

CULTIVATING CREATIVITY

What the PISA 2022
results say about
creative thinking
in Ireland.

Brenda Donohue,
Rachel Perkins and
Theresa Walsh.

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Foras Taighde ar
Oideachas
Educational
Research Centre



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about creative thinking in Ireland.**

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PREFACE

PREFACE

The Programme for International Student Assessment (PISA) is an assessment of the skills and knowledge of 15-year-olds in science, reading literacy and mathematics. It is an initiative of the Paris-based Organisation for Economic Cooperation and Development (OECD). PISA takes place every three years. The first PISA cycle was implemented in 2000 and PISA 2022 was the eighth iteration of the study. In each cycle, one domain is designated a major domain, and the remaining domains function as minor domains. In PISA 2022, mathematics was the major assessment domain, while science and reading literacy were minor domains. Each cycle also features an innovation domain, and in PISA 2022 this was Creative Thinking.

An international consortium, led by Educational Testing Service (ETS) in United States, was responsible for the implementation of PISA. The usual pattern of the PISA cycle was interrupted in this iteration, as the planned implementation of the Main Study in 2021 was delayed by one year to 2022 due to disruptions associated with the COVID-19 pandemic. A further change in administration took place in Ireland, with Main Study data collection taking place in autumn instead of springtime. This means that data were collected a year and a half later than originally planned, and four and a half years since data were collected in the 2018 cycle of PISA. This was the third cycle in which testing was administered principally on computer.

PISA 2022 was administered in 81 participating countries/economies, including 37 OECD countries, with tests and questionnaires completed by 690,000 students internationally. In Ireland, 5569 students in 170 schools took part, with the majority of participants in Transition Year and Third Year, with smaller proportions in the remaining years.

While students in Ireland did not take part in the cognitive assessment of creative thinking, questions related to creativity and creative thinking were included as part of the student, parent and school questionnaires in Ireland. Through these questionnaires, information was gathered on students' attitudes and beliefs about creativity, their experience of home and school environments that support creativity and creative thinking, and their engagement in creative activities both inside and outside of school. Findings from other countries that gathered data on creative thinking in PISA, including the results from the cognitive assessment of creative thinking, can be found in the OECD's report *Thinking Outside the Box – Creative Thinking in Education* (OECD, 2024) which is available at www.oecd.org/pisa.

This report is divided into six chapters. Chapter 1 provides an overview of the PISA 2022 cycle and the Creative Thinking domain and associated questionnaires. Chapter 2 summarises the broader research and policy context of creativity and arts in education. Chapters 3, 4, and 5 describes Ireland's responses to questions on creative thinking, specifically attitudes and beliefs to creativity and creative thinking, their experiences of environments that support creativity, student's engagement with creativity within school and outside of school, and link these responses to background characteristics such as ESCS, gender and school type. A summary and conclusions are presented in Chapter 6.

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Finally, and most importantly, we would like to thank everybody involved in the data collection on which this report is based. Data collection in this cycle took place in unprecedented circumstances, which posed challenges for all involved. Thank you to all the students who took part in PISA testing in 2020 and in 2022. We would like to extend our thanks to the parents of the students sampled, who completed a Parent Questionnaire. Particular thanks are due to School Contacts who dedicated time and effort to facilitate PISA testing within schools, to Principals, Mathematics Teachers, and Mathematics Co-ordinators who completed School, Teacher and Maths Co-ordinator Questionnaires.

ACRONYMS AND ABBREVIATIONS

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AC	Arts Council
ARIS	Arts Rich Schools
BRR	Balanced Repeated Replication
CI	Creative Ireland
DEIS	Developing Equality of Opportunity in Schools
DES	Department of Education and Skills
DoE	Department of Education
DoTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media
ERC	Educational Research Centre
ESCS	Economic, Social and Cultural Status
ESRI	Economic and Social Research Institute
ETB	Education and Training Board
GUI	Growing Up in Ireland
NCCA	National Council for Curriculum and Assessment
OECD	Organisation of Economic Cooperation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
SD	Standard Deviation
SE	Standard Error
TIMSS	Trends in International Mathematics and Science Study
TY	Transition Year Programme

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Programme for International Student Assessment (PISA) assesses 15-year-old students' knowledge in the areas of reading literacy, mathematics and science. It is a project of the Organisation for Economic Co-operation and Development (OECD). Ireland has been part of PISA since 2000 and has been participating every three years since, with the Educational Research Centre (ERC) administering the study on behalf of the Department of Education (DoE).

In every cycle, PISA has an innovative domain, which includes both cognitive and background elements. In 2022, this domain was Creative Thinking. Sixty-four countries and economies administered a cognitive assessment of creative thinking to students. In addition, questions related to creativity and creative thinking were included as part of the context questionnaires that were completed by students, their parents and school principals. While students in Ireland did not take part in the cognitive assessment of creative thinking, questions related to creativity and creative thinking were included as part of the questionnaires in Ireland. In particular, information was gathered on students' attitudes and beliefs about creativity, their experience of home and school environments that support creativity and creative thinking, and their engagement in creative activities both inside and outside of school. This report presents the findings for Ireland across these indices.

In recent years, the importance of creativity and arts engagement for young people has gained increased attention from policymakers both in Ireland and internationally. The recognition of the importance of creativity, creative thinking, and engagement with the arts has resulted in a series of initiatives aimed at fostering young people's experiences with the arts. Significant steps have been taken in Ireland to integrate creativity and arts engagement into educational policies and curricula. In addition, a variety of initiatives, such as the Creative Youth programme, BLAST, Music Generation, Creative Schools, Creative Clusters and support for Youth Theatres, aim to enhance young people's engagement with the arts both inside and outside of school. Furthermore, curriculum changes have emphasized creativity and creative thinking as key competencies required for both Junior and Senior Cycle students. Notably, the introduction of a new draft specification for Leaving Certificate Drama, Film, and Theatre Studies aims to broaden students' access to arts education.

Students' attitudes and beliefs regarding creativity, creative activities, and creative thinking processes are examined in this report across four key indices. On average, students in Ireland reported levels of creative self-efficacy, openness to art and experience, and imagination that were comparable to those of their OECD peers. However, Irish students reported lower levels of openness to intellect compared to the OECD average. The highest scores among Irish students on the creative self-efficacy index were related to confidence in interpersonal situations. They also expressed higher enjoyment in creating art and engaging in artistic activities. Gender differences were evident, with female students more likely than their male peers to report higher levels of creative self-efficacy, more openness to art and experience, and higher levels of imagination and adventurousness both in Ireland and at the OECD level. Socioeconomic status significantly affected students' creative self-efficacy and openness to intellect, with higher socioeconomic backgrounds linked with higher scores in both areas. Students attending DEIS schools reported lower levels of creative self-efficacy, openness to intellect and imagination and adventurousness.

In terms of school environment and support for creative thinking, schools in Ireland were more likely to be reported to foster creative pedagogies than the OECD average. Students in Ireland reported significantly greater levels of support for creative thinking in their schools compared to their OECD peers, and were also significantly more likely to have principals who reported that creative pedagogies were fostered in their school. Interestingly, students in girls' secondary schools experienced the highest level of support for creative thinking from their teachers. Students in Ireland also reported higher levels of participation in creative activities within schools than their OECD peers, with art and music being the most common. In Ireland, female students were significantly more likely than male students to report engaging in creative activities inside school. This is in contrast to the pattern observed across OECD countries, on average. The study found no significant differences between DEIS (Delivering Equality of Opportunity in Schools) and non-DEIS schools regarding support for creative pedagogies and access to creative activities.

Looking at students' access to environments that support creative thinking and creativity outside of school, parents in Ireland reported the home environment as being more supportive of creativity than their OECD counterparts. However, both students and parents in Ireland reported lower levels of engagement in creative activities outside of school compared to the OECD average. Gender differences were observed, with female students in Ireland perceiving greater levels of support from family and peers for creative thinking and engaging more frequently in creative activities outside of school. Additionally, parents in Ireland were more likely to report their child's participation in creative activities if the child was female. Although students from higher socioeconomic backgrounds tend to have greater exposure to environments, attitudes, and activities that support creativity outside of school, the association between socioeconomic status and creativity outside of school observed was weak. No significant differences were found between DEIS and non-DEIS schools in terms of access to supportive environments for creativity outside of school.

Findings from other countries that gathered data on creative thinking in PISA, including the results from the cognitive assessment of creative thinking, can be found in the OECD's report *Thinking Outside the Box – Creative Thinking in Education* (OECD, 2024) which is available at www.oecd.org/pisa.

1. CHAPTER ONE

– PISA and creative thinking



1.1 What is PISA

The Programme for International Student Assessment (PISA) is a project of the Organisation for Economic Co-operation and Development (OECD) that assesses 15-year-old students' knowledge in the areas of reading literacy, mathematics and science. PISA usually takes place every three years, but the eighth cycle of the study, which was due to take place in 2021, was postponed by one year due to the COVID-19 pandemic. In 2022, over 690,000 students across 81 countries and economies, including 37 OECD countries, took part in the PISA assessments. In most countries, including Ireland, students completed the assessments on a computer.

In 2022, PISA also measured the creative thinking skills of 15-year-old students for the first time. Sixty-four countries and economies administered a cognitive assessment of creative thinking to students. In addition, questions related to creativity and creative thinking were included as part of the context questionnaires that were completed by students, their parents and school principals. Of the 17 countries that did not take part in the cognitive assessment of creative thinking, 16 of these included at least some questions related to creativity and creative thinking as part of the context questionnaires.

While students in Ireland did not take part in the cognitive assessment of creative thinking, questions related to creativity and creative thinking were included as part of the student, parent and school questionnaires in Ireland. In particular, information was gathered on students' attitudes and beliefs about creativity, their experience of home and school environments that support creativity and creative thinking, and their engagement in creative activities both inside and outside of school. This report presents the findings for Ireland across these indices. Findings from other countries that gathered data on creative thinking in PISA, including the results from the cognitive assessment of creative thinking, can be found in the OECD's report *Thinking Outside the Box – Creative Thinking in Education* (OECD, 2024) which is available at www.oecd.org/pisa.

1.2 PISA in Ireland

The Educational Research Centre (ERC) oversees the administration of PISA testing in Ireland, on behalf of the Department of Education (DoE). Traditionally, testing for PISA in Ireland has taken place in the springtime. A study comparing the outcomes of spring and autumn testing in PISA was carried out by the ERC in 2018 to examine the feasibility of moving PISA testing to the autumn time, when schools are considered to be less pressured with preparations for the state examinations. This study found no statistically significant differences between students' participation rates or overall achievement outcomes between the two testing periods (Denner, 2023) and a decision was made to move the testing period for Ireland to the autumn for PISA 2022.

In Ireland, 5,569 students in 170 schools took part in PISA between mid-October and early December 2022. In each selected school, up to 46 students born between 1st August 2006 and 31st July 2007 were randomly selected to participate in the study. While 100% of selected schools took part in the study, Ireland achieved a final weighted student response rate of 77%, which is below the required threshold of 80% outlined in the PISA technical standards. As a result, a non-response bias analysis was carried out on the data for Ireland, which found a small upward bias in the achievement estimates for Ireland. This means that the achievement estimates for Ireland in PISA 2022 would likely have been somewhat lower if all selected students had completed the assessment.

Most students who took part in PISA 2022 in Ireland were in Transition Year (57.0%),¹ followed by Third Year (26.1%) and Fifth Year (16.2%). Less than 1% of PISA 2022 students in Ireland were in First/Second Year (0.2%) or Sixth Year (0.5%).

1. As testing was carried out in autumn for PISA 2022, there has been a shift in the grade distribution of students compared to previous cycles, with the majority of students in Transition Year for autumn testing compared to Third Year for spring testing.

1.3 PISA 2022 results for Ireland

Students in Ireland achieved mean scores in reading, mathematics and science that were significantly above the corresponding OECD average scores in PISA 2022. Just one country, Singapore, significantly outperformed Ireland in reading, while nine² countries achieved significantly higher mean scores than Ireland in mathematics and science. On average across OECD countries, there were significant declines in reading (-10 points) and mathematics (-15 points) performance, and no significant change in science (-2 points) since the previous cycle of PISA in 2018. On the other hand, in Ireland, there was a significant decrease in mathematics performance (-8 points), no significant change in reading (-2 points) and a significant increase in science (+8 points) since 2018.

In Ireland, male students significantly outperformed female students by almost 13 points in mathematics, while female students significantly outperformed male students by 18 points in reading. For science, no significant gender differences in overall performance were observed. Similar patterns were observed at the OECD, although the magnitude of the gender differences was smaller for mathematics and science, and larger for reading.

In line with the findings from previous cycles of PISA, Ireland has much fewer students performing at the lowest levels of proficiency in all three domains compared to the average across OECD countries, while the percentages of students in Ireland reaching the highest levels of proficiency are much closer to (or just below) the corresponding OECD averages. In mathematics, 19% of students performed below baseline³ proficiency compared to an OECD average of 31%. Slightly fewer students in Ireland than at the OECD average reached the highest levels in mathematics (7% and 9%, respectively). The percentage of students in Ireland performing below baseline proficiency in reading (11%) is considerably lower than the corresponding OECD average (26%), while the percentage reaching the highest levels of proficiency (10%) is just slightly above the OECD average (7%). For science, 16% of students in Ireland performed below baseline proficiency compared to an OECD average of 24%.

Further information on Ireland's performance in PISA 2022 is available in the ERC's national report for PISA 2022, *Education in a Dynamic World*, (Donohue et al., 2023) which can be found at www.erc.ie.

2. Canada, Chinese Taipei, Estonia, Hong Kong (China), Japan, Korea, Macao (China) and Singapore significantly outperformed Ireland in mathematics and science. Switzerland also significantly outperformed Ireland in mathematics while Finland significantly outperformed Ireland in science.

3. Baseline proficiency in PISA is defined as below Proficiency Level 2. More information on PISA proficiency levels is available in the OECD's (2023a) *PISA 2022 Results (Volume I)* at www.oecd.org/pisa.

1.4 Creative thinking in PISA

PISA defines creative thinking as “the competence to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination” (OECD, 2023b, p. 144). The PISA definition of creative thinking is closely related to the broader construct of creativity, but focuses on the cognitive processes required to engage in the type of creative work used in everyday tasks and contexts (known as ‘little-c’ creativity) rather than the type of creativity associated with artistic masterpieces or scientific breakthroughs (i.e., ‘Big-C creativity’).

