example, referred to a wide range of emotional issues (e.g. anxiety,

depression, self-harm, suicidal ideation and somatic complaints) and difficulties in the family home as key concerns in relation to school refusal. These findings correspond with previous studies which highlight links between school refusal and young people's lived experience of adversity and trauma (i.e. parent mental health issues, separation, divorce, single parent families, traumatic events, violence, carer role and poverty) (Archer et al., 2003). While scholars agree that there are numerous and complex factors at play in understanding and responding to school refusal, there exists a pervasive view that the responsibility of school refusal lies with the individual students and their families, which reinforces negative stereotypes and stigma. Acknowledging the social context plays an important role in understanding young people and their difficulties relating to school refusal. This underscores the need to understand school refusal, less in terms of a medical condition (as suggested by a biomedical model), and more in terms of young people's life experiences.

This in turn raises important questions on the level of awareness amongst education professionals of adverse childhood experiences (ACEs) and trauma; and how such experiences impact a young person and can potentially lead to school refusal. It also raises questions about school responses and whether these are sufficiently sensitive to the needs of the young person, or are they otherwise serving to re-traumatize the student. It is likely that coercive, confrontational and controlling strategies will trigger painful memories and potentially re-traumatise young people (Anderson et al., 2015). Trauma-informed practice has been advocated in schools as a way to support staff in understanding the nature of trauma and how it impacts on an individual's life (biological, psychological and social) (Anderson et al., 2015; O'Toole, in press; SAMHSA, 2014). Developing trauma-informed practice involves a number of measures that necessitates commitment and support from inside school structures. These include changes to school policies and procedures, administering teacher and staff professional development, creating positive and restorative responses to student behaviour as well as trauma sensitive classroom practices (Oehlberg, 2008; Thomas et al., 2019). In essence, being trauma-informed means being aware that trauma is a very real possibility. It means creating environments that offer a felt sense of safety, understanding the effects of trauma on the whole person, and how troubling behaviours/responses (Johnstone et al., 2018) may reflect courageous attempts to cope with trauma. It encourages a conceptual shift in understanding young

people's responses to situations as intelligible and serving a purpose rather than a condition that signifies that there may be something 'wrong' with this person (Read & Harper, 2020). Furthermore, it is about maximizing a sense of agency by offering choices, collaborating, validating and supporting, whilst being mindful of cultural, historical, and gender issues (Harris & Fallot, 2001; O'Toole, in press).

The association between mental health difficulties, low socio-economic status and poverty is widely established in the literature and within the field of school refusal (Berg et al., 1993; Place et al., 2000). The findings in this study suggest school refusal cuts across social class categories. Yet, young people from families of a higher socio-economic background were viewed as having more "enhanced" opportunities (i.e. access to private services with greater engagement in the education system) than a family from a lower socio-economic background. In contrast, low income and marginalised families were more likely to be blamed for their lack of motivation or their inability to manage their own problems. These findings highlight the importance of attending to the issues of power and inequality in school refusal research. Economic and material power influences are visible in the young person's (and their family's) access to resources. These include resources relating to housing, transport, leisure, medical interventions and in education, where access to psychoeducational assessments and therapeutic supports would be deemed necessary resources in school refusal. This emphasises a need to recognise the negative impact of economic and social inequality on the young person's educational engagement and opportunities.

This study highlighted the considerable pressures to achieve academically, which were felt not only by students, but by teachers and parents as well. Teaching staff expressed concern in relation to the non-completion of project components and curriculum-based assessments, which evoked significant levels of stress and frustration on their part. It is clear that the heightened focus of educational achievement and exam performance is a contributing factor, not just in school refusal (Havik et al., 2015; Kearney, 2008; Yoneyama, 2000) but also in high levels of stress and burnout amongst the teaching profession (Foley, 2013; Johnson et al., 2005; Kerr et al. 2011). These findings raise broad questions about the goals and purposes of education, particularly the way in which education has become narrowed in recent times, to such an extent that academic attainment is considered the sole

and quintessential purpose of schooling (Biesta, 2010). Thus, focusing primarily on education achievement and qualifications can create imbalance within the current education system. Equally, young people can become more vulnerable to distress through the external pressure of exam performance, fear of failure and a sense of not doing enough. This can also have negative consequences for educators in meeting the needs of students and parents, resulting in difficulty in establishing reliable and trusting relations between educators/institutions, parents/young people (Biesta, 2010). The findings highlight the need to locate school refusal research within wider debates about the goals, purposes and values of education (Biesta, 2017; O'Toole & Simovska, in press).

In sum, school professionals highlight adversity and trauma as underlying factors in the experience of school refusal and they point to the considerable emotional and psychological distress experienced by young people. This suggests a need for schools to adopt trauma-informed approaches when designing school structures and policies, and to embed trauma-awareness in everyday interactions with students at risk of or experiencing school refusal. This research also serves to highlight that school refusal should not be considered merely an individual or family problem. School refusal does not occur in a vacuum and it is important, therefore that school refusal research is located within wider debates in education, particularly in relation to social justice and the purpose of education. Further research in these areas is needed. In addition, there is need for further research to provide greater insight into the lived experience of the young person and families who have experienced school refusal first-hand.

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Why Did They Leave School? A Self Determination Theory Perspective into Narratives of Finnish Early School Leavers.

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Abstract

The present study aims to provide insights into the experiences of early school leavers within the Finnish context. We conducted a narrative inquiry among eleven early school leavers who were in prison when they were interviewed. Self Determination Theory (SDT), more specifically the concept of frustration of the three basic psychological needs of competence, relatedness and autonomy, and the tendency of people to move towards more supporting environments, was used as an interpretative tool, along with contextual information. We identified three pathways out of school, differing in the locus of need thwarting circumstances and the availability of access to transfer into a more satisfying environment. Furthermore, the experienced threat of safety was a shared element in the narrative accounts. Additionally, the findings add information about experienced indifference in the case of the participants, which is a new element in theorising the continuum of perceived need satisfaction within the terms of SDT.

Keywords: early school-leaving; Self Determination Theory; need frustration; safety; indifference.

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¿Por qué Abandonaron la Escuela? Una Perspectiva de la Teoría de la Autodeterminación en las Narrativas de Jóvenes que Abandonan sus Estudios en Finlandia

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Resumen

El presente estudio pretende aportar información sobre las experiencias de jóvenes que abandonan sus estudios en el contexto finlandés. Realizamos la investigación narrativa con once jóvenes que abandonaron sus estudios de manera temprana y que estaban en prisión cuando fueron entrevistados. La teoría de la autodeterminación (TAD), más específicamente el concepto de frustración de tres necesidades psicológicas básicas, competencia, relación y autonomía, y la tendencia de las personas a moverse hacia entornos más favorables, se utilizó como herramienta interpretativa, junto con información contextual. Identificamos tres caminos fuera de la escuela, que difieren en el lugar de la necesidad que frustra las circunstancias, y la disponibilidad de acceso para moverse a un entorno más satisfactorio. Además, la amenaza de seguridad experimentada era un elemento compartido en los relatos narrativos. Además de esto, los hallazgos añaden información sobre la indiferencia experimentada en el caso de los participantes, que es un elemento nuevo cuando se teoriza la continuidad de la satisfacción de la necesidad percibida dentro de los términos de la TAD,

Palabras clave: abandono escolar; Teoría de la Autodeterminación; frustración de la necesidad; seguridad; indiferencia

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Experiences of successful learning and positive interpersonal relationships are important for school engagement (Quin, 2017; Upadyaya & Salmela-Aro, 2013). However, this is not everyone's experience of school and attempts to understand the reasons for early school leaving show that many experience the opposite (Cederberg & Hartsmar, 2013; Nairz-Wirth & Gitschthaler, 2019; Tuck, 2011). Learning about the subjective perspectives of people slipping out of schooling can widen our understanding of the processes behind early school leaving. Research studies carried out during school years do not reach all early school leavers, though, because they have prematurely already left school. On the other hand, individuals who are still engaged in school in some way, despite having been identified as students at risk, cannot be classified as early school leavers and examined as such. Hence, it is important to reach people who have experienced the issue.

In Finland, the leaving rate of compulsory school has been less than a half per cent though showing a slight increase in recent years, now closing to one percent a year (Official Statistics of Finland, 2019a). The discontinuation rates in vocational schooling for young people have been higher, also slightly increasing in recent years, the current rate holding at around 7,4 % (Official Statistics of Finland, 2019b). The turn in the rates indicates current importance to examine the reasons behind early school leaving. Furthermore, there are groups of people which have faced more difficulties in completing their education than the population in general, such as short- term prisoners (Kivivuori & Linderborg, 2009) and the Finnish Roma (Rajala & Blomerus, 2016), among others. The perspectives of these people, who belong to marginalized groups, and a minority inside a minority, are of special value to be investigated and taken on account as indicators of aspects that may lead to societal exclusion. Hence there is a significant reason for further studies, with methods and theories capable to capture a large range of lived experience.

Self Determination Theory (SDT, Deci & Ryan, 1985; Ryan & Deci, 2020) assumes that interest in building relationships with other people, and skill development in learning to master one's life, are inherent in human nature. Environmental aspects can, though, either foster or undermine these crucial processes which are facilitated by satisfaction of three basic psychological needs, namely autonomy, relatedness, and competence (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013). Thwarting of these needs and a perceived threat for need satisfaction tend to push people towards other, more promising

environments (Ryan & Deci, 2000). While SDT research has shown that supporting students' psychological needs leads to enhanced learning, motivation, and well-being (Niemiec & Ryan, 2009; Stroet et al, 2013), much less is known about how students at risk perceive their life and prospects in school. For instance, Fatima etal, (2018), reported that self-efficacy and social support affected intrinsic and extrinsic motivation, not finding predictions for amotivation. For future development of SDT Ryan and Deci (2020) have recently encouraged also qualitative research approaches, in addition to quantitative studies.

Recent studies in Finland have shown that a high number of students at risk are poly-victimized, living among accumulating risk factors (Ellonen & Salmi, 2011). Furthermore, findings of Virtanen (2016), and Vasalampi et al., (2018), highlight the importance of interpersonal relationships for persisting in school. This is in line with the fact that the Finnish Roma, among whom the early school leaving rate is higher than that of the population as a whole (Rajala & Blomerus, 2016), have also faced prejudices (Berlin, 2015; Friman-Korpela, 2014; Roman, 2018). In addition to this, students with a Roma background have been placed in special classes more often than other students (Rajala et al, 2011). Additionally, Honkasilta (2019) found, that students who are openly defined as needing special support may often be prone to experience of otherness. In short, early school leaving seems to be connected to accumulating challenges and obstacles.

Self Determination Theory Perspective into Early School Leaving

In SDT research, reasons behind students' amotivation and early school leaving have been linked to low level of students' perceived satisfaction of their basic psychological needs (Ratelle & Duchesne, 2014; Ryan & Deci, 2000). When the basic psychological needs of autonomy, competence and relatedness are thwarted, or in danger of being thwarted, this decreases students' motivational level (Cheon et al, 2019; Ryan & Deci, 2000). Vallerand and Ratelle (2002) have proposed, that motivation can be situational, domain-specific, and differ in generality. When people perceive low need support or need thwarting in their daily life, they tend to seek for need satisfaction elsewhere (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013). Hence, people with low school motivation may experience higher levels of motivation in other life domains, the situation creating a pulling effect out of school. Accordingly, level of motivation may differ within a

context and situation, for instance, during a school day or life span (Vallerand & Ratelle, 2002). Thus, early school leavers should not be considered as passive. In SDT terms, they could be described as people searching for need satisfaction elsewhere, when facing need frustrating experiences in school.

In this study, we distinguish need thwarting and need frustration as concepts. We understand need thwarting as inadequate qualities of the circumstances and relationships in one's environment, while we see need frustration as one's personal experience of the thwarting, as described by Vansteenkiste and Ryan (2013). In SDT, perception of safety is considered a combination of the three needs, autonomy, competence, and relatedness (Ryan & Deci, 2000, 335). Chen et al (2015) noticed that people who perceived threat of violence and poverty, increasingly urged for the satisfaction of the three basic psychological needs as a whole. We include in the concept of psychological safety both physical and psychological aspects, as well as trust for need satisfaction, which has also been noted to be important for healthy development (Ryan & Deci, 2009). Consequently, experienced threats for need satisfaction are considered as a threat for a person's psychological safety.

Vansteenkiste and Ryan (2013, 265) present two general paths of need perceptions, the first starting from need fulfilment, leading via need satisfaction into healthy growth and wellbeing, and the other starting from need thwarting, leading to need frustration and ending up with maladaptive outcomes, some shifting emerging between paths. Drawn from the dynamics of perceived need frustration and its predicted maladaptive outcomes, we assume, that early school leavers, as amotivated towards school, have faced need thwarting and perceived need frustration while still in school. They can be assumed to have sought for need satisfaction from other sources available for them out of school, thus choosing different kinds of paths from need frustration towards more satisfactory environments.

We examine two research questions:

1. What kind of life events and circumstances, as well as personal experiences participants link with their early school leaving?
2. What kind of pathways out of school can be identified in the narrative accounts?

Methodological and Ethical Considerations

We have chosen to conduct a hermeneutic-interpretive study to widen our understanding of reasons behind early school leaving. In the present study we

examine experiences indicating lack of support for psychological needs, by combining narrative interviews of early school leavers and SDT framework. Based on the interviews, we will be able to provide rich descriptions of, and build a deeper understanding about the underlying factors behind diminishing school motivation.

We apprehend lived experience as a rich source of information, a continuum, shaped by telling, reflecting and new experiences, as conceptualized by Dewey (1997, [1938]), Bruner (2004) and Clandinin (2013). Narrative, i.e. storied experience, is understood in this study as a subjective, contextual window for learning about phenomena, which participants identify as important in their life situation. This view of experience differs ontologically from that of quantitative methods, where the conceptualising of experience or perception is predefined by researchers in questionnaires, as is the case among the research body of SDT (Ryan & Deci 2020; Stroet et al, 2013). We refer to the concept of perception, as it is used to describe people's responses to psychological needs in SDT (Ryan & Deci 2000) and concept of experience as a subjective phenomenon.

As Clandinidn et al. (2018) have stated, narrative inquiry, being based on personal experience and interaction between the researcher and the participant, is an ethical act from beginning to end. To avoid causing any harm to the participants, we found it crucial to engage in the ethics of respect and confidentiality as suggested by Josselson (2007). The context and situational aspects of the meeting, as well as the backgrounds of the participant and the interviewer, and what they represent to each other, have an impact on the interaction between them, and hence also on what is told (Lessard et al, 2018).

To reach people with lived experience of early school leaving, we conducted research interviews among early school leavers in prison. People who live in the margins of society often face multiple challenges in daily coping (Ellonen & Salmi, 2011), which creates variation in life settings. Prison as a context, where people are separated from their daily activities, provides a relatively stable space for research interviews, more similar to each other with each participant than it would be possible to arrange in the midst of their daily lives, as well as mental space for memorising, telling, and reflecting for the subjects (Granfelt, 2017).The first author, who also conducted the research interviews, has a background in teaching. In this study, she aimed to provide an invitation to encourage talk about school and the things the participants would find important to be heard by the representative

of school as an institute. Furthermore, as Josselson (2007) highlights, the process of telling and being heard as itself, triggers the participant's reflective thinking and enriches his or her meaning-making of the past events that were told, as well as gives a sense of meaning for the act of telling about personal experiences.