More broadly, creativity is considered to be the result of “the interaction among aptitude, process and environment” (Plucker et al., 2004, p. 90) and PISA collects information on these drivers of creativity and creative thinking through the student, teacher, school and parent questionnaires.⁴ In particular, the PISA context questionnaires gather information on five aspects of creativity:

- **Curiosity and exploration** – openness is a key characteristic considered to be related to creativity and PISA collects information on two aspects of openness: openness to experience (i.e., how receptive individuals are to engaging with novel ideas, imagination and fantasy; Berzonsky and Sullivan, 1992) and openness to intellect (i.e., an individual’s receptivity to engage with abstract and complex information; DeYoung, 2014).
- **Creative self-efficacy** – creative self-efficacy refers to an individual’s belief in their own creative abilities. PISA gathers information on individuals’ general confidence in thinking creatively and their beliefs about their abilities to think creatively in different domains.
- **Beliefs about creativity** – PISA explores various beliefs that students have about creativity in general that might influence their motivation to learn to be creative.
- **Creative activities in the classroom and at school** – engaging in creative activities can contribute to an individual’s understanding of and their attitudes towards different creative domains. PISA collects information on the activities that individuals participate in, both inside and outside of school, as well as the types of activities that are available to students, either as part of the curriculum or as extracurricular activities.
- **Social environment** – external factors in an individuals’ environment, such as cultural and familial norms and expectations as well as classroom climate, can provide information on the role of extrinsic motivation on student creative performance (OECD, 2023b). The student, teacher and principal questionnaires in PISA collect information about students’ school environments while the student and parent questionnaires also gather information on students’ experiences of creativity outside of school.

This report presents the findings and conclusions related to creative thinking in PISA 2022 for Ireland. Chapter 3 presents students’ attitudes and self-beliefs about creativity and creative thinking while Chapter 4 describes students’ experiences of creativity and creative thinking in school. Chapter 5 outlines students’ experience of out-of-school environments and attitudes that support creativity, as well as their engagement in creative activities outside of school. Finally, the conclusions for Ireland are presented in Chapter 6. An [e-appendix](#) accompanies this report and provides more detail on the data presented.

4. The teacher and parent questionnaires in PISA are international options that are not administered in every country. In PISA 2022, 17 countries participated in the parent questionnaire while 18 countries administered the teacher questionnaire.

1.5 Interpreting the analyses in this report

OECD average

Throughout the report, reference is made to the OECD average. This is the mean of all OECD countries that have valid data on the indicator in question (e.g., creative self-efficacy). All 38 OECD countries except Luxembourg participated in PISA 2022. However, some items were not administered in every country and therefore, the number of countries that make up the OECD average in each section may vary. Further information on the number of OECD countries with valid data for each indicator is presented in the relevant tables. The terms 'OECD average' and 'OECD mean' are used interchangeably throughout.

In general, the indices reported in this report were scaled to have a mean of about zero and a standard deviation of about one on average across all OECD countries with valid data.

Comparing mean scores

Because PISA assesses samples of students and students only attempt a subset of PISA items, estimates are prone to uncertainty arising from sampling and measurement error. The precision of these estimates is measured using the standard error, which is an estimate of the degree to which a statistic, such as a country/economy's mean, may be expected to vary about the true (but unknown) population mean. Estimates for group-level characteristics are provided in this report, accompanied by a standard error which is available in the [e-appendix](#) which accompanies this report. The smaller the standard error, the more confidence there is that the observed value reflects the population. Assuming a normal distribution, a 95% confidence interval can be created around a mean using the following formula: $\text{Statistic} \pm 1.96 \text{ standard errors}$. The confidence interval is the range in which one would expect the population estimate to fall 95% of the time, if many repeated samples were used.

The standard errors associated with mean scores in PISA were computed in a way that takes account of the two-stage, stratified sampling technique used in PISA, with adjustments made to the alpha level for multiple comparisons. The approach used for calculating sampling variances for PISA estimates is known as Fay's Balanced Repeated Replication (BRR), or balanced half-samples, which takes account of the clustered nature of the sample. Using this method, half of the sample is weighted by a K factor, which must be between 0 and 1 (set at 0.5 for PISA analyses), while the other half is weighted by 2-K.

Statistical significance

Statistical significance indicates that a difference between estimates is unlikely to have occurred by chance and would likely occur again if the survey was repeated (i.e., for significance at the 5% level, the observed difference would most likely be observed again 95 times out of 100). In this report, mean scores are sometimes compared for countries or groups of students. When reference is made to a significant or non-significant difference, a test of statistical significance has been carried out. For each comparison, a reference category is selected for each variable and comparisons are made between the mean score for this group and each remaining group and statistically significant differences are indicated in bold.

It should be noted that statistical significance refers to the probability of an observed difference occurring by chance if no true difference exists. It does not necessarily imply that a difference is substantive or meaningful in terms of its implications for policy or practice. Statistically significant differences can sometimes be very small in practical terms and informed judgement should therefore be used in interpreting the results of the statistical tests presented here.

Standard deviation

The standard deviation is a measure of the spread of scores for a particular group. The smaller the standard deviation, the less dispersed the scores are. The standard deviation provides a useful way of interpreting the difference in mean scores between groups, since it corresponds to percentages of a normally distributed population (i.e., 68% of students in a population have an achievement score that is within one standard deviation of the mean and 95% have a score that is within two standard deviations of the mean).

Correlations

Correlation coefficients describe the strength of a relationship between two variables (e.g., the relationship between socioeconomic status and participation in creative activities). However, a correlation does not imply a causal relationship. The value of a correlation can range from -1 to +1. A value of 0 indicates that there is no relationship between variables, while the closer a value is to ± 1 , the stronger the relationship. A negative correlation (e.g., -.26) means that as one variable increases, the other decreases; a positive correlation (e.g., .26) means that both either increase or decrease together. According to Cohen (1988) an absolute value of r of 0.1 is classified as small, an absolute value of 0.3 is medium and of 0.5 is classified as large.

Data sources

For international comparisons, results are taken from volume III of OECD reports on PISA 2022 (OECD, 2024). Analyses using national variables (i.e., DEIS, sector and gender composition) were conducted by the Educational Research Centre.

2. CHAPTER TWO

– Creativity and young people in Ireland



2.1 Introduction

There has been an increased prioritisation of skills, cognitive processes, and behaviours associated with creativity in many education systems internationally in recent times. While academic subjects that engage with creativity (such as music and art) have long been available for study at post-primary level in Ireland, it is only relatively recently that a broader concept of creativity within learning has become a point of policy focus within the Irish education system.

In Ireland, young people have the opportunity to experience the arts and creativity within schools, or outside of the school setting. Engagement with the arts and creativity is often facilitated by government-funded initiatives. These are generally managed by the Department of Education (DoE), the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (DoTCAGSM), a number of government agencies such as the Arts Council (AC), the Creative Ireland programme (CI), as well as local county councils.

2.2 Background and policy

One of the longest established government agencies with responsibility for the arts and creativity in Ireland is the Arts Council. First established in 1951, it has a number of core functions, which were set out in the *Arts Act* (2003). Under the Act, among the AC's responsibilities are: the stimulation of public interest in the arts, the promotion of knowledge, appreciation and practice of the arts, the improvement of standards in the arts, and the provision of advice to the Minister and other public bodies on the arts.

Making Great Art Work. Leading the Development of the Arts in Ireland (AC, 2015), the strategic plan spanning 2016-2025, set out a pathway for supporting arts and creativity in education and in relation to young people. Under Objective Eight of its Public Engagement remit, the Council commits to advocating for the centrality of the arts in formal education and for the provision of vocational training in the arts; working with the Departments of Arts and of Education to achieve full implementation of the Arts in Education Charter; investment in artists, arts organisations and key programmes dedicated to developing high quality work in arts-in-education and youth arts, and the provision of excellent arts experiences for young people in the public domain, among other objectives (AC, 2015, p.26). In addition, one of the key objectives contained in its latest three-year plan, *Making Great Art Work. Three-Year Plan 2023-2025* (AC, 2023a), is the planning and provision of opportunities for young people to engage with the arts and creativity. The targeted policy, *Growing with the Arts* (AC, 2023b) outlines how the Council plans to do this through special and demographic planning, investment, and capacity building. The Arts Council also funds a number of organisations and programmes that focus on the provision of art and culture to young people and children across Ireland, such as Baboró multi-arts festival for children and families, Children's Books Ireland, Youth Theatre Ireland, and Waterford Youth Arts.

Another government initiative aimed at supporting people, places, and communities to reach their creative potential is Creative Ireland. Established in 2017, and recently extended until 2027, the programme is an all of government initiative, and works with local and national government, and local and enterprise agencies across Ireland. One of the key strands for Creative Ireland is Creative Youth (see Section 2.3.2 for more).

Early investigations into the status of arts and creativity in the Irish educational context were made by the AC as far back as the 1970s (Richards, 1978; Benson, 1979). However, a major development in arts education occurred in 2012 when the Irish government published the *Arts in Education Charter*, a joint initiative between the Department of Arts, Heritage and the Gaeltacht and the Department of Education and Skills (DES). The Charter recognised that creativity would play a vital role in the society of the future, and through a number of measures and initiatives that extended from early years education through to the Senior Cycle, sought to align the efforts of stakeholders to develop creativity and arts in education. It described creativity as an aptitude that draws on differing strands of an individual's experience and intelligence. The charter identified and prioritised a number of initiatives to promote arts in education, such as student visits to cultural institutions, reduced admission prices, a portal for arts in education,⁵ curriculum design, and Arts Rich Schools.⁶

5. See www.artsineducation.ie.

6. This initiative would later be known as Creative Schools.

A number of studies have investigated engagement with the arts in an Irish context. Lunn and Kelly (2008) found that across the adult population, people from higher socioeconomic backgrounds were more likely to attend arts events and read literature. However, the link between socioeconomic status and active participation in the arts was weaker. The most consistent association with involvement with the arts was educational attainment (Lunn & Kelly, 2008). In 2016, the AC published a commissioned study that investigated arts participation amongst young people (specifically children from ages 3 to 13). *Using Growing Up in Ireland* (GUI) data, Emer Smyth's findings were in keeping with Lunn & Kelly's (2008) noting that there was a "social differentiation in children's cultural participation" in Ireland linked to the children's socio-economic status (Smyth, 2016, p. 96). In addition, Smyth found that children's engagement with cultural activities was highly gendered from an early age, though no explanation for this phenomenon was proffered. Interestingly for this analysis, Smyth's report found that the type of school attended influenced children's exposure to cultural activities, with smaller schools offering fewer extracurricular activities, single sex girls schools offering "certain cultural activities outside school" (Smyth, 2016, p. 97), and DEIS schools using cultural activities to promote student engagement. Smyth also notes that "patterns of cultural engagement are established at a young age," in some ways making them more challenging to address in policy terms at later stages (Smyth, 2016, p. 96).

In 2020, Smyth's follow-up study focussing on arts and cultural participation among 17-year-olds found similarly gendered patterns of engagement with cultural activities. Interestingly, Smyth noted "an overall decline in the frequency of engagement in all types of cultural activities" during the transition from middle childhood to early adulthood (Smyth, 2020, p.68). School was again found to be an important locus for engagement with and access to arts and culture, though Leaving Certificate art or music was more likely to be offered in fee-paying schools, larger schools, and girls' schools. In addition, larger schools were more likely to offer after-school activities, and rates of provision were as high in DEIS as non-DEIS schools. Participation in the Transition Year programme (TY) promoted cultural engagement among participants and improved the recognition of the value of art and culture. Smyth also observed that engagement in cultural activities had long-term benefits for young people, "with frequent reading for pleasure and involvement in structured cultural activities at younger ages enhancing later cognitive development" (Smyth, 2020, p.69). Both reports identified schools as an important site for provision of equitable access to cultural activities.

2.3 Creativity and young people

Young people in Ireland then, have multiple routes to accessing creative and cultural activities both inside and outside school. This section looks first at how creativity and the arts are incorporated within the curriculum, and how the *Creative Youth Plan* provides chances for engagement with creative experiences inside and outside of school.

2.3.1 Creativity and arts in the curriculum and in schools

The importance of creativity and being creative is embedded within the curriculum in Ireland at all levels, from early years to Senior Cycle. Aistear, the Early Childhood Curriculum, recognises the importance of providing opportunities for children to be creative and to express themselves creatively and imaginatively. Similarly, the 1999 Primary Curriculum outlines the importance of developing the full potential of the child, including their capacity for creativity and creative expression. The new Primary Framework continues to emphasise the importance of creativity in children's learning, with 'being creative' included as one of the seven competencies that are key to children's learning at primary level.

At Junior Cycle level, the *Framework for Junior Cycle* (DES, 2015) outlines eight key underlying principles. One of these is creativity and innovation, whereby curriculum, assessment, teaching and learning should provide "opportunities for students to be creative and innovative" (DES, 2015, p. 11). Being creative is also one of the key skills of the Junior Cycle. The elements included under this skill are imagining, exploring options and alternatives, implementing ideas and taking action, learning creatively, and stimulating creativity using digital technology. Under this element, teachers are encouraged to lead their students in engaging in fresh thinking, considering problems from new perspectives, developing empathetic imagination, exploring various options, remaining open to new possibilities and perspectives, and trying ideas out in practice (NCCA 2015). At Junior Cycle level, an optional short course in Artistic Performance is available, which is structured around three strands: Experiencing the arts, Planning and preparing, and Participation and performance (NCCA, 2016).

Under the redevelopment of Senior Cycle level currently underway, "being creative" again appears as a key competency, with students expected to "develop a range of strategies and processes which support their creativity" and "develop values and dispositions which nurture their creativity" (NCCA, 2023, p.11). Creativity is also incorporated into assessment in formal state examinations at both Junior and Senior Cycle level.

Transition Year can also offer students an opportunity to engage with learning in different ways. As well as shorter modules and other learning opportunities, students can also participate in Transition Units, which are courses on particular topics that are timetabled for approximately 45 hours. While schools can create their own Transition Units, they can also make use of, or adapt, Transition Units that have already been developed by another school or organisation. Some Transition Units that are arts-based

or draw on creativity and creative thinking include the B!G IDEA, Artykats, Discovering Irish Art, Creative Writing and Moving Image.

Aside from arts-in-education, there have been some recent developments in the area of arts education, in particular, the planned introduction of Drama, Film and Theatre Studies as a Senior Cycle subject. The new draft specification, in line with other curriculum initiatives, will be student-centred and outcomes-based, with an emphasis on practical experience for each student. The “being creative” key competency manifests itself in Leaving Certificate Drama, Film and Theatre Studies through “engagement in the creative process” (NCCA, 2024, p. 6) where students develop pieces of film and theatre in an iterative process, participate in cultural experiences (such as live theatre and cinema), and develop their critical responses to work. These processes should nurture their creativity “developing aspects such as curiosity, playfulness and open-mindedness” (NCCA, 2024, p.6). In addition, students’ engagement with the draft specification should further cultivate wellbeing, foster critical thinking and problem-solving, as well as encourage collaboration and collaborative practices. The draft specification contains three strands: creative process, applied creative tasks, and critical response process. Leaving Certificate Drama, Film and Theatre Studies is planned to be introduced to schools on a phased basis starting in September 2025.

2.3.2 Creative Youth Plan

One of the five pillars of the original Creative Ireland Programme, the Creative Youth Plan was published in 2017. It has since been updated by the *Creative Youth Plan 2023-2027* (CI, 2023), which continues to place creativity at the heart of the programme, positing it as an innate quality that can be nurtured and developed. Among the benefits offered by creative thinking is the production of “ideas, artefacts and approaches that are original or that have novel application” (CI, 2023, p. 11). The plan prioritises the development of creative skills such as curiosity, resilience, imagination, discipline, and collaboration. It draws on the five habits of learning developed by Winchester University’s Centre for Real World Learning, which in turn formed the basis for the development of the PISA definition of Creative Thinking (see Section 1.4 of this report for more on this).

The plan has seven strategic objectives; to provide creative opportunities for children and young people; to strengthen equity of access to creative activities for children and young people; to support the implementation of Aistear; to promote the value of creativity across the Education system and Curriculum Frameworks in schools; to promote the development of creative skills in Further and Higher Education; to support wellbeing of children and young people; and finally, to establish a programme of research (CI, 2023).

Creative Youth works within and out of schools. Initiatives such as Cruinniú na nÓg (a national day of free creative activities for children and young people), and Local Creative Youth Partnerships (LCYP; community-based collaborations that bring together artists and cultural entities and are specifically focused on reaching marginalised

groups) operate in the community. Fighting Words (an initiative that provides free tutoring, mentoring and publishing in creative writing), and Music Generation (a musical education programme) are supported under the plan and also work within the community as independent entities.

Projects such as BLAST (Bringing Live Arts to Students and Teachers), Creative Clusters and Creative Schools are school-based:

- The *BLAST* residency programme offers students in primary, post-primary, special education settings and YouthReach centres the opportunity to collaborate with professional artists. The programme enabled 425 new arts in education residencies in schools in 2023, with trained artists or creative practitioners covering areas such as multimedia, fine art, mosaics, stained glass, sculpture/animation and performance art. The programme will run for the fourth time in 2024.
- *Creative Clusters* is an initiative that involves clusters of three to five schools working in collaboration on a creative theme or challenge over a two-year period. Supports are made available to participating schools in the form of a financial grant, paid substitution cover for nominated teachers to attend training and meetings, and access to an external Creative Cluster Facilitator. The programme is open to primary, post-primary, special schools and YouthReach centres. An evaluation of the pilot stage of the initiative noted the key role of funding, dedicated out-of-school time for meetings, and skilled personnel, such as the Creative Cluster Facilitators and Coordinators, in enabling the effective functioning of the initiative, although the availability of substitute teachers was noted as a challenge. The formation of Professional Learning Communities was highlighted as a particularly positive aspect of the initiative that enabled teachers to share expertise, develop a wide range of creative pedagogies and it provided a model for prioritising the centrality of pupil voice in the classroom (Morrissey, 2023).
- The *Creative Schools* programme is led by the AC in partnership with the DoE and DoTCAGSM. The programme supports schools to provide a space in which to encounter and engage with creativity and art, while placing creativity at the heart of school life. Participating school/centres receive a grant and are also supported by a Creative Associate who works with the school to create a school plan and create, facilitate and strengthen links between the school and arts and cultural organisations. In line with the *Creative Youth Plan*, the voice of the child or young person is central to the programme. An evaluation of the programme found that activities relating to the visual arts were the most frequent engaged in, while digital/media arts and drama/theatre were also popular, though participation varied across time and different cohorts. Overall, the evaluation found the initiative to be transformative across many different types of schools in varying locations and it facilitated a shift from child-centred to child-led practice (Murphy & Eivers, 2023). The processes employed were found to be appropriate, equitable representation in participation was achieved, and attitudes towards the programme among were generally very positive.

A number of initiatives related to teacher professional development also feature as part of the Creative Youth plan:

- *Oide Creativity* is a programme of teacher professional development to support engagement with arts, creativity and learning. The initiative is based on collaboration with key partners across the arts and education sectors and aims to connect classroom learning with real-world contexts. Teachers can access a range of elective workshops, such as workshops focused on creativity in the context of Classroom Based Assessment at Junior Cycle. The introduction of the School of Excellence in Creativity Award is a pilot programme that is supported by Oide Creativity and aims to support teachers to be leaders of creativity in their own schools.
- *IGNITE* is a DoE initiative that supports creativity in initial teacher education. Four initial teacher education institutions are working collaboratively to design and deliver modules in the interwoven areas of Ildánach/Creativity and Gaois/Critical Thinking. The project aims to support student teachers in their understanding of creativity in learning.
- *The Teacher Artist Partnership (TAP)* initiative is an arts-in-education programme where teachers work with artists as part of their continuing professional development. A summer programme aimed at equipping teachers and artists/creative practitioners with the relevant skills, knowledge and experience to integrate arts and creativity into classroom practice, is followed by residencies. An evaluation of the initiative found it supported teachers to develop their reflective teaching practice as well as to skilfully manage creative activities in the classroom and to integrate art and creativity into other subjects. It also facilitated artists/creative practitioners in developing the knowledge and skills needed to connect creative interventions to the curriculum. While the needs of children were found to be central to the TAP approach, the importance of training on how to facilitate children's participation in decision making was highlighted (Roe & Egan, 2023).
- *I Am Creative* brings teachers, artists, Special Needs Assistants and school leaders together to support the delivery of artist residencies in special educational settings. The initiative was piloted in 2023 and funding has been provided for the first phase of the project to be carried out in 2024. An evaluation of the pilot phase noted numerous benefits of the initiative, including promoting a collaborative approach to children and young people's learning, an increase in confidence among teachers, SNAs and artists, and raised expectations for children and young people. The importance of supporting school-artist collaborations over the long term, embedding art making in pedagogy and providing on-site training to was also highlighted (Morrissey, 2024).

A review of the *Creative Youth Plan (2017-2022)* found it to be a success overall but identified some key challenges particularly in the area of project evaluation, inclusivity, variety of art forms, and supports for sustainability (O'Sullivan & O'Keeffe, 2023).

2.4 Summary

Creativity and arts engagement for young people has enjoyed increased attention in recent times from a policy perspective. An awareness has developed of the importance of creativity, creative thinking, and engagement with the arts within government, and government agencies. A series of initiatives have followed, with the aim of fostering and nurturing young people's experience of, and engagement with, the arts and creativity.

Studies in the Irish context have demonstrated associations between participation in the arts and gender and socioeconomic status. In particular, Smyth's work has found that children and young people's arts participation is highly gendered, linked to socioeconomic status, and influenced by the school attended. School is an important site for the provision of access to the arts and creativity.

Curriculum changes have placed creativity and creative thinking within the key competencies required for Junior Cycle and Senior Cycle, while new arts education initiatives, such as the development of a new Leaving Certificate Drama, Film and Theatre Studies specification seek to widen students' access to arts education.

Additionally, policy changes instigated by the DoE and DoTCAGSM alongside the roll-out of Arts Council and Creative Ireland led initiatives have created increased opportunities for young people to engage with the arts and creativity in a variety of ways. Initiatives such as the Creative Youth programme and associated projects, such as LCYPs, Music Generation, and support for Youth Theatres aim to increase young people's engagement with creativity and various art forms through out of school initiatives. While school-based initiatives such as Creative Schools, BLAST and Creative Clusters support schools in the development of their arts strategy, forge relationships between schools and local arts practitioners, provide artist-in-residence opportunities, and foster creative collaborations between schools.

3. CHAPTER THREE

– Students' attitudes and beliefs about creativity



3.1 Introduction

This chapter examines students' attitudes and beliefs about creativity, and creative thinking processes. It presents data collected from a number of questions about students' attitudes to creativity, which were embedded within the PISA student questionnaire. Students' responses to some of these were combined to make four indices that provide information and detail about how students in Ireland and internationally view their relationship with creativity. Mean scores for Ireland and the OECD average are presented. Unless noted otherwise, the OECD average refers to the average of all 37 OECD countries that participated in PISA 2022.

In the sections that follow, students' perceptions of their own creative self-efficacy are examined, their openness to intellect and to art and experience, and finally their perception of their own use of imagination and adventurousness in relation to creativity is considered.

For each index, the association between students' scores on the index and their gender, socioeconomic status (at school and student level), and school DEIS status are also considered. PISA measures students' Economic, Social and Cultural Status (ESCS) using an index based on variables including parental occupation, highest level of parental education, and home possessions, which is used as a proxy for family wealth. It is important to note that this measure differs from similar measures used in the Irish context. In this chapter, the PISA ESCS at student level will be used to provide insights into how student ESCS relates to creativity. In addition, the socioeconomic profile of a school can also be measured according to the average ESCS status of their students. Schools can be separated into quartiles according to the average ESCS status of their students, with those in the lowest quartile having the highest concentrations of students experiencing socioeconomic disadvantage. In this way, the relationship between various student outcomes and the concentration of students experiencing socioeconomic disadvantage within schools can be considered from an international perspective.

Finally, a summary of the main findings is presented at the close of the chapter.

3.2 Creative self-efficacy

In PISA, creative self-efficacy describes the extent to which students feel confident in engaging in creative thinking activities, and overcoming challenging tasks associated with creativity. Ten items in the questionnaire asked students to rate their level of confidence in relation to a number of statements (listed in Table 3.1), ranging from general statements about creativity ('being creative') to more specific statements ('addressing social problems like pollution').

The data from these statements were combined to make the index of creative self-efficacy, with a mean of around zero and a standard deviation of around one across OECD countries. Ireland had a mean of -0.01, which was not significantly different from the OECD average of 0.00.⁷

Students in Ireland were most likely to report being confident in interpersonal situations, such as coming up with good ideas for helping people in need (74.1%) and thinking of ideas for solving disagreements with people (73.1%), as well as school-specific scenarios such as coming up with creative ideas for school projects (69.0%). Compared to the OECD average, students in Ireland were more likely to report confidence in these three areas.

7. For this index, no data was available for Israel.

Table 3.1 Percentages of students expressing confidence when doing the following:

		Not at all confident/ not very confident	Confident/ very confident
		%	%
Coming up with creative ideas for school projects	Ireland	31.0	69.0
	OECD	37.4	62.6
Being creative	Ireland	25.3	74.7
	OECD	27.5	72.5
Telling creative stories	Ireland	38.1	61.9
	OECD	38.8	61.2
Expressing your ideas creatively	Ireland	33.3	66.7
	OECD	34.1	65.9
Making creative drawings	Ireland	46.6	53.4
	OECD	45.2	54.8
Thinking of many good ideas for science experiments	Ireland	49.6	50.4
	OECD	50.5	49.5
Inventing new things	Ireland	50.4	49.6
	OECD	42.6	57.4
Thinking of many ideas for solving disagreements with people	Ireland	26.9	73.1
	OECD	30.2	69.8
Addressing social problems like pollution	Ireland	41.2	58.8
	OECD	37.4	62.6
Coming up with many good ideas for helping people in need	Ireland	25.9	74.1
	OECD	29.3	70.7

3.2.1 Findings by student and school characteristics

3.2.1.1 Student gender and ESCS

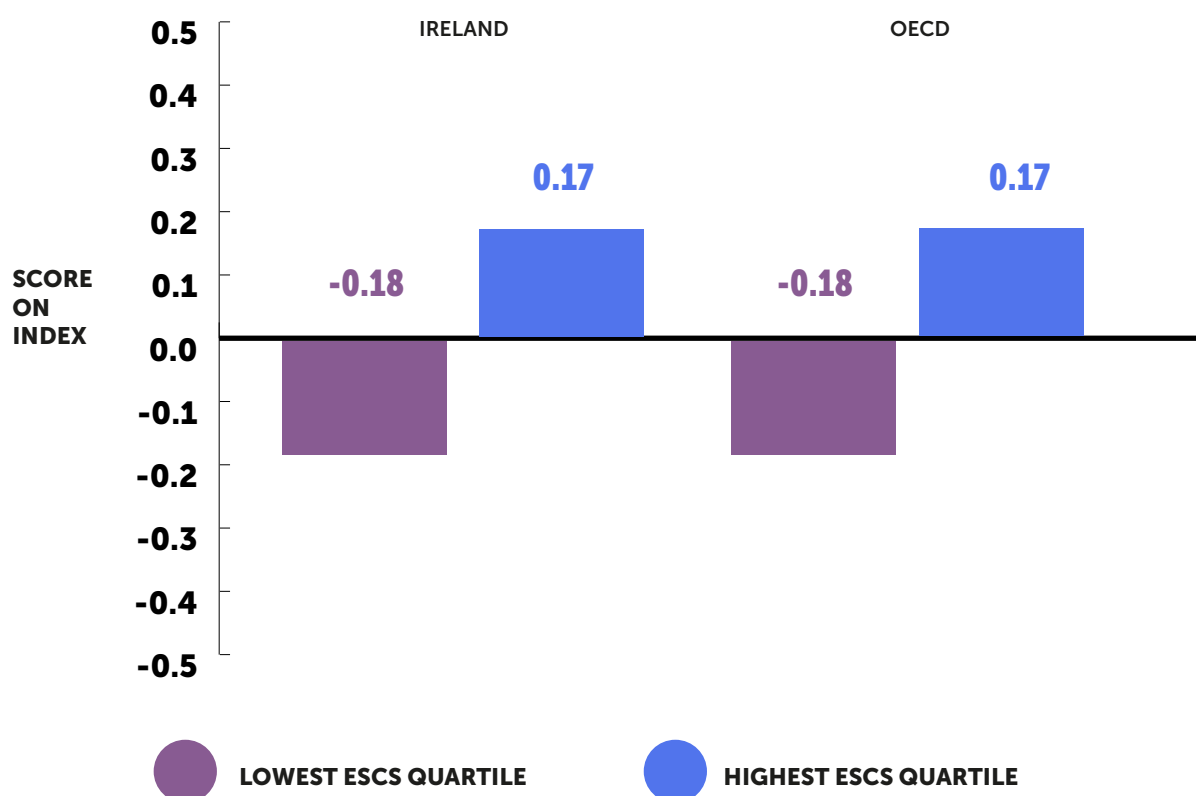
Looking at creative self-efficacy, female students, on average, score significantly higher on this index than male students, both in Ireland and across the OECD, indicating greater levels of creative self-efficacy among female students (Figure 3.1).