Interviewing participants who are positioned in the margin of society calls for careful consideration of power relations (Josselson, 2007). Crimmins (2016) suggests that to balance the power relations, the researcher should speak with others rather than for others, placing herself explicitly as an author in research text. To enhance this and provide access to interviews for the readers, we have included not only turns of the participants, but also turns of the interviewer, as well as presented all relevant facts that the participants had felt important enough to reveal concerning their background (Table 1).

Participants, Interviews, and Data Management

We started the interviewing process with two pilot interviewees, known by the first author, who were not imprisoned. After that, in collaboration with contact persons named by prison directors, we recruited the participants by providing an information leaflet about the study for potential participants. Eleven early school leavers, six of which were women, volunteered. Seven participants described themselves as Finnish Roma, while four represented the Finnish majority. All participants were Finnish speaking, which was also the language of the interviews. The interview extracts presented in this paper were first translated into English by the first author, who can provide the Finnish originals on request, and then proof-read by a native English speaker. All names in narratives and interview extracts are replaced by pseudonyms. Permission for research interviews was granted by the Finnish Ministry of Justice, and the research procedures followed the guidelines of the Ethical Committee of Jyväskylä University. All participants signed an informed consent after having received written and verbal information about the study by the contact person and the interviewer.

The first author conducted the interviews between November 2015 and June 2017. With each interviewee we carried out three meetings, which took place within three months for each participant. This procedure was used with nine participants. In four cases, the interview processes were shorter, consisting of two meetings in two cases and one meeting in the additional two

cases, due to changes in the participants' prison sentence and placement, as ordered by the prison administration.

The first interview started most often with participants eager to share their experiences. If needed, the researcher prompted the participant to start by asking them to reflect on their feelings about starting the first grade of school, and later, drawing a timeline on paper and asking further questions about what had been told, which elicited more telling. The possibility to withdraw from the interview, and end a meeting when the participant wished, was also pointed out, hence supporting the participants' sense of autonomy.

Between the interviews the first author transcribed the interviews and created a draft of summary of the narrative accounts. During the second and the third interview, she placed the narrative account on the table so that it could be seen by both the participant and interviewer, and used pencil marks for changes, to underline the draft nature of the text, to generate more interest and to get more information about an issue, as well as to provide an opportunity to make any changes participants felt necessary. By this we emphasized the participant's role as a specialist of the study, in SDT terms, supporting the participant's sense of competence. Each participant was also asked, how he/she felt about the meetings. By this we wanted to give a message of the unique value of the participant as a person, as well as to facilitate further mental support provided by prison personnel, if that would be needed. During the interviews, the interviewer acted as a listener, giving her full attention to the participant. The participants expressed gratitude to that by volunteering to continue and arriving to the next meeting, and also by saying that the meetings were like therapy to them, because someone was there just for them, to listen to, what they had in mind to tell.

The interviews were audio recorded. Memory sticks and printed materials are kept in locked archives of the interviewer. An overview of participants' context and backgrounds is provided in Table 1, as well as information regarding which research group, A, B or C, they belong to later in the text.

Table 1.

Presentation of time, school arrangements and social relations of the participants' school years. Elements indicating fragility in perceived physical and/or psychological safety marked with ***bold italic.***

Name, gender/ group Starting school	The school arrangements Years spent in school	Circumstances in the home environment	Issues and relationships in the school environment
Saara female/ B 1990s	Rural school, normal classes till the 7th grade, special schools till 18 yo, Didn't complete the 9th grade.	Mother and siblings, moved to rural area when 6 yo, and back to city when 13 yo, ***taken into care*** soon after that, adolescent friends didn't attend school ***Prejudices against the Roma in the local community***	***Avoidance by peers in the beginning of school*** ***Lack of cultural knowledge in school***
Viljo, male/ B 1990s	City school, normal classes, repeated a grade Didn't complete the 4th grade.	No family members mentioned, ***taken into care*** ***General prejudices against the Roma***	***Dyslexia, ADHD***
Ritva, female/ B 1990s	Rural and city schools, normal and special classes Didn't complete the 4th grade.	Siblings, no mentions of parents, ***taken into care*** in her early teens Felt ashamed of her home ***Lack of support for persisting in school*** Teen pregnancy	***Didn't get along with peers in normal class*** ***General prejudices against the Roma***
Markus, male/ A 1990s	The 1st grade normal class, the 2nd grade abroad, after that special school Didn't complete the 5th grade.	The family moved abroad for one year when Markus was 8 The family had a stable	Being a lively child ***Placed in special class against his will*** ***General prejudices against the Roma***
Allan, male/ B 1990s	Special classes Didn't complete compulsory school	***Taken into care*** when 2 months old, met his siblings at age of 15, ***no connections to parents***	***Fights and bullying*** in the detention home and school ***Felt that the adults couldn't protect him***
Siir,i female/ B 1990s	City school, normal classes, didn't complete vocational school	Mother, ***father (alcoholic)*** Pregnancy during vocational school	***Dyslexia not attended to in school*** Drug abuse in vocational school was not noticed by teachers

Name, gender/ group Starting school	The school arrangements Years spent in school	Circumstances in the home environment	Issues and relationships in the school environment
Johanna, female/ A 1990s	Rural school, normal classes, didn't complete the 5th grade	Mother, father, siblings, no connections to extended families Starting a family when 16 ***Lack of support for persisting in school***	***Exclusion from peer group*** ***Outspoken prejudices by a teacher and parents of the peers***
Kaisa, female/ C 1980s	Rural school, norrnal classes, several attempts to start high school and vocational schooling, not completing any	Mother, father, two sisters Coached sport training till age of 13 ***Domestic violence by father***	Bullied others, by making them do forbidden things Alcohol and drug abuse after 18 yo
Tuomas, male/ B 1980s	City school, normal classes till the 6th gr, then special class, didn't complete the 9th gr	Mother, brother, no mentions of father, ***taken into care*** in adolescence ***Hooked on heroine when 13***	Bullied his teacher in special class ***Considered the peers childish, felt school was all in vain to learning***
Rikhard male/ B 1980s	City schools, the 1st grade normal class, after that special classes, didn't complete the 6th gr	Mother, siblings, extended family ***Moving every year*** Had friends out of school Started a family when 15	***Avoidance and bullying by peers***
Sanna, female/ A End of 1970s	Rural school, normal classes, didn't complete vocational school	Father, mother, siblings Family with a good reputation	***Problems with understanding texts, not attended to in school***
Aaro, male/ B 1960s Pilot interviewee	Rural school, normal classes, didn't complete 8th grade	Mother, father, siblings ***No place to sleep well at home: violent dad (war trauma)*** Felt easily allowed to stay home and work on the farm	***"I was hyperactive, always in trouble at school"***
Iiro, male/ B 1960s Pilot interviewee	Rural school, normal classes, didn't go to vocational schooling	Mother, father, siblings, Lived as a lodger from the 2nd to the 6th grade ***Weak adult care during that period***	***Felt that the teacher (the 3rd— the 6th grades and handicraft) was scary and used public humiliation***

Data analysis started during the co-operative interview process, when the interviewer discussed with the participants about the issues and meanings brought forth by them. We used the theoretical frame of SDT as a tool for organising and interpreting the contents of the narrative accounts after the interviews had been conducted, not as a tool for defining or suggesting what should have been experienced or what should be told by the participants during their interview. By this we aimed to provide space for issues significant from the participants' point of view. Later, with the written material, we used ATLAS.ti7, coding parts of transcribed conversations by the psychological need to which they were related. For instance, telling about friendships was coded as "relatedness", telling about school achievements or difficulties in learning as "competence" and telling about choices or lack of possibility to make them, as "autonomy", following descriptions of Ryan and Deci (2000). We coded issues linked with several needs, like domestic violence and lack of trust in adult support, as "multiple", for further interpretation related to each need relevant to the issue, to take on account the layers of different needs concerning of what was told. For further analysis we used written narrative accounts and mind maps, to find points, where the participants described need support, as well as need thwarting and frustrating experiences, and in which environments these were situated. We created three groups of the participants according to weather the need thwarting circumstances appeared mostly in school or home environment, or both.