Figure 3.1 Mean scores on the creative self-efficacy index, in Ireland and at the OECD average by gender



Differences on the creative self-efficacy index can be observed when looking at students' ESCS quartile. In Ireland, students in the lowest ESCS quartile (that is the most socioeconomically disadvantaged according to this scale), on average, scored significantly lower in creative self-efficacy (-0.18) when compared to their peers in the highest ESCS quartile (the most advantaged students) who had a mean score of 0.17 on the index. Very similar mean scores were observed at the OECD average on this index.

Figure 3.2 Mean scores on the index of creative self-efficacy, in Ireland and at the OECD average by student ESCS



3.2.1.2 School DEIS status and ESCS composition

Table 3.2 shows students' scores on creative self-efficacy, by school DEIS status. Students attending DEIS schools achieved a lower mean score on the index (-0.11) than their peers attending non-DEIS schools (0.01), the difference is statistically significant, meaning students in DEIS schools report feeling less confident in engaging in creative thinking activities.

Table 3.2 Mean scores on the creative self-efficacy index, in Ireland by school DEIS status.

		Mean
DEIS Status	DEIS	-0.11
	Non-DEIS (ref. group)	0.01

*Significant differences are shown in **bold**.

The relationship between creative self-efficacy and the socioeconomic profile of a school can also be examined from an international perspective using PISA's measure of ESCS at the school-level. Figure 3.3 illustrates how in Ireland, students attending schools in the highest quartile (i.e., the most socioeconomically advantaged schools, as defined by the OECD) scored an average of 0.08 in creative self-efficacy, while those attending schools in the lowest quartile (i.e., the most socioeconomically disadvantaged schools) had a mean score of -0.07, a statistically significant difference of 0.16. Similar patterns were seen at the OECD level where a significant difference of 0.19 can be seen between the lowest and highest quartiles.

Figure 3.3 Mean scores on the creative self-efficacy index, in Ireland and at the OECD average by school ESCS



3.3 Openness to intellect

Another driver of creativity is “openness,” described as a key personality feature for fostering creativity. One PISA 2022 index is openness to intellect, which describes students’ receptiveness to abstract or complex information, especially through processes of reasoning. This index is associated with creativity in the scientific sphere (OECD, 2024).

The index was composed of students’ reports of their agreement with ten statements around their receptiveness to engaging with creativity and challenging tasks. The openness to intellect index was set to have a mean of around zero and a standard deviation of around one across OECD countries. Ireland had a mean score of -0.03 on this index, which was significantly lower than the OECD average of 0.00.

Table 3.3 shows the statements presented to students to form this index, and shows the percentages of students in Ireland, and at the OECD average, who agreed or disagreed with them.

Students in Ireland were most likely to agree with statements that linked creativity with a sense of satisfaction or novelty. For example, 81.9% of students in Ireland agreed that they found satisfaction in doing something creative, and 87.4% reported enjoying learning new things. The percentage of students agreeing with these statements is higher than at the OECD average (77.3% and 82.7%, respectively). On the other hand, students in Ireland were less likely than their OECD peers to agree with statements that linked creativity to challenge or problem-solving. For example, 60.1% of students in Ireland indicated that they could suggest several solutions to problems, compared to an OECD average of 66.7%.

Table 3.3 Percentages of students expressing agreement with the following statements:

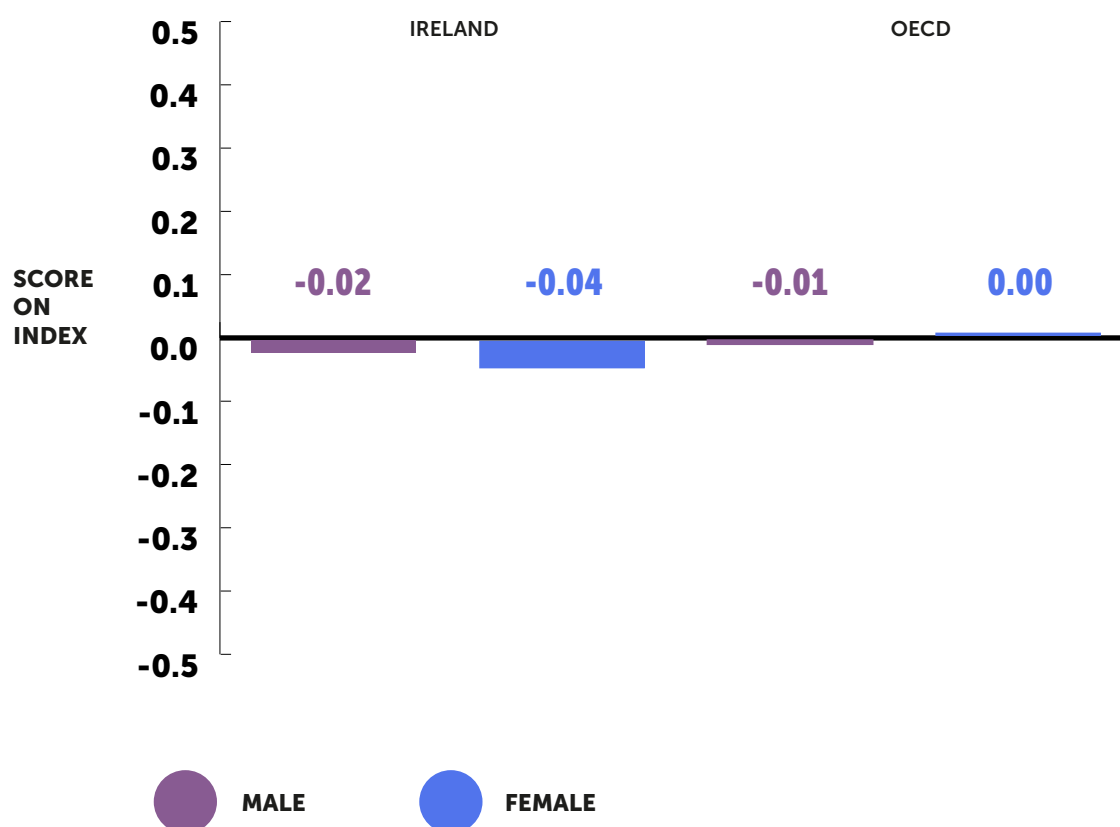
		Strongly disagree or disagree %	Strongly agree or agree %
Doing something creative satisfies me	Ireland	18.1	81.9
	OECD	22.7	77.3
I am very creative	Ireland	32.4	67.6
	OECD	35.8	64.2
I like creating stories	Ireland	41.6	58.4
	OECD	43.3	56.7
I like games that challenge my creativity	Ireland	25.0	75.0
	OECD	28.9	71.1
I enjoy projects that require creative solutions	Ireland	30.4	69.6
	OECD	33.5	66.5
I enjoy thinking about new ways to solve problems	Ireland	36.5	63.5
	OECD	31.6	68.4
I enjoy solving complex problems	Ireland	49.5	50.5
	OECD	46.8	53.2
I like school work that is challenging	Ireland	58.1	41.9
	OECD	53.1	46.9
I can suggest several solutions to problems	Ireland	39.9	60.1
	OECD	33.3	66.7
I enjoy learning new things	Ireland	12.6	87.4
	OECD	17.3	82.7

3.3.1 Findings by student and school characteristics

3.3.1.1 Student gender and ESCS

On the openness to intellect index, female students (0.00) have a very slightly higher mean score than male students (-0.01) across OECD countries, though the difference is not statistically significant. In Ireland, the difference is inverted, with male students (-0.02) having a slightly higher mean score on the scale than female students (-0.04), though again this difference is not statistically significant.

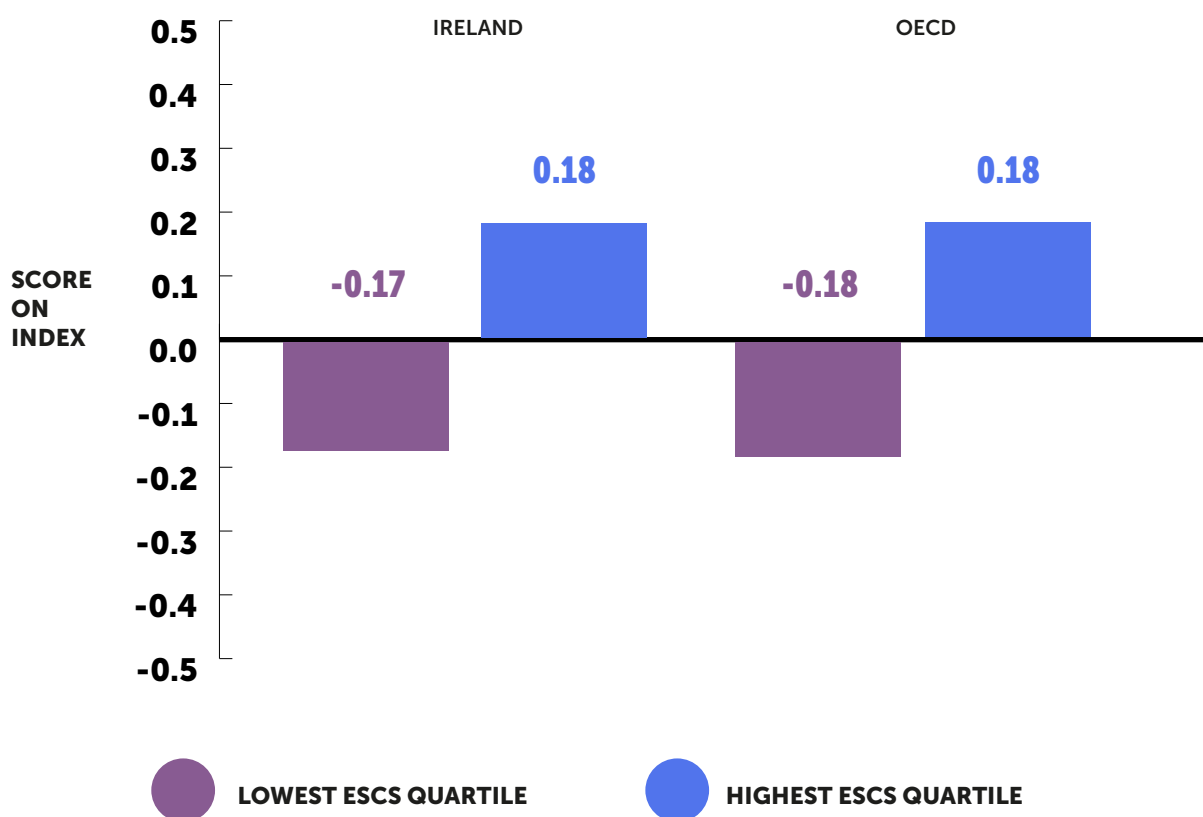
Figure 3.4 Mean scores on the openness to intellect index, in Ireland and at the OECD average by gender



Differences can be observed when looking at students' openness to intellect by their ESCS quartile. Figure 3.5 shows that in Ireland, students in the lowest ESCS quartile (that is the most socioeconomically disadvantaged according to this scale) had a lower mean score on openness to intellect (-0.17) when compared to their peers in the top ESCS quartile (the most advantaged students) who had a mean score 0.18 on the index. The difference of 0.36

on the index, is statistically significant, indicating that students from more socioeconomically advantaged backgrounds report greater levels of openness to intellect. Again, the pattern observed in Ireland was similar to that at the OECD average, where students in the top quartile had a mean score of 0.18 on the index, while those in the bottom quartile had a mean score of -0.17. This difference (0.36) is also statistically significant.

Figure 3.5 Mean scores on the openness to intellect index, in Ireland and at the OECD average by student ESCS



3.3.1.2 School DEIS status and ESCS composition

Table 3.4 shows the mean scores on the openness to intellect index according to school DEIS status. Students in DEIS schools scored an average of -0.11 on this index, and students attending non-DEIS schools scored an average of -0.01, and this difference is statistically significant, meaning students attending non-DEIS schools are more likely to report being receptive to abstract or complex information.

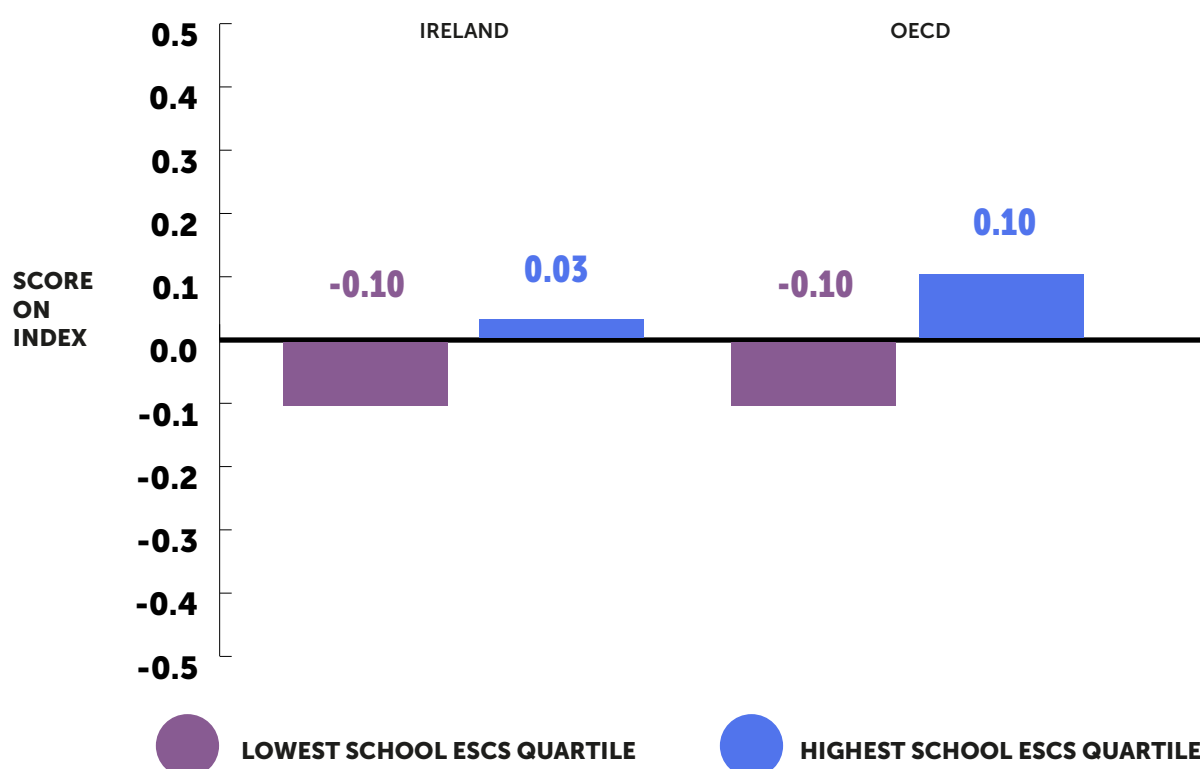
Table 3.4 Mean scores on the openness to intellect index, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	-0.11
	Non-DEIS (ref. group)	-0.01

*Significant differences are shown in **bold**.

It is also possible to examine the relationship between openness to intellect and schools' socioeconomic composition by using the PISA measure of ESCS at the school-level. Using this measure, Figure 3.6 shows a significant difference in the mean scores of students attending schools in the highest ESCS quartile compared to those attending schools in the lowest ESCS quartile both in Ireland and on average across OECD countries. In Ireland, students attending schools in the highest quartile (most advantaged socioeconomic background) had a mean score of 0.03 in openness to intellect, while those attending schools in the bottom quartile (most disadvantaged socioeconomic background) had a mean score of -0.10, a statistically significant difference of 0.14. A similar but somewhat wider gap was seen at the OECD level. This indicates that students attending the most socioeconomically advantaged schools report greater openness to intellect than those attending the most disadvantaged schools.

Figure 3.6 Mean scores on the openness to intellect index, in Ireland and at the OECD average by school ESCS



3.4 Openness to art and experience

Another index, related to openness, is the index of openness to art and experience. This index measures students' willingness to engage with imagination, new ideas and fantasy. The index incorporates both cognitive elements (such as imagination) and behavioural elements (such as adventurousness).

The index was composed of students' rating of their agreement with five statements around their receptivity to engaging with art, imagination and adventure. The openness to art and experience index is set to have a mean of about zero and a standard deviation of one across OECD countries. On this index, Ireland had a mean of 0.03, which was not significantly different from the OECD average of -0.01.

When responding to the statements associated with this index (see Table 3.5), students in Ireland were more likely than their OECD peers to agree that they enjoy creating art (56.1% and 49.4%, respectively), and enjoy artistic activities (57.4% and 54.0%, respectively). However, when asked whether they agreed that they expressed themselves through art, a lower percentage of students in Ireland agreed (30.2%) than at the OECD average (35.5%). Similarly, students in Ireland were less likely to agree that they reflect on movies they watch compared to the average across OECD countries (59.9% and 69.9%, respectively).

Table 3.5 Percentages of students expressing agreement with the following statements:

		Strongly disagree or disagree %	Strongly agree or agree %
I enjoy creating art	Ireland	43.9	56.1
	OECD	50.6	49.4
I enjoy artistic activities	Ireland	42.6	57.4
	OECD	46.0	54.0
I express myself through art	Ireland	69.8	30.2
	OECD	64.5	35.5
I reflect on movies I watch	Ireland	40.1	59.9
	OECD	30.1	69.9
I see beauty in everyday things	Ireland	32.9	67.1
	OECD	34.3	65.7

3.4.1 Findings by student and school characteristics

3.4.1.1 Student gender and ESCS

Female students reported significantly higher levels of openness to art and experience than their male peers in Ireland and at the OECD average. In Ireland, female students had an average of 0.30 on the index, compared to -0.23 scored by male students. The difference of -0.52 is statistically significant. Similarly, at the OECD level, there was a statistically significant difference of -0.46 points on the index.

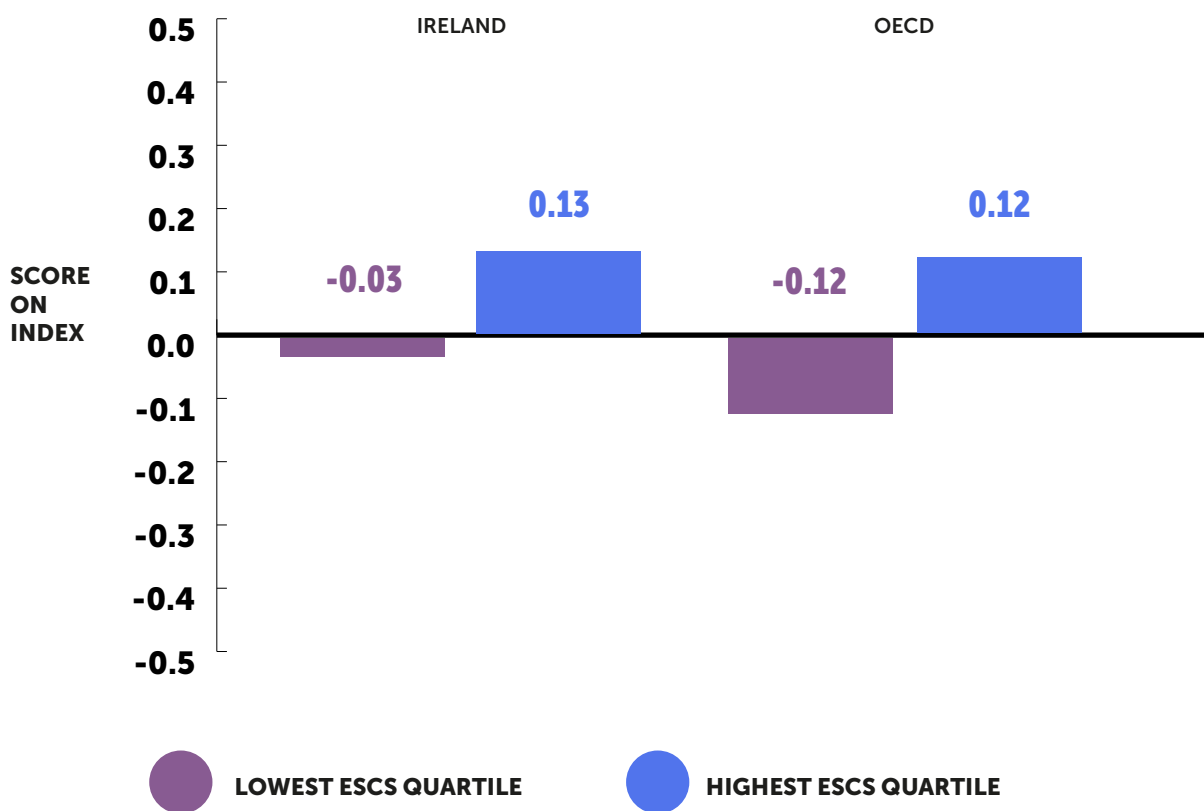
Figure 3.7 Mean scores on the openness to art and experience index, in Ireland and at the OECD average by gender



Differences on the index of openness to art and experience can be observed when looking at students' socioeconomic status. In Ireland, students in the lowest quartile of PISA's measure of ESCS (that is the most socioeconomically disadvantaged according to this scale) reported lower levels of openness to art and experience (-0.03) when compared to their peers in the highest ESCS quartile (the most advantaged students)

who scored 0.13 on the index. The difference of 0.16 between the highest and lowest quartiles on the index, though lower than the differences on other indices in this chapter, nevertheless is statistically significant. It is also lower than the gap between the highest and lowest quartiles at the OECD average (0.24).

Figure 3.8 Mean scores on the openness to art and experience index, in Ireland and at the OECD by student ESCS



3.4.1.2 School DEIS status and ESCS composition

Table 3.6 shows the average score of students on the openness to art and experience index, according to their school DEIS status. On this index, there was no significant difference between the means for students in DEIS and non-DEIS schools.

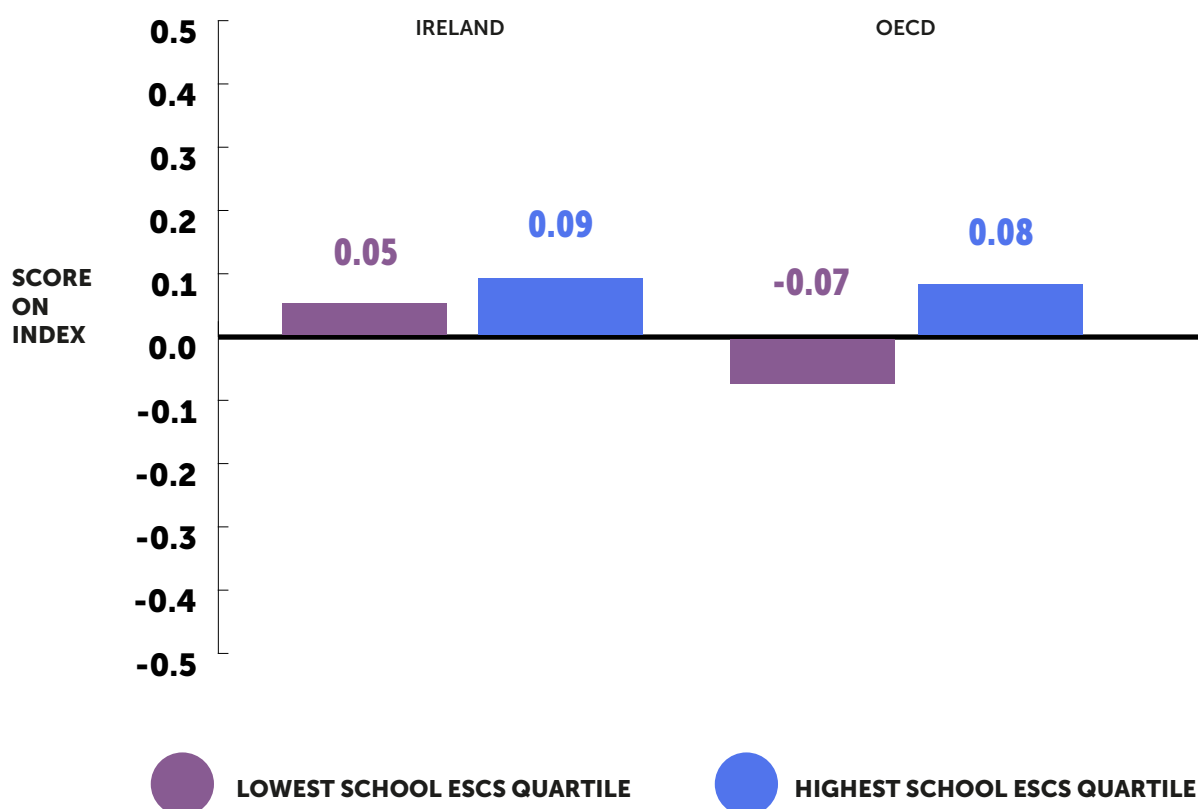
Table 3.6 Mean scores on the openness to art and experience index, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	0.03
	Non-DEIS (ref. group)	0.03

*Significant differences are shown in **bold**.

Looking at the openness to art and experience index by ESCS at the school-level, Figure 3.9 shows the difference between the highest and lowest quartiles on the school-level ESCS index in Ireland and the OECD average. In Ireland, there is no significant difference between mean scores of those in the highest (0.09) and the lowest quartiles (0.05), while at OECD level the difference between the most disadvantaged and most advantaged schools is a statistically significant 0.15 points on the index, meaning students in the most advantaged schools report being more open to art and creative experiences.

Figure 3.9 Mean scores on the openness to art and experience index, in Ireland and at the OECD average by school ESCS



3.5 Imagination and adventurousness

The final index examined in this chapter is the imagination and adventurousness index. This index includes cognitive and behavioural elements that are associated with divergent thinking. Divergent thinking is in opposition to convergent thinking and refers to the capacity to think of original ideas, make connections between different elements of thought, allowing students to examine problems with a novel viewpoint and bring forward new ways of thinking (OECD, 2024).

Students were asked to rate their agreement with seven statements associated with imagination, spontaneity and interest (see Table 3.7 for these statements). The data from these statements were combined to make the index of imagination and adventurousness, with a mean of about zero and a standard deviation of one across OECD countries. On this index, Ireland had a mean score of 0.03, which was not significantly different from the OECD average of -0.01.⁸

Table 3.7 outlines the statements students were asked to indicate their level of agreement or disagreement to make up the index of imagination and adventurousness. When compared to the OECD average, students in Ireland were more likely to report that they often get lost in thought (78.6% in Ireland, 73.1% at OECD average), or that they have a good imagination (79.8% in Ireland compared to 74.2% at the OECD average). Students in Ireland also seemed more open to enjoying novelty than their OECD peers. In Ireland, 77.7% of students agreed that they would get bored doing the same thing every day, compared to 73.1% at OECD level, while 93.9% expressed a desire to travel to places they had never been, compared to 88.4% at OECD level.

8. No data was available on this index for six OECD countries (Germany, Belgium, Mexico, Norway, Switzerland and Spain).

Table 3.7 Percentages of students expressing agreement with the following statements:

		Strongly disagree or disagree %	Strongly agree or agree %
I have difficulty using my imagination	Ireland	75.9	24.1
	OECD	73.2	26.8
I often get lost in thought	Ireland	21.4	78.6
	OECD	26.9	73.1
Coming up with new ideas is satisfying to me	Ireland	25.7	74.3
	OECD	25.9	74.1
I have a good imagination	Ireland	20.2	79.8
	OECD	25.8	74.2
I would get bored doing the same thing every day	Ireland	22.3	77.7
	OECD	26.9	73.1
I like to be spontaneous	Ireland	31.5	68.5
	OECD	29.4	70.6
I would like to travel to places I have never been	Ireland	6.1	93.9
	OECD	11.6	88.4

3.5.1 Findings by student and school characteristics

3.5.1.1 Student gender and ESCS

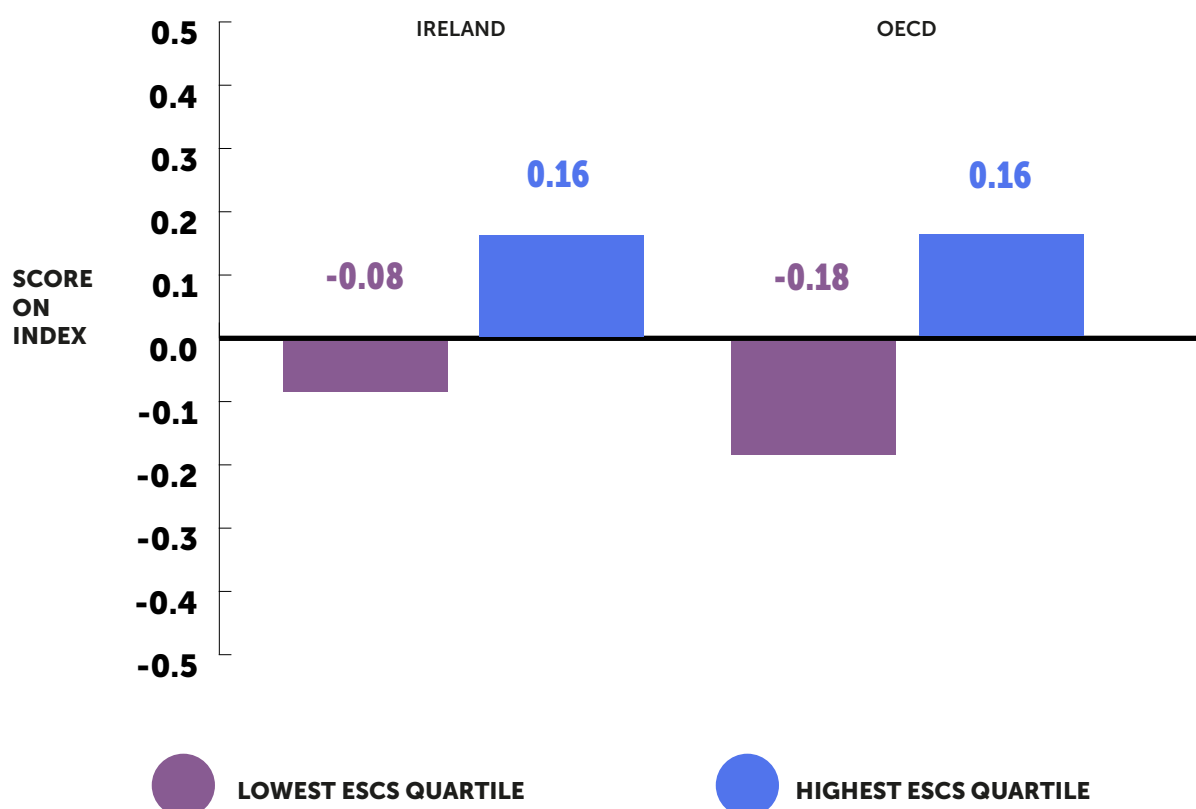
On average, female students reported significantly greater levels of adventurousness and use of imagination than their male counterparts, both in Ireland and across OECD countries (Figure 3.10). The difference between the mean scores of male and female students on this index is slightly narrower in Ireland (-0.23) than at the OECD average (-0.29).