Findings

In this chapter we firstly provide an overview of the findings, secondly the participants' storied experience and thirdly a summary of the findings. As assumed, we identified need thwarting circumstances and experiences of need frustration, related to all three basic psychological needs, as well as experiences including multiple needs, in the narrative accounts. Additionally, threats of physical and psychological safety accumulated, keeping the participants occupied with daily coping, distracting them from school issues. Adding to the theoretical assumptions we found a difference between the environments in which the need frustration was mostly experienced and the consequences which followed. Whereas need frustration in school led to activities outside school, need frustration in the home environment created inner burdens, which indirectly affected the participant's life in the school environment as well.

Threat to physical or psychological safety was a shared experience among the participants, despite of differences in arrangements during the school years, the decade when at school, gender, ethnicity, socioeconomical conditions, and family relations. Table 1 shows, that five of the participants had been taken into custody by child-care authorities, indicating long-lasting problems in experienced safety in their childhood. Participants mentioned learning problems as a cause of threat for experienced competence support, especially when these had not been treated with support in school. Learning problems, combined with a lack of support, accumulated with inner burdens due to external pressure, creating a state of continuous need frustration, diminishing the participants' interest and capacity to focus on school tasks. In addition to this, the Roma participants described experiences of prejudice, both generally, and as personally targeted exclusion.

Withdrawing from a Rejecting School Environment

Two of the Roma participants, Johanna and Markus, described need thwarting circumstances mainly related to their school environment. In their narratives, need thwarting was related to all three psychological needs. They related their experiences of being different from their peers, bullying, rejection by peers, loneliness, and prejudices expressed by adults, indicating frustration related to need of relatedness. Related to competence, Johanna described a lack of support for learning after absences from school.

> "… and when I went to school again, I didn't know what they were talking about… they (peers) said: 'Don't you know even that… of course not, she's a gipsy!' … and so I wanted to go there even less!"

In Johanna's case the prejudices were targeted at her also by the class teacher of the third and fourth grade. During these grades the peers started to express their rejection openly, directly at Johanna, by saying that their mothers would not allow them to play with 'gypsies'. Johanna said that she was mostly alone at school and didn't want to go there because of that. Due to poverty she didn't have all the toys and sport equipment the others had, and said she felt detached from her peers because of that as well. She started to stay at home at the age of ten, taking care of her siblings, describing the relationships within the family as warm.

Markus explained–that he went to school in Finland, but after his first school year, the family moved to Sweden for a year. After returning to Finland, Markus said he was placed in a special school.

> "The first year I was in a real school,… then I was placed into a special school… wasn't interested in school then, it was also because I was placed in the special class,… they didn't kind of teach there… the other kids there, they were kind of disturbed… and disabled, and those who didn't show up. We also had that moving then, couldn't go to school that much… it was kind of,… the first thing in the morning, that you have to go to such a school."

Markus said that he didn't have problems with learning and that the special school was not a proper placement for him, that he didn't belong there. On the other hand, Markus described his teacher of the three first school years as understanding particularly considering his liveliness. Markus talked about her and her retirement.

> " It was good for me until the second, third, grade, we had a good teacher… we needed to have a break and she could handle it. It was not… to feel that you want to rebel against the teacher… but then she retired. After that I started to stay in the stables. I thought that I don't, I'll let the school be."

At about the same time, when Markus was about eleven years old, there had been a conflict at school, something that he did not disclose in detail in his interview. However, the outcome of the incident had been that Markus remembered the headmaster saying; "Enough of them, no need to come back!" That was the end of his school career. Instead, he had an opportunity to work in the stables owned by his family and to feel competent and welcomed there. Consequently, he chose that instead of going to school. When asked about interventions by school or child-care authorities, Markus said he didn't remember any, and that it seemed to him, that they were not interested in getting him back to school.

Struggling with Coping both in School and Home Environments

We identified need thwarting elements in both school and home environments in most of the narrative accounts. Combinations of learning problems with lack of attention or adequate support, combined with a lack of parental care, accumulated, creating a condition of need frustration extending to both school and home environments. Two participants in this group mentioned thwarted autonomy, saying that school was "so compulsory" for them. However,

thwarting of autonomy was present in all the narratives in a more indirect way, through lack of support for developing skills needed for self-determined choices later in life. The Roma participants also talked about the prejudices they had to overcome to gain the acceptance of their peers. Four Roma participants even shared experiences of becoming openly rejected by peers and their parents. In addition to this, two of the Roma participants said that their families avoided other Roma families.

> Richard: "My uncle killed a gypsy man, and after that we moved to Sweden, since then we had to move every year, always to a new city. So, I wanted to go to school even less."
> Interviewer: "Yes, into a new place and…"
> Richard: "Always new kids, they bullied us… I don't think they would have bullied us if we were not gypsies"

The family relationships inside the Roma group and the power relationships between the Roma minority and the surrounding majority left a narrow space for Richard and his family. At the age of fifteen Richard stopped going to school and moved back to Finland. The interviewer asked about that in the second meeting.

> The interviewer: "You told about your decision not to go to school anymore… how was it?"
> Richard: "Ay, I had other things to do!"
> The interviewer: "Was it just like that, did you just stay at home?"
> Richard: "No it was not like that. I went to other cities to visit people, with the kids of my (extended) family. I don't remember it so clearly, but... did the teachers come to my home? Maybe for an hour or two… I wasn't at school because of that (visiting relatives), too… I felt I was too big to go to school… took my first wife when I was fifteen."

From Richard's point of view the school was not interested in him, nor was he interested in school. He had other matters in his mind and went for them. Tuomas, was also spending a lot of time out of school during his childhood. Tuomas described his peers as being too childish for him, because he "had already seen so many things". He recounted how he used to go loitering in the city during school hours, from the first grade on. The fact that he was later taken into care by child welfare authorities indicates a lack of parental care. After he had developed drug dependency with heroine at the age of thirteen, Tuomas ended up in a life dominated by drug abuse and crimes. From his

point of view, the better need satisfying environment, compared to school, was out in the city and its surroundings.

There was no school in the village where the first pilot interviewee, Iiro, was born. Therefore, he had to live as a lodger in families near the school. Iiro described the fragility of his daily care during the first six grades, between eight and twelve years.

> "There was no decent care. I had to warm up my room, by firewood, this could have been dangerous. Just weekends at home… after school we gathered in the school yard with other boys. Once I sang there some stupid songs… our teacher overheard it and shouted that if I don't stop, I must not come to the school yard again… I was like... where can I go then?"