Figure 3.10 Mean scores on the imagination and adventurousness index, in Ireland and at the OECD average by gender



Differences between socioeconomic groups can be observed on the imagination and adventurousness index. In Ireland, students in the lowest ESCS quartile (that is the most disadvantaged group according to PISA's scale of socioeconomic status) reported significantly lower levels of adventurousness and use of imagination (-0.08) when compared to their peers in the highest ESCS quartile (the most advantaged students) who had a mean score of 0.16 on the index. A similar pattern is observed at the OECD average, although the difference between those in most and least advantaged groups on the index of imagination and adventurousness is larger than in Ireland.

Figure 3.11 Mean scores on the imagination and adventurousness index, in Ireland and at the OECD average by student ESCS



3.5.1.2 School DEIS status and ESCS composition

Table 3.8 shows how students in DEIS schools and non-DEIS schools performed on the imagination and adventurousness index. Students in DEIS schools had an average score of -0.03 on this index, while students in non-DEIS schools had an average score of 0.04. The difference is statistically significant on this index, indicating that students in DEIS schools, on average, reported slightly lower levels of adventurousness and use of imagination than those in non-DEIS schools.

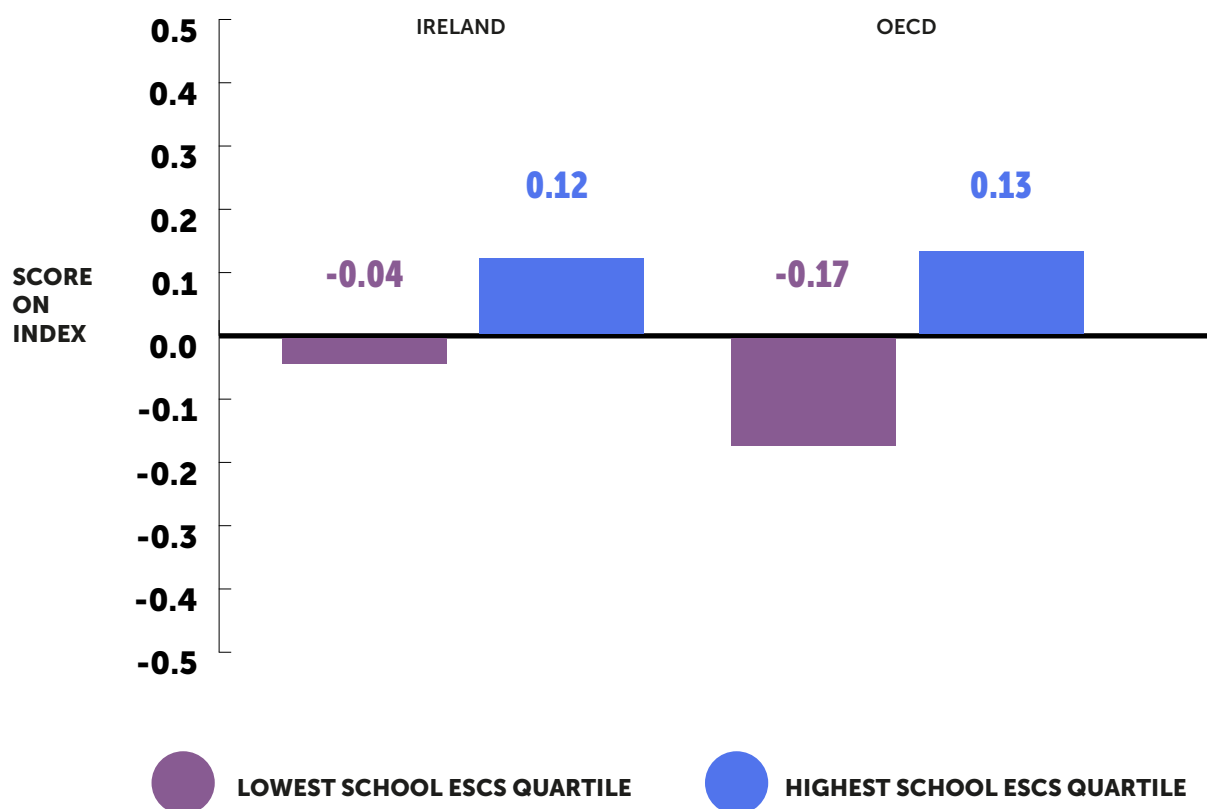
Table 3.8 Mean scores on the imagination and adventurousness index, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	-0.03
	Non-DEIS (ref. group)	0.04

*Significant differences are shown in **bold**.

Looking at the imagination and adventurousness index by ESCS quartile at the school-level, where schools are separated into quartiles according to the average ESCS score of their students, a significant difference in the mean scores of students attending schools in the highest ESCS quartile can be observed compared to those attending schools in the lowest ESCS quartile both in Ireland and at the OECD average (Figure 3.12). In Ireland, students attending schools with the greatest levels of socioeconomic disadvantage, reported significantly lower levels of adventurousness and use of imagination than their counterparts in the most socioeconomically advantaged schools (-0.04 and 0.12, respectively). The difference between these groups was narrower in Ireland than at the OECD average.

Figure 3.12 Student scores on the imagination and adventurousness index, in Ireland and the OECD average by school ESCS



3.6 Summary

This chapter examined students' attitudes and beliefs with regard to creativity, creative activities and creative thinking processes, looking at four key indices. On average, students in Ireland did not differ from their OECD peers in terms of their self-efficacy related to creativity, their openness to art and experience, or their imagination or adventurousness. On the other hand, students in Ireland were, on average, significantly less likely to report being open to intellect than at the OECD average.

The highest scoring statements for students in Ireland on the creative self-efficacy index related to having confidence in interpersonal situations. On the openness to intellect index, students in Ireland expressed higher rates of agreement than at the OECD average on statements that linked creativity with a sense of satisfaction or novelty, but lower than the average level when it came to statements that linked creativity to challenge or problem-solving. This sense of enjoyment was also evident in the openness to art and experience index data, where students in Ireland scored higher than the OECD average on statements expressing enjoyment in creating art and engaging in artistic activities. The imagination and adventurousness index indicated that students in Ireland favoured novelty and variety, as well as a desire to visit new places.

In terms of gender differences, female students had a higher mean score on the creative self-efficacy, openness to art and experience, and the imagination and adventurousness indices both in Ireland and on average across OECD countries. There was no significant gender difference between male and female students on the openness to intellect index. The largest gender difference in Ireland and across the OECD, on average, was evident in the openness to art and experience index, meaning female students tended to report being more open to art and creative experiences than their male peers, on average.

Looking at socio-economic status, when comparing the most socioeconomically advantaged students with those from the most disadvantaged backgrounds across all four indices, students in the top quartile had higher mean scores than those in the lowest quartile in Ireland. This difference is most pronounced in the creative self-efficacy index and the openness to intellect index, meaning the most socioeconomically advantaged students tended to report higher levels of self-efficacy and being more receptive to abstract or complex information.

Examining ESCS at school level, where differences are observed between students attending the most socioeconomically advantaged schools and those attending the most disadvantaged schools, they are smaller than differences observed at student level, but were statistically significant in most cases.

At the school level, students in DEIS schools differed in their mean scores on three of the four indices when compared to their peers attending non-DEIS schools. A small difference was found on the imagination and adventurousness index in favour of students in non-DEIS schools, meaning students in non-DEIS schools were more likely to report using their imagination, being open to spontaneity, and engaging in divergent thinking. Differences were also found on the self-efficacy and openness to intellect indices, meaning that students attending DEIS schools were less likely to report feeling confident in engaging in creative activities, and not as likely to report being receptive to abstract or complex information as students attending non-DEIS schools.

4. CHAPTER FOUR

– Creativity in schools



4.1 Introduction

This chapter looks at students' experiences of creativity within their school environment. In particular, students reported their views on how creativity is fostered and supported in their schools and classrooms, as well as their participation rates in creative activities at school. Separately through the School Questionnaire, principals also answered questions about the extent to which creative pedagogies are supported in their school, their views on the openness of their students to creativity and engaging with abstract or complex reasoning, as well as the creative activities that were available to students in their schools.

The following sections present the findings for five indices: students' perceptions of creative pedagogies in their school and classes, principals' perceptions of creative pedagogies in their school, principals' perceptions of their students' openness to intellect and art, availability of (school principal reports) and participation in (students reports) activities related to creativity in school. Each of these indices is examined in relation to student gender and socioeconomic status, as well as the socioeconomic composition, the sector/gender composition and the DEIS status of their schools and comparisons are made between the outcomes for Ireland and at the OECD average.

In PISA, student socioeconomic status is measured using the index of Economic, Social and Cultural Status (ESCS) which is based on students' reports of their parents' occupation and highest level of education, as well as home possessions which is a proxy for family wealth. This index can be used to order students from the most socioeconomically disadvantaged to the most advantaged within each country. Students are grouped into four quartiles (or groups, each comprising of 25% of the students) and those in the lowest quartile are defined as those who are experiencing the greatest levels of socioeconomic disadvantage within a country or economy, while those in the highest quartile are the most socioeconomically advantaged. The socioeconomic composition of a school can also be measured by calculating the average ESCS score of students within a school. Similarly, students in the lowest quartile of school-average ESCS attend schools with the highest concentrations of students experiencing socioeconomic disadvantage, while those in the highest quartile attend schools with the greatest concentrations of socioeconomic advantage.

Schools in Ireland can also be classified according to their sector (i.e., secondary, community/comprehensive or ETB schools) and gender composition (all girls'-, all boys'-, and mixed-gender schools). As the vast majority of community/comprehensive and Educational Training Board (ETB) schools are mixed-gender schools, only secondary schools are further classified according to their gender composition in this report. Altogether, five categories of schools are described: girls' secondary, boys' secondary, mixed secondary, community/comprehensive and ETB schools.

As noted in previous chapters, the number of OECD countries that collected data for each index may vary. Where a country did not collect data for a particular index, this is noted under the relevant tables.

4.2 Creative pedagogies at school

Students were asked to rate their agreement with six statements about the degree to which creative pedagogies are fostered in their school and class environment (Table 4.1).

Students in Ireland were most likely to agree that their teachers encouraged them to come up with original answers in the classroom (75.1%) or that they valued students' creativity (75.1%). The percentages of students in Ireland agreeing with these statements were higher than the corresponding OECD averages. On the other hand, students in Ireland were slightly less likely than their OECD peers to agree that their mathematics assignments require them to come up with different solutions for a problem (60.9% and 62.5%, respectively).

Table 4.1 Percentages of students reporting their level of agreement with various statements related to how creative thinking was fostered in school, in Ireland and at the OECD* average

		Strongly disagree/ disagree %	Strongly agree/ agree %
My teachers give me enough time to come up with creative solutions on assignments	Ireland	30.2	69.8
	OECD	37.5	62.5
My teachers value students' creativity	Ireland	24.9	75.1
	OECD	29.9	70.1
The activities we do in my classes help me think about new ways to solve problems	Ireland	35.5	64.5
	OECD	37.5	62.5
My mathematics assignments require me to come up with different solutions for a problem	Ireland	39.1	60.9
	OECD	37.5	62.5
My teachers encourage me to come up with original answers	Ireland	24.9	75.1
	OECD	36.3	63.7
At school, I am given a chance to express my ideas	Ireland	28.6	71.4
	OECD	30.7	69.3

* Japan, Sweden and the United States did not collect data for this index and therefore are not included in the OECD average scores.

An index of students' perceptions of creative pedagogies was created by combining the responses of students across these questions. The index was set to have a mean of zero and a standard deviation of one across the thirty-four OECD countries that collected data.

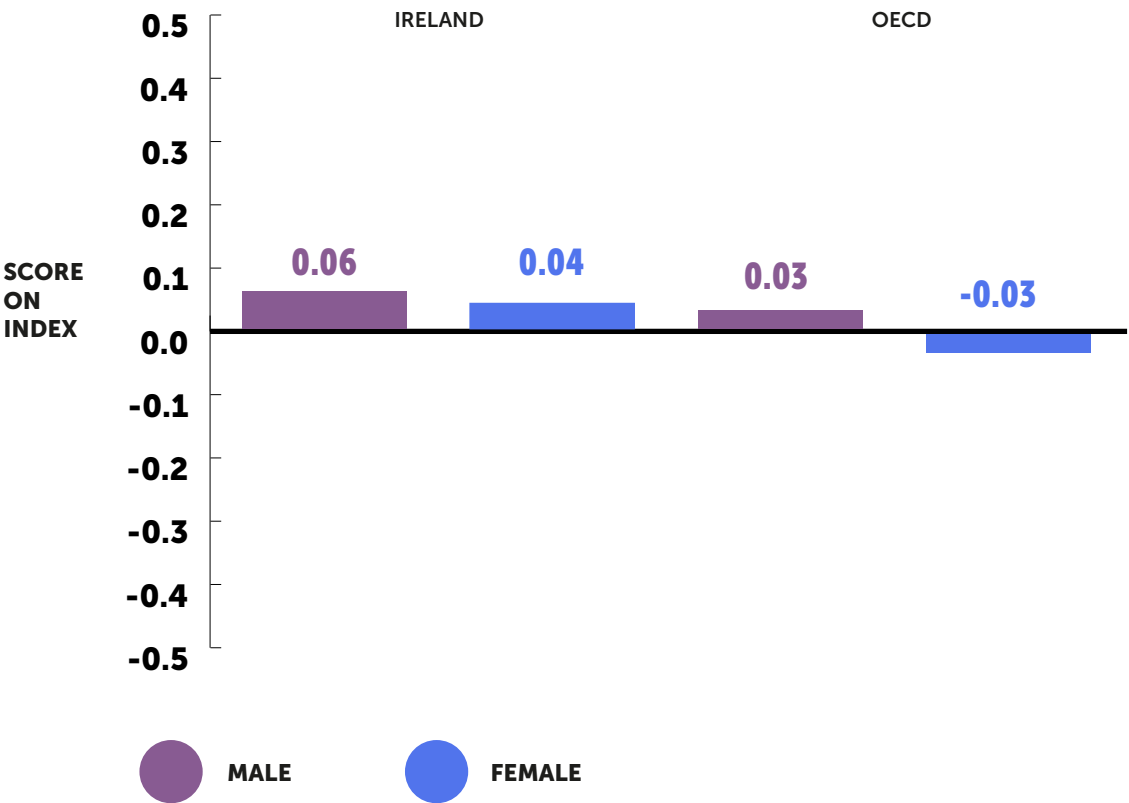
The mean score for Ireland on this index is 0.05 which is significantly higher than the OECD average of 0.00. This indicates that, on average, students in Ireland feel creative thinking is fostered and supported in their schools to a greater extent than their peers in participating OECD countries.

4.2.1 Findings by student and school characteristics

4.2.1.1 Student gender and ESCS

Male and female students in Ireland had similar mean scores on the index of students' perceptions of creative pedagogies (Figure 4.1), indicating that there is no gender difference in students' perception of support for creative thinking within their schools. On the other hand, on average across OECD countries, male students were significantly more likely than female students to report that creative thinking is fostered and supported in their schools and classrooms.

Figure 4.1 Mean scores on the index of students' perception of creative pedagogies, in Ireland and at the OECD average by gender



In Ireland, socioeconomically advantaged students (i.e., those in the highest quartile of PISA's index of ESCS) had a higher mean score on the index of students' perceptions of creative pedagogies (0.10) than those on the lowest quartile (0.04), although the difference was not statistically significant (Table 4.2). This indicates that, on average, students from the most and least advantaged backgrounds did not differ in terms of their perceptions of their schools' support for creative thinking. At the OECD average, there was a very small, but statistically significant difference, between the mean scores of those in the highest ESCS quartile (0.00) and those in the lowest quartile (-0.02).

Table 4.2 Mean score on the index of students' perceptions of creative pedagogies, in Ireland by student ESCS

	Ireland Mean	OECD Mean
Lowest ESCS quartile (ref. group)	0.04	-0.02
Highest ESCS quartile	0.10	0.00

*Significant differences are shown in **bold**.

4.2.1.2 School DEIS status, ESCS, and school sector/gender composition

The mean score of students in DEIS schools on the index of students' perceptions of creative pedagogies did not differ significantly from that of students in non-DEIS schools (0.07 and 0.04, respectively), indicating that, on average, students in DEIS and non-DEIS schools held similar beliefs about how creative thinking was fostered and supported in their school and class environment (Table 4.3).

Table 4.3 Mean score on the index of students' perceptions of creative pedagogies, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	0.07
	Non-DEIS (ref. group)	0.04

*Significant differences are shown in **bold**.

Using PISA's measure of ESCS at the school level provides an international perspective on the relationship between schools' socioeconomic composition and students' perception of creative pedagogies in their school. In Ireland, no significant difference was found between the mean scores of students in the lowest and highest school-average ESCS quartiles (Figure 4.2). This means that, on average, students attending schools with the highest concentrations of socioeconomic disadvantage (i.e., those in the lowest ESCS quartile) did not differ from those attending the most advantaged schools in terms of their perception of how much creative thinking was supported in their schools. On the other hand, a significant difference is noted at the OECD average, with students attending socioeconomically advantaged schools reporting, on average, lower levels of support for creative thinking in their schools and classes than their peers in socioeconomically disadvantaged schools.

Figure 4.2 Mean scores on the index of students' perceptions of creative pedagogies, in Ireland and the OECD average by school average ESCS

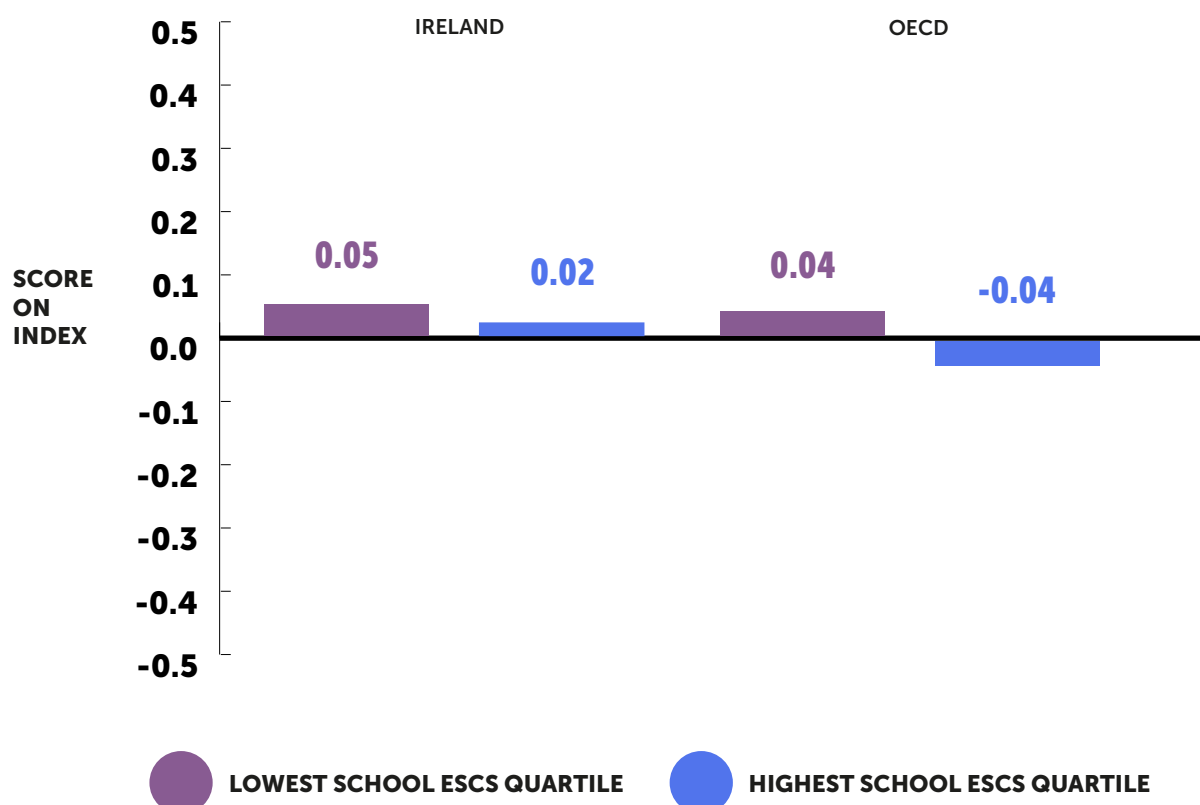


Table 4.4 presents the mean scores of students on the index of students' perceptions of creative pedagogies according to the sector and gender composition of their school. No significant difference is noted between the mean scores of students in girls' secondary schools (our reference group) and those attending any other school type. This suggests that students attending different types of schools in Ireland perceive similar levels of support for creative thinking within their school.

Table 4.4 Mean scores on the index of students' perceptions of creative pedagogies, in Ireland by school sector/gender composition

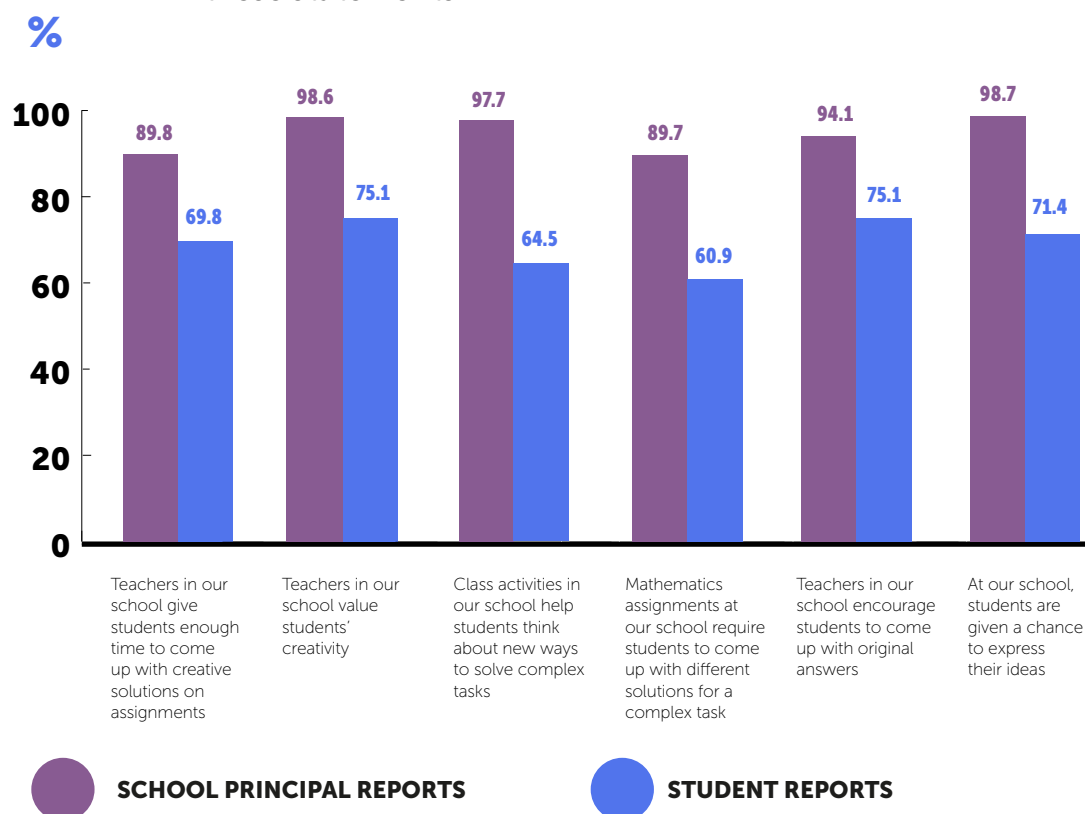
		Mean
School type	Girls' secondary (ref. group)	0.01
	Boys' secondary	0.08
	Mixed secondary	0.06
	Community/ comprehensive	0.00
	ETB vocational	0.07

*Significant differences are shown in **bold**.

4.2.2 Principals reports on creative pedagogies at school

School principals were also asked to rate their agreement with six statements, similar to those presented to students about how much creative thinking is fostered and supported in their school. In Ireland, agreement was high across all six statements, with about 90% or more of students having principals who either agreed or strongly agreed with each statement. Furthermore, school principals generally held more positive views about creative pedagogies in their school than students did (Figure 4.3). Among school principals in Ireland, agreement was almost universal that students in their school are given a chance to express themselves (98.7%), that teachers in the school value creativity (98.6%), and that class activities help students think of new ways to solve complex problems (97.7%).

Figure 4.3 Percentages of students whose school principals agreed or strongly agreed with various statements about creative pedagogies in the school compared to the percentages of students who themselves agreed or strongly agreed with these statements



Principals' responses were combined into a single index of principals' perceptions of creative pedagogies in their school. This index was set to have a mean of about zero and a standard deviation of about one across all OECD countries that collected data. Ireland's mean score on this index (0.13) is significantly higher than the corresponding OECD average (-0.09), indicating that students in Ireland are more likely than their OECD peers to attend schools where creative pedagogies are fostered.

While students in non-DEIS schools had a higher mean score on the index of principals' perceptions of creative pedagogies than those in non-DEIS schools, the difference was not statistically significant (Table 4.5). Students in girls' secondary schools were most likely to have principals who held a positive view of creative pedagogies, significantly higher than those in mixed secondary and community/comprehensive schools.

Table 4.5 Mean score on the index of principals' perceptions of creative pedagogies, in Ireland by DEIS status and school sector/gender composition

		Mean
DEIS Status	DEIS	-0.04
	Non-DEIS (ref. group)	0.18
School type	Girls' secondary (ref. group)	0.60
	Boys' secondary	0.22
	Mixed secondary	-0.15
	Community/ comprehensive	-0.20
	ETB vocational	0.11

*Significant differences are shown in **bold**.

4.3 Schools' openness to intellect and art

School principals were also asked to rate their agreement with nine statements about their students' creativity as well as their receptivity to engaging with abstract or complex information (Table 4.6). In general, principals in Ireland reported very positive views about their students' openness to creativity and intellect. Over 95% of students in Ireland attend schools where the principal agreed that students perform well when given the freedom to be creative while 100% of students' principals agreed that their students enjoy learning new things. Similarly, over 90% of students in Ireland attend schools where the principal agreed that students are imaginative (91.2%), are able to think of new ideas (91.2%), enjoy doing creative projects (92.0%) and enjoy work that is challenging (92.4%). Students in Ireland were considerably more likely than their OECD peers to have principals who agreed with each of these statements.