Throughout the interviews, Iiro repeatedly talked about his teacher between third and sixth grades, who was harsh and angry. Iiro said that he was afraid of asking for help with mathematics, which was a difficult subject for him. This teacher had a habit of revealing poor achievement to the whole group. Iiro remembered that he tried to hide his mathematics test, but the teacher took his paper and showed it to the others. Iiro explained that he did not understand much about mathematics but was too afraid to ask for help.
The atmosphere during handicraft lessons was another issue which was repeated several times during Iiro's interviews. Iiro had heard a rumour that his teacher had been violent to another student. Iiro said that his teacher often behaved in an angry and unpredictable way. The school system at the time would have required a low achieving student (like Iiro in mathematics) to change into a lower level school, civic school, which was more focused on practical subjects like handicrafts, but Iiro did not, despite the fact that he had to do extra tests in summertime and go back to middle school for an additional year. The interviewer asked about that at the end of the third meeting.

> The interviewer: "…last time I asked whether the challenges in woodwork had an impact on your staying in middle school, I mean, there was the angry teacher,… was there more handicraft in civic school, or did the handicraft issue affect your choice?
> Iiro: "Can't say, just couldn't make the decision… "
> The Interviewer: "Well, so that I don't overly interpret it, the handicraft… "
> Iiro: "Well, it can have been… I don't identify it consciously but… it can have been that I felt it more safe to hang along in middle school, …the general atmosphere was different, …even though I had to do the same grade again."

Iiro described his memories about woodwork lessons as nightmares, and, although this had not been fully conscious, he had chosen a school path which was not the best choice for him, but the one where he could avoid what he was scared of.

Loaded with Inner Burdens

Kaisa was the only participant in this study who did not describe need thwarting or frustration in the school environment. Instead, she told about need thwarting related with traumatic experiences in her relationship with her father, who was physically violent towards her. The relationship had been a conflicted one, because Kaisa also described the discipline maintained by her father as a good thing and her being a 'daddy's girl', her father being her sport couch. Kaisa told that the violent abuse at home, as well as a need to keep this abuse secret, caused her an inner burden that alienated her from the peers.

> "I could not talk about it to anyone. They all had normal homes… they never could have understood, if I told them that he spanked us like every day… maybe that is why I had the feeling that I couldn't let anyone behind my back, to dominate me…I had to be the one to dominate, myself, I pulled the strings of others and made them do (forbidden) things,.. and laughed at them… when I was at high school, I got new friends… there was no need to push them into shoplifting or smoking, they were already doing it. "

Not wanting to have anyone "behind her back" at school indicates that Kaisa experienced threat of psychological safety, caused by incidents that had happened elsewhere, in the home environment. Kaisa described also another, practical element, disconnecting her from the peers during elementary school years. She was talented at sport and was practicing hard.

> "When others planned what to do after school, I always said, no, not me, I need to go training. But when I was thirteen… I started to feel it's not mine, it's my father's idea. It was a huge shouting, but I stopped my training just like that."

After compulsory school Kaisa tried several times to start high school. Each attempt lasted only a few weeks. Instead, Kaisa went out having fun in bars, using alcohol and drugs, being absent from school the next day several times a week.

Kaisa's narrative account illustrates how her experiences at home also affected her school life. As an inner burden, domestic violence, and keeping it hidden from others, affected the dynamics in her peer relationships. Conflict

about the sport career illustrates lack of support for her autonomy. This may have affected the ways in which Kaisa selected her friends and free time activities during adolescence in a maladaptive way.

Summary of the Findings

As a summary of the pathways based on the narrative accounts, we made a graphic overview of the groups A, B and C, and the paths leading to early school leaving (Figure 1). Two main factors distinguish the paths: the environment where the need thwarting elements were mainly located and the possibility to transfer into another, more need supportive environment. Those having access to a more potential environment for need satisfaction took the chance. It's notable, that the choices might not have led to a life generally considered as decent, but were reasonable given the situation, from the point of view of the participants.

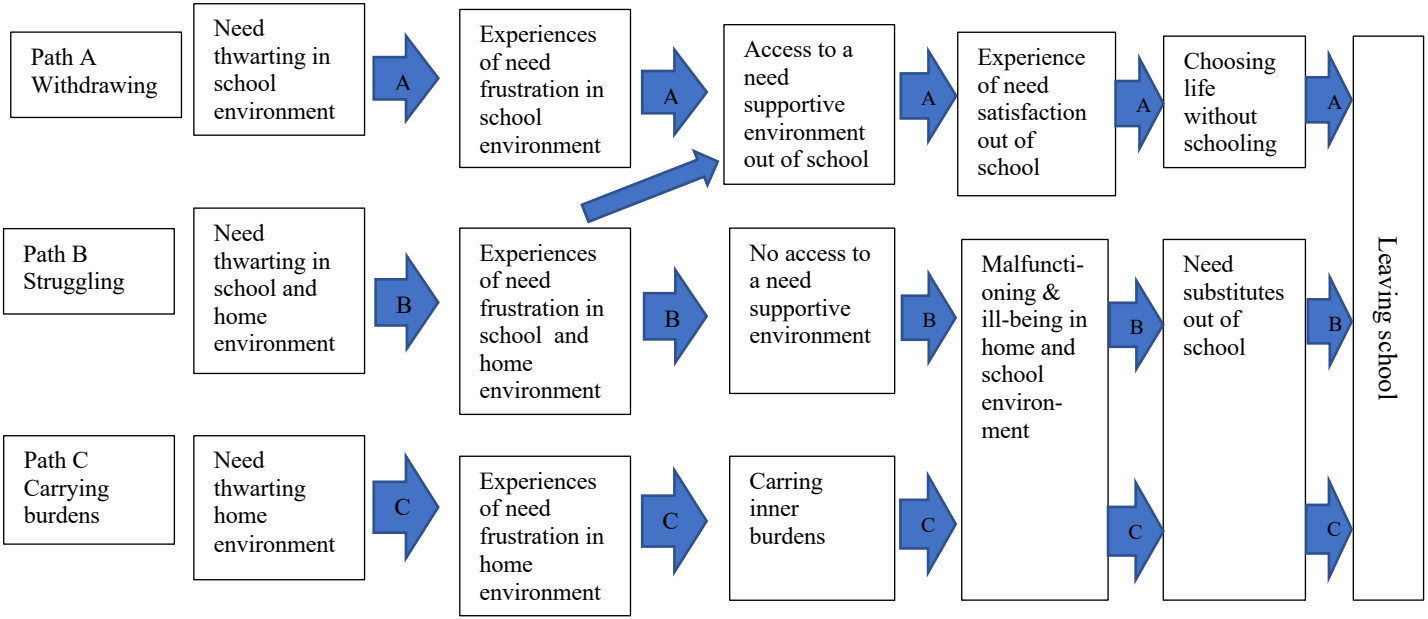

Figure1. A graphic overview of the paths identified in the narrative accounts.

Path A, "withdrawing", starts from need thwarting at school, followed by experienced need frustration. As need frustration took place mostly in the school environment, the participants had access to more need satisfying environments elsewhere. Experiences of need satisfaction outside the school environment had an impact on their choice not to return to school.

Path B, "struggling", starts from need thwarting circumstances both at school and at home, consequently affecting participants' need frustration in both environments. Weather there was an opportunity to choose another environment or not, determined how the path continued: to a life considered as good without schooling, or a life with maladaptive need substitutes, which prevented studying.

Path C, "carrying burdens", starts from need thwarting circumstances at home, the experience shaping further experiences and actions in other environments as well, affecting behaviour at school accordingly.

Conclusions and Discussion

We examined which life events, circumstances and experiences the participants linked with their early school leaving and what kind of pathways out of school could be identified in their narrative accounts. As we assumed, on the basis of SDT theory, frustration of the needs for autonomy, relatedness, and competence shaped the pathways out of school. Adding to former literature, the findings indicate firstly, that accumulation of need frustration started early, from the first school years, and continued throughout childhood and adolescence. Secondly, accumulating did not occur only in relation to time but also included different kinds of psychological elements. Thirdly, threat of safety was a shared experience in the narrative accounts, as a starting point for accumulating need frustration. The circumstances indicating a fragile experience of safety in the narrative accounts were threat of physical safety, weakness of parental care, poverty, and a lack of trust of adult support. Need thwarting and experienced frustration were factors that pushed the participants out of school, while simultaneously, need support and satisfaction was available for them in other environments and were thus pulling them in the same direction.

In their interviews, participants recounted their difficulties in learning and the lack of support given, which led to increased experiences of frustration, related to competence. This is in line with Ryan and Deci (2009, 118), who name learning problems as elements of need thwarting. Relatedness, as a

need, was violated by experiences of not belonging to peer group, rejection and outspoken prejudices. Frustration of autonomy was described as school being "so compulsory", as perceptions related to thwarted autonomy are described in SDT studies (Niemiec & Ryan 2009; Ryan & Deci 2000, 2009). In addition to this, the development of skills that are needed for self-determined actions and adulthood responsibilities was hindered by a lack of support for learning, thwarting autonomy at a more general level.

The fact that the participants of Roma background faced prejudices (Authors, 2019), to which Berlin (2015) has referred to as cultural racism, was an element of need thwarting, in this case one of many, as other need frustrating elements accumulated. Related to this, the Roma participants shared their experiences of rejection and bullying, as well as placements in special classes, which they felt were unnecessary, these indicating frustration related to both need for autonomy and relatedness. This is in line with the finding of Honkasilta (2019), that being labelled as being in need of special support can cause otherness. The fact that special education rates have been higher among the Roma than among the population as a whole (Rajala et al., 2011), indicates, that experiences of mismatches in special education placements can be more common among the Roma than the general population.

The findings of the present study show that experienced threat of safety as a life condition can have an impact on participants'/pupils' choices and actions, increasing avoidance of the school environment which they had experienced as threatening. As Vallerand and Ratelle (2002) point out, need perceptions can be situational, but also of a more general nature, hence affecting further experiences in an accumulating way. Furthermore, Chen et al (2015) proposed that threat of financial and environmental safety increase urge for need satisfaction. Adding to former SDT literature, the results of the present study suggest that need frustration, especially fragile psychological safety, as an overall life condition, might cause increasing sensibility for need confronting elements later in life.

Our findings resonate with the proposition of a third state of need states between frustration and satisfaction, namely dissatisfaction by Cheon et al (2019), which was linked with teachers' and learning activities' indifference to students' need for autonomy. In the narrative accounts, from the participants' point of view, indifference emerged in powerless or non-existent support by school adults or parents of the participants, consequently

diminishing the participants' interest to school. It was also noted that school did not play a major role in participants' life, as the focus of the participants' interest was in coping and finding more need satisfactory environments. Thus, interpreting the storied experience of need frustration in the light of SDT framework facilitated new insights for the ongoing conceptualizing.

Study Limitations and Future Research

In this study, the participants' positive experiences, which in the narrative accounts mostly appeared out of school, were not examined. In the limits of this article, we could not include the narrative accounts of the participants or a thorough interpretation of the narrative accounts related to each psychological need named in SDT, even though it would be fruitful.

For future studies in the framework of SDT, we suggest examining the borderlines of the proposed concepts of indifference and dissatisfaction, including the narrative understanding of experience as an accumulating phenomenon, as well as further developing the concept of generality levels of need perceptions, brought forth by Vallerand and Ratelle (2002). Combining different methodological approaches would enhance developing research practices, better to capture the variety of ways people experience and perceive phenomena around motivation. Furthermore, the findings invite researchers to explore, how accumulating need frustration and the threat of safety affect people's perceptions of psychological needs, as well as psychological development later in life.

Practical Implications

An atmosphere of trust and safety is important for students' school engagement. Based on our findings, teachers' ability to pay attention and respond to students' need frustration would be particularly urgent when students are at risk for fragile safety and accumulating frustration because of their stigmatized background. For policymakers, the results emphasize the importance of generating ways to provide support for families, as well as flexible ways to transfer from school to the labour market. Furthermore, the co-operation of actors around the student and their co-operation with the student, and his/her family, are essential. As one of the participants of the present study said: "Students need to feel that the teacher is for them, not against them."

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True Grit: How Important is the Concept of Grit for Education? A Narrative Literature Review

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True Grit: How Important is the Concept of Grit for Education? A Narrative Literature Review

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Abstract

An abundance of literature exists that explores the potential applications of grit in predicting several academic outcomes. Regardless, the concept of grit has been heavily criticised due to the number of inconsistencies among current research. Fully understanding the usefulness of grit in an educational context is a worthwhile pursuit and could yield incredibly influential implications. The current narrative review aimed to address and explore these inconsistencies to determine the true impact of grit on the academic outcomes of school students. Such that, it aimed to establish whether grit was useful in improving outcomes such as academic achievement, attendance and retention. Research posits that grit is a strong predictor of academic outcomes for many, but not all, students. Furthermore, it seems that the predictive abilities of grit can be enhanced by concentrating on the perseverance of efforts component of grit, rather than overall grit. While the importance of grit's perseverance component has been confirmed; there are several recommendations for future research. Likewise, a number of inconsistencies are discussed relating to grits practical applications within an educational context. Cultivating grittiness, specifically perseverance of efforts, in student populations would reap huge rewards. Indeed, the educational rewards for students would be substantial, as well as the financial benefits for schools and educating institutions. The usefulness of cultivating a perseverance of efforts in students is discussed.

Keywords: academic achievement; grit; education; retention; success.

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La Verdadera Determinación: ¿Qué Importancia Tiene el Concepto Determinación Para la Educación? Una Revisión Narrativa de la Literatura

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Resumen

Existe una gran cantidad de literatura que explora las aplicaciones potenciales de la determinación en la predicción de varios resultados académicos. Sin embargo, el concepto de determinación ha sido muy criticado debido a la cantidad de inconsistencias entre las investigaciones recientes. La presente revisión de literatura aboda y explora estas inconsistencias para determinar el verdadero impacto de la determinación en los resultados académicos de los estudiantes. De este modo, se pretende establecer si la determinación es útil para mejorar resultados como el rendimiento académico, la asistencia y la permanencia. La investigación postula que la determinación es un fuerte predictor de los resultados académicos para muchos estudiantes, aunque no para todos. Además, parece que la capacidad de predicción del este puede mejorarse concentrándose en el componente de perseverancia de los esfuerzos, en lugar de en el general. Aunque se ha confirmado la importancia del componente de perseverancia, son varias las recomendaciones para futuras investigaciones. Asimismo, se discuten varias incoherencias relacionadas con las aplicaciones prácticas de la determinación en el contexto educativo. Cultivar la tenacidad del alumnado, concretamente la perseverancia en los esfuerzos, supondría un gran beneficio. Las recompensas educativas para los estudiantes serían sustanciales, así como los beneficios financieros para las escuelas y las instituciones educativas. Se discute la utilidad de cultivar la perseverancia de los esfuerzos en los estudiantes.

Palabras clave: rendimiento académico; determinación; educación; retención; éxito.

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It was originally believed that intelligence was of crucial importance in determining which students will be successful at school and which will not (Allen & Bond, 2001; Kidd & Latif, 2003). It was not until the 1970's when psychologists were challenging this idea and found that academic achievement goes above and beyond IQ (Poropat, 2009). Henceforth, researchers identified that certain qualities and characteristics, such as grit, equate to greater academic achievement. Initially articulated by Angela Duckworth in 2007, the concept of grit has exploded in terms of attracting the attention of psychology researchers across the globe (Duckworth, Peterson, Matthews & Kelly, 2007; Duckworth, 2016). Defined as expressing a passion and perseverance for pursuing long-term goals, grit provides individuals with the ability to strive towards achieving their long-term goals while persisting in the face of adversity (Duckworth, 2016). Subsequently, researchers began to investigate the potential applications of grit, including the potential usefulness of grit in predicting academic outcomes such as engagement, motivation, performance and achievement. As a result, grit was exposed as a characteristic that is strongly associated with academic outcomes. For instance, students who express a passion towards their schoolwork and persevere with their studies despite of academic and social challenges are most likely to experience academic success. Regardless, grit has been heavily criticized by many researchers and inconsistencies among current research need to be addressed and explored.

Method

This narrative literature review aims to provide up-to-date knowledge about the concept of grit and its importance in education. As there was no predetermined research question, no specific search strategy or criteria were applied. This narrative literature review was conducted over a period of several years and contributed towards the authors continued grit research in higher education. Over a period of time, literature was collected, including empirical and commentary papers, which played an important role in continuing education, feeding into the development of an academic tenacity measure and furthering grit research in higher education.

The Relationship between Grit and Academic Outcomes

Since 2007, when Angela Duckworth pioneered research into the concept of grit, an abundance of researchers around the world have begun to explore its

potential within education. After decades of research, it became clear that there were many inconsistencies among findings. Indeed, some research highlighted the usefulness of measuring and monitoring grittiness in students when predicting academic outcomes (Duckworth et al., 2007; Datu, Yuen & Chen, 2018; Cross, 2013); while other studies have presented evidence to suggest that it is of no significant importance to students (Bazelais, Lemay & Doleck, 2016; Palisoc, Matsumoto, Ho, Perry, Tang & Ip, 2017; Dixson, Robertson & Worrell, 2017). Much research demands the crucial importance of grit in determining which students will excel in their academic studies and which students will struggle. Moreover, it has been documented that grittier students are increasingly likely to be engaged in their academic studies (Datu et al., 2018) and are subsequently increasingly likely to experience academic achievement as a result (Lee & Sohn, 2017; Cross, 2013). That is, students who reported achieving a "D" or "F" in their exams possessed a reduced level of grit (Pate, Payakachat, Harrell, Pate, Caldwell & Franks, 2017). Grittier students were also shown to spend more time studying (Cross, 2013). Therefore, students with high levels of grit are more likely to exert effort and time into their studies which will, in turn, have a great impact on their educational success. Also, gritty students are more likely to express a higher sense of self-efficacy. That is, their perseverance of efforts to continue in the pursuit of their academic goals resulted in a heightened belief in their own academic abilities – which too, will increases their chances of achievement (Oriol, Miranda, Oyanedel & Torres, 2017).

Nonetheless, research has surfaced that does not advocate the significance of grittiness in school students. Such that, grit was not found to be a significant predictor of academic achievement or course success; rather it was prior academic performance that best predicted academic achievement (Bazelais et al., 2016). These findings were supported by a group of researchers that also found no significant relationship between grit and academic success (Palisoc et al.,2017). This study concentrated on students in America and can therefore only be generalized to similar students from a similar institution. The research that denies the significant impact of grit on academic achievement imply that screening for grit is not sufficient in attaining useful information about student's success.

Is Grit an Important Characteristic for All Students?

Furthermore, research has posited that grit is not a culturally diverse trait and that it is not a beneficial trait for all students. Such that, grit was reported to be a poor predictor of academic achievement for African-American students (Dixson et al., 2017). Thus, programs and interventions that are designed to increase the grittiness of African-American students may not be useful in the attempt to raise their grades. However, it is difficult to generalize these findings as this study was conducted in one institution with a small sample of African-American students. Rather than cultivating grittiness, it could be worthwhile to ensure the students have a sense of belonging and reduced feelings of isolation. Perhaps there are more relevant and suitable psychological traits that should be of focus when uplifting the academic achievement of African-American students, but this needs to be further explored. While grit does not seem to be influential for African-American students, it has proved effective in Mexican-American adolescents. Indeed, academic achievement was positively predicted by grit in a sample of Mexican-American students (Piña-Watson, Lopez, Ojeda & Rodriguez, 2015). Evidently, culture is clearly an important factor to consider when determining what the most effective and suitable interventions are to enhance academic outcomes in students of varying backgrounds. Little research has directly investigated the usefulness of grit in different cultures. Furthermore, cross-cultural literature into grit has revealed that Asian and Asian-American cultures are more likely to exert effort into academic tasks and present task persistence compared to Americans (Hsin & Xie, 2013; Jose & Bellamy, 2012). In contradiction to this, one study found that students from New Zealand declared higher levels of the perseverance of effort component of grit than students from Thailand (Raphiphatthana, Jose & Chobthamkit, 2018). However, Asian cultures are known to be influenced by social norms such as self-criticism (Eaton & Dembo, 1997) which could result in Thai students under-representing their hard work and determination and ultimately impact on their self-reported grit scores. As little research has been carried out that explores cultural differences in grittiness, it is difficult to draw solid conclusions. Therefore, more research needs to investigate the cultural sensitivity of grit as a construct. Perhaps an adapted version of the grit scale, or even a new scale should be developed – that considers cultural values and experiences. This would help multicultural schools to apply grit interventions

- if necessary and suitable - to their students, as well as aid schools all around the world.

The Importance of Grit on the Retention of School Students

The retention and dropout rates of students have long been a concern for educating institutions and organizations all over the world (Brown, 2012). Consequently, early research into grit demonstrated that levels of grit could greatly predict the retention of military cadets in an extensive training program (Duckworth, 2007; Eskreis-Winkler, Shulman, Beal & Duckworth, 2014; Maddi, Matthews, Kelly, Villarreal & White, 2012). In addition, it has also been proposed that grit is a major contributing factor towards the effectiveness and retention of novice teachers in challenging education environments (Robertson-Kraft & Duckworth, 2014; Duckworth & Quinn, 2009). More recent research has also suggested that grit can greatly impact the retention of students in schools, colleges and universities (Bazelais et al 2016; Eskreiss-Winkler et al., 2014). Moreover, research presented that the identification and awareness of long-term goals and the early identification of their course of interest are imperative to student retention (Hagedorn, Maxwell & Hampton, 2001). More specifically, primary and high school students with enhanced levels of grit were increasingly likely to graduate from high school and with higher rates of attendance (Saunders-Scott, Braley & Stennes-Spidahl, 2017). As grit predicts retention in school students above and beyond characteristics such as cognitive ability and grades, it could prove to be crucial in schools. For instance, student attendance and retention tend to be a common issue among high schools and measuring and monitoring grit will provide educators with the opportunity to direct at-risk students to support services. Therefore, interventions that are designed to increase students level of grit will ultimately improve attendance and retention.

Is Grit the Best Possible Predictor of Academic Outcomes?

Evidence has consistently presented grit as being highly correlated with other achievement-related characteristics. Moreover, findings have surfaced that highlight the considerable overlap between grit and other constructs. Research has posited that the grit scale is fundamentally measuring the same trait as that of the Big Five's conscientiousness (Rimfeld, Kovas, Dale & Plomin, 2016). Moreover, the intercorrelation between overall grit and conscientious is significantly higher than what is typical between two constructs (Pace &

Brannick, 2010). Consequently, it has been argued that grit has succumb to the jangle fallacy, which states that grit is simply a reconstruction of the concept of conscientiousness (Crede et al., 2016). Research found that conscientiousness predicted about 6% of variance in GCSE grades, while grit added little or no variance in scores. This suggests that, ultimately, grit and Big Fives conscientiousness are fundamentally the same trait (Rimfeld et al., 2016). Other research supports this notion by revealing that after controlling for other Big Five traits, it was found that academic outcomes were significantly predicted by conscientiousness and emotion regulation ability; but not grit (Ivcevic & Brackett, 2014). These findings argue for the importance of traits such as conscientiousness and self-regulation in determining the educational success of students; rather than focusing on grit. Nonetheless, it has been identified that two constructs can be intensely correlated with each other, but still manifest different relations with a further variable (McCornack, 1956). For instance, while grit and conscientiousness are heavily related, they hold differing predictive abilities in an educational context. Indeed, some research has found that grit is a construct that is distinct from any other. Indeed, grit was a predictor of career preparation behavior even when personality traits such as conscientiousness were controlled for (Lee & Sohn, 2017). However, overall grit regularly lacks in terms of predicting academic achievement as compared to other constructs.

While overall grit only moderately correlates with academic performance; characteristics such as cognitive ability (Sackett et al., 2012), study habits and skills (Crede & Kuncel, 2008) and academic adjustment (Crede & Neihorster, 2012) have reported a correlation that is nearly twice as strong. Regardless, considering variables that have small and moderate effects on academic outcomes could have huge implications for educating institutions around the world. Furthermore, the ability to predict the academic outcomes of a student population could yield huge benefits. Even minor improvements on students' academic achievement and the school's ability to retain students could mean useful and positive effects – not only on the students but the institution itself. For instance, boosting the academic achievement of school students by only one or two percent could result in higher grades for hundreds, if not thousands, of students (Crede et al., 2016). Similarly, increasing the retention rate of students in any school could have great financial benefits for the school (Hunter & Hunter, 1984). Nevertheless, perseverance of efforts – as opposed

to overall grit - explained greater variance in academic achievement over and above conscientiousness and other seemingly related constructs (Pace & Brannick, 2010). It could be worthwhile to focus on the perseverance component of grit as opposed to overall grit, as research advocates the strong relation between perseverance and academic outcomes.

A Perseverance of Efforts and a Consistency in Interests

The construct validity of grit is in question as current evidence does not suggest that grit is a higher-order construct that is comprised of two lower-order facets (Crede et al., 2016). Indeed, it has been revealed that the measure of grit is comprised of two separate facets, a perseverance of efforts and a consistency of interests. Furthermore, it has been exposed that these two components of grit have different predictive abilities in terms of academic outcomes in schools. For instance, one piece of research has reported that although gritty students attained higher academic grades, further breaking the construct down into two parts has better benefits. Such that, a consistency of interests accounted for 3% of variance in student's academic achievement; while the perseverance of efforts component explained 9% of variance in scores (Mason, 2018). This suggests that the perseverance of efforts component of grit is more appropriate when determining which students will achieve higher academic marks, while the consistency of interests component is less useful (Mason, 2018). Some research supports these findings and similarly presented that grit, as an overall construct, was only moderately associated with academic achievement; while the perseverance of efforts is a strong predictor and consistency of interests was not (Wolters & Hussain, 2015; Weisskirch, 2016). Moreover, grit's perseverance of efforts was seen to predict all indicators of self-regulated learning including self-efficacy and procrastination; while the consistency of interests facet did not (Wolters & Hussain, 2015). Again, grit did not predict achieved final grade, but perseverance of efforts predicted estimated grade (Weisskirch, 2016).

Evidently, combining the two sub-components of grit into one overall grit score seems to significantly reduce its ability to predict academic outcomes such as achievement and performance (Crede et al., 2016). It has consistently been demonstrated that the perseverance of efforts component of grit is a much better predictor of academic achievement than the consistency of interest component, as well as overall grit. Therefore, to optimize the potential of the grit scale in predicting academic achievement in school children,

educators should focus on the perseverance of efforts facet (Crede et al., 2016).

Harvesting a Successful Student Population

Educating institutions and organisations all over the world have demonstrated the influential effects of selected interventions on academic performance and achievement. Whether enhancing the grit levels of students is possible has not yet been ascertained. However, interventions that concentrate on elevating an individual's resilience and social and personal skills have proved to be effective (Durlak et al., 2010; Paunesku et al., 2015). Thus, it seems possible to suggest that grit interventions could also have a positive effect on academic outcomes. For instance, some research has shown that outcomes related to educational success can be uplifted by cultivating traits that are seemingly related to grit. Such that, by helping students to feel that they "fit in" and that they belong to the student population and have value within the university, academic achievement was increased (Walton & Cohen, 2011). Additionally, offering students insight into how their course is relevant to their own lives, and aligning their interests with their own life increased academic achievement (Hulleman & Harackiwcz, 2009). Setting goals, identifying possible obstacles and challenges to their studies and helping students learn self-control strategies can increase academic performance, increase engagement and reduce absences (Oyserman, Bybee & Terry, 2006; Brigman & Webb, 2007). Finally, the use of a self-efficacy based intervention was investigated among university students and it was revealed that a 4-month individual cognitive-behavioural intervention program increased self-efficacy, engagement, performance and retention (Bresó, Schaufeli & Salanova, 2010) – which, in turn, would optimise academic outcomes. All of the above traits and characteristics have been closely associated with grittiness in students, and each have shown great success in uplifting the educational success of students.

It is therefore a worthwhile pursuit of educating institutions throughout the UK to consider interventions that could potentially enhance the perseverance of their students as previous research has revealed that interventions to increase similar traits are greatly effective. As a result, it is crucial to acknowledge the perseverance of the student population in order to monitor and regulate the achievement of students. Furthermore, these already existing interventions and programs can be improved upon and developed through the

inclusion of grit's perseverance of efforts component. By embedding this - as a factor that enhances academic outcomes such as achievement, engagement and motivation - students will benefit from a program that is designed to optimize their full potential and as a result, experience greater academic achievement and success.

Conclusion

Grit is a strong predictor of academic outcomes for many students – but not all students. Consequently, the cultural-sensitivity of grit is in question and needs to be addressed. Regardless, research has posited that grit is a meaningful concept that has predictive abilities within education. In fact, the impact of grit on academic outcomes can be further enhanced by concentrating on the perseverance of efforts component of grit rather than overall grit. Grit has been heavily criticized for falling victim to the jangle fallacy, which states that grit is simply a reconstruction of the construct of conscientiousness. However, the perseverance component has reported to predict academic outcomes over and above those of conscientiousness. It can therefore be suggested that measuring and monitoring student's perseverance of efforts is a highly effective method in determining which students will succeed and which students can be directed to support. Furthermore, the cultivation of grittiness as a trait has not yet been proved possible; but enhancing seemingly-related traits has been beneficial to academic achievement. Thus, it can be concluded that enhancing grit – namely perseverance of efforts - can have a great impact on academic achievement, attendance and retention. As a result, the educational rewards for students would be substantial, as well as the financial benefits for schools and educating institutions. With this in mind, focusing on grittiness or perseverance of student populations alone would be simplistic and limits the potential of student's success. Such that, a recently developed model advocates that a successful or thriving student should express determination towards goals, be focused on their strengths, persist in the face of adversity, embrace challenges and notice the responsibility they hold over their own choices and actions (Kannangara, 2015). To optimize the full potential of students, the incorporation of grit alongside other achievement-related characteristics such as self-control, resilience and well-being is essential. So,

while grit is of incredible usefulness in an educational context, other traits should not be ignored.

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