Table 4.6 Percentages of students whose principals reported their level of agreement with various statements related to the schools' openness to intellect and art, in Ireland and at the OECD* average

		Strongly disagree /disagree %	Strongly agree /agree %
Most students at my school are creative	Ireland	10.1	89.9
	OECD	23.1	76.9
Most students at my school enjoy doing creative projects	Ireland	8.0	92.0
	OECD	21.6	78.4
Most students at my school perform well when given the freedom to be creative	Ireland	4.3	95.7
	OECD	15.0	85.0
Most students at my school enjoy work that is challenging	Ireland	7.6	92.4
	OECD	27.9	72.1
Most students at my school enjoy learning new things	Ireland	0.0	100.0
	OECD	11.4	88.6
Most students at my school perform well when given complex problems to solve	Ireland	15.8	84.2
	OECD	40.9	59.1
Most students at my school are artistic	Ireland	52.1	47.9
	OECD	53.9	46.1
Most students at my school are imaginative	Ireland	8.8	91.2
	OECD	21.8	78.2
Most students at my school are able to think of many new ideas	Ireland	8.8	91.2
	OECD	21.9	78.1

* Japan, Norway, Sweden, and the United States did not collect data for this index and therefore are not included in the OECD average scores

School principals' responses were combined into an index of principals' perceptions of their schools' openness to intellect and art. This index was set to have a mean of about zero and a standard deviation of about one across the OECD countries that collected data. Ireland's mean score on this index (0.57) is significantly above the corresponding OECD average score (0.04) indicating that students in Ireland are more likely than their OECD counterparts to have principals who hold positive views about their students' openness to creativity and intellect.

4.3.1 Findings by school characteristics

Students in DEIS schools had a similar mean score to those in non-DEIS schools on the index of principals' perceptions of students' openness to intellect and art (Table 4.7). This means that students in DEIS and non-DEIS schools had principals who rated the creativity and openness of their students to engaging with abstract or complex information at about the same level.

On the other hand, some differences emerge when examining principals' perceptions of their students' openness to intellect and art according to the sector and gender composition of the school. Students in girls' secondary schools had the highest mean score on this index (0.94), significantly higher than mean scores of students in mixed secondary or community/comprehensive schools. This indicates that students in girls' secondary schools, on average, had principals who reported the most positive views of students' openness to intellect and art.

Table 4.7 Mean score on the index of principals' perceptions of openness to intellect and art, in Ireland by DEIS status and school sector/gender composition

		Mean
DEIS Status	DEIS	0.59
	Non-DEIS (ref. group)	0.57
School type	Girls' secondary (ref. group)	0.94
	Boys' secondary	0.49
	Mixed secondary	0.38
	Community/ comprehensive	0.46
	ETB vocational	0.55

*Significant differences are shown in **bold**.

4.4 Activities related to creativity in schools

School principals were presented with a list of eight activities and asked to indicate how often these were offered to students in the school. Students were also asked how often they engaged in the same activities within their schools.

Table 4.8 presents the percentages of students whose school principal reported how often various activities are offered in the school. For each activity, the percentages of students attending schools where the activity was not available is greater at the OECD average than in Ireland. In particular, 21.0% of students across OECD countries attended schools that did not offer a debate club, compared to 2.2% in Ireland. The activities that students in Ireland have the most frequent access to are art activities (such as painting and drawing) and music activities (such as a choir or band), with 83.8% and 81.6% (respectively) of students attending schools where these activities are offered at least once or twice a week. Students in Ireland were least likely to have access to science clubs, with 26.9% of students attending schools where these were either not, or rarely available.

Table 4.8 Percentages of students whose school principals reported the frequency with which their school offers various extracurricular activities to students, in Ireland and at the OECD* average

		Never or almost never	About once or twice a year	About once or twice a month	At least once or twice a week	Not available at school
		%	%	%	%	%
Art classes/activities (e.g. painting, drawing)	Ireland	8.2	3.4	2.4	83.8	2.2
	OECD	11.7	9.1	7.3	64.9	7.0
Creative writing class- es/activities	Ireland	8.9	14.6	18.5	53.2	4.8
	OECD	16.3	19.8	22.0	29.7	12.2
Music classes/ activities (e.g. choir, band)	Ireland	4.1	4.8	8.2	81.6	1.3
	OECD	16.3	8.0	8.3	59.1	8.4
Debate club	Ireland	6.2	16.9	32.7	42.0	2.2
	OECD	29.0	19.5	15.3	15.2	21.0
Dramatics, theatre class/activities	Ireland	11.0	17.7	24.6	42.0	4.6
	OECD	23.6	16.3	11.1	35.2	13.8
Publications (e.g. Newspaper, literary magazine)	Ireland	10.9	39.9	26.0	19.0	4.2
	OECD	26.9	29.9	15.2	11.4	16.6
Science club	Ireland	20.4	19.2	19.3	34.6	6.5
	OECD	31.8	11.4	13.4	24.1	19.2
Computer programming classes/activities	Ireland	14.5	7.4	13.5	55.3	9.3
	OECD	19.9	10.5	14.2	41.7	13.7

* New Zealand and Canada did not collect data for this index and therefore are not included in the OECD average scores.

School principals' responses to these items were combined to create an overall index of creative activities that are offered to students. This index was set to have a mean of zero and a standard deviation of one across all OECD countries that collected data. The mean score for Ireland on this index (0.63) is significantly above the corresponding OECD average (0.00), indicating that, on average, students in Ireland have greater access to creative activities at school than their OECD peers. Just two other OECD countries (the United Kingdom and Australia) reported higher levels of access to creative activities in schools.

On average, students in DEIS schools had access to about the same level of creative activities at school as students who attended non-DEIS schools, with no significant difference observed between the mean scores of the two groups of students on this index (Table 4.9). On the other hand, students in girls' secondary schools, on average, reported the highest levels of access to creative activities at school (as reported by school principals), significantly greater than their peers in boys' secondary school (who reported the lowest levels of access, on average) but not significantly different from students in the other school types.

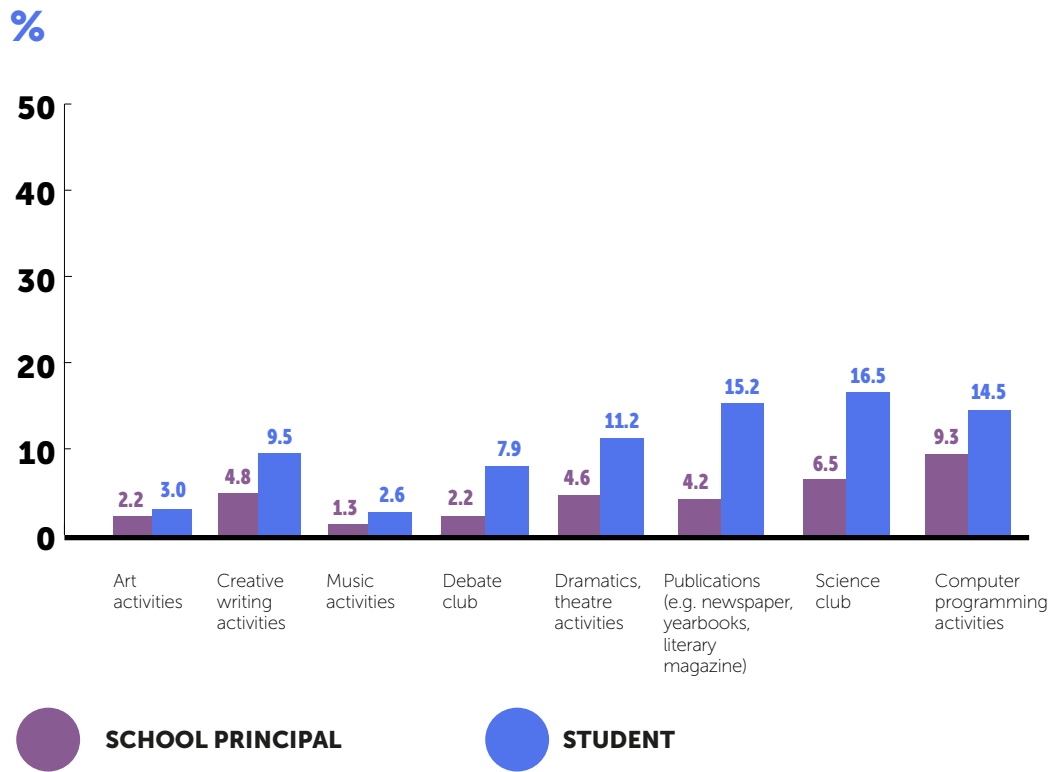
Table 4.9 Mean score on the index of creative activities offered at school, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	0.69
	Non-DEIS (ref. group)	0.62
School type	Girls' secondary (ref. group)	0.85
	Boys' secondary	0.26
	Mixed secondary	0.62
	Community/ comprehensive	0.83
	ETB vocational	0.62

*Significant differences are shown in **bold**.

There was, however, some variation between school principals' and students' reports about which activities were available within the school. For each activity, students were more likely than school principals to report that the activity was not available in their school, particularly so for science clubs and publication activities (Figure 4.4). For science clubs, 6.5% of students had principals who reported that these were not available compared to 16.5% of students indicating that this was the case in their school. Similarly, 4.2% of students' principals indicated that publication activities were not available in their school, while 15.2% of students reported that this was the case. The discrepancies between students' and principals' reports may in some part be due to lower awareness among students about these activities in their school.

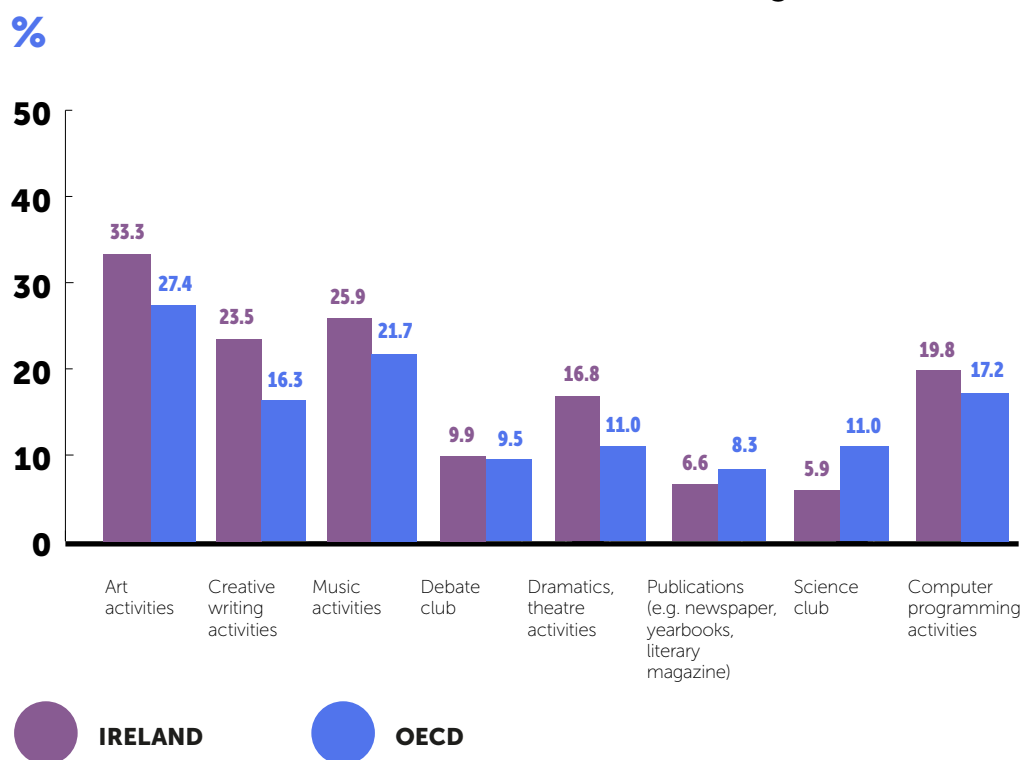
Figure 4.4 Percentages of students whose school principals indicated that various creative activities were not available in their school, compared to the percentages of students who themselves reported that this was the case



Students' reports of how often they participate in the eight activities related to creativity in school were combined into a single index that was set to have a mean of zero and a standard deviation of one across all participating OECD countries. Ireland's score on the index (0.09) is significantly higher than the OECD average score (0.00) indicating that students in Ireland participate in creative activities in school to a greater extent than their OECD peers.

The activities that students in Ireland report participating in most regularly (i.e., on at least a weekly basis) correspond with principals' reports of the activities that students have most frequent access to. Specifically, students in Ireland are most likely to participate in art (33.3%) and music (25.9%) activities on at least a weekly basis and are more likely to do so than their OECD peers (Figure 4.5). Students in Ireland are somewhat less likely than on average across OECD countries to regularly participate in a science club (5.9% and 11.0%, respectively) or publication activities (6.6% and 8.3%, respectively).

Figure 4.5 Percentages of students reporting that they participated in various creative activities in school on at least a weekly basis, in Ireland and at the OECD* average



* Japan, Sweden and the United States did not collect data for this index and therefore are not included in the OECD average scores.

4.4.1 Findings by student and school characteristics

4.4.1.1 Student gender and ESCS

In Ireland, female students were significantly more likely than male students to report engaging in creative activities at school (Table 4.10). While the opposite can be seen at the OECD average, where male students across the OECD were significantly more likely to engage in creative activities in school than female students, although the gap was considerably narrower.

Table 4.10 Mean scores on the index of participation in creative activities in school, by student gender in Ireland and at the OECD average *(based on students' reports)*

		Ireland Mean	OECD Mean
Gender	Female	0.18	-0.03
	Male (ref. group)	0.00	0.03

*Significant differences are shown in **bold**.

In Ireland, students experiencing the highest levels of socioeconomic advantage (i.e., those in the highest ESCS quartile) were significantly more likely to report engaging in creative activities in school than those experiencing the most socioeconomic disadvantage (0.18 and 0.00, respectively). On average across OECD countries, no significant difference was observed between students in the highest and lowest socioeconomic quartiles in terms of their reported participation in creative activities in schools (Table 4.11).

Table 4.11 Mean scores of students on the index of student participation in creative activities inside of school, in Ireland and OECD by student ESCS

		Ireland Mean	OECD Mean
Student ESCS	Lowest ESCS quartile (ref. group)	0.00	0.00
	Highest ESCS quartile	0.18	0.00

*Significant differences are shown in **bold**.

4.4.1.2 School DEIS status, ESCS, and school sector/gender composition

On average, students in DEIS and non-DEIS schools reported very similar levels of participation in creative activities at school (Table 4.12).

Table 4.12 Mean scores on the index of participation in creative activities at school, in Ireland by school DEIS status

		Mean
DEIS Status	DEIS	0.09
	Non-DEIS (ref. group)	0.09

*Significant differences are shown in **bold**.

Similar findings are observed when using PISA’s measure of school average ESCS. On average, no significant difference is observed between students in Ireland attending the most socioeconomically advantaged schools and those attending the most disadvantaged schools in terms of their participation in creative activities at school (Figure 4.6). In contrast, on average across OECD countries, students attending schools with the highest concentrations of socioeconomic disadvantage reported significantly higher levels of participation in creative activities at school compared to those in the most advantaged schools.

Figure 4.6 Mean scores on the index of participation in creative activities inside of school, in Ireland and the OECD average by school average ESCS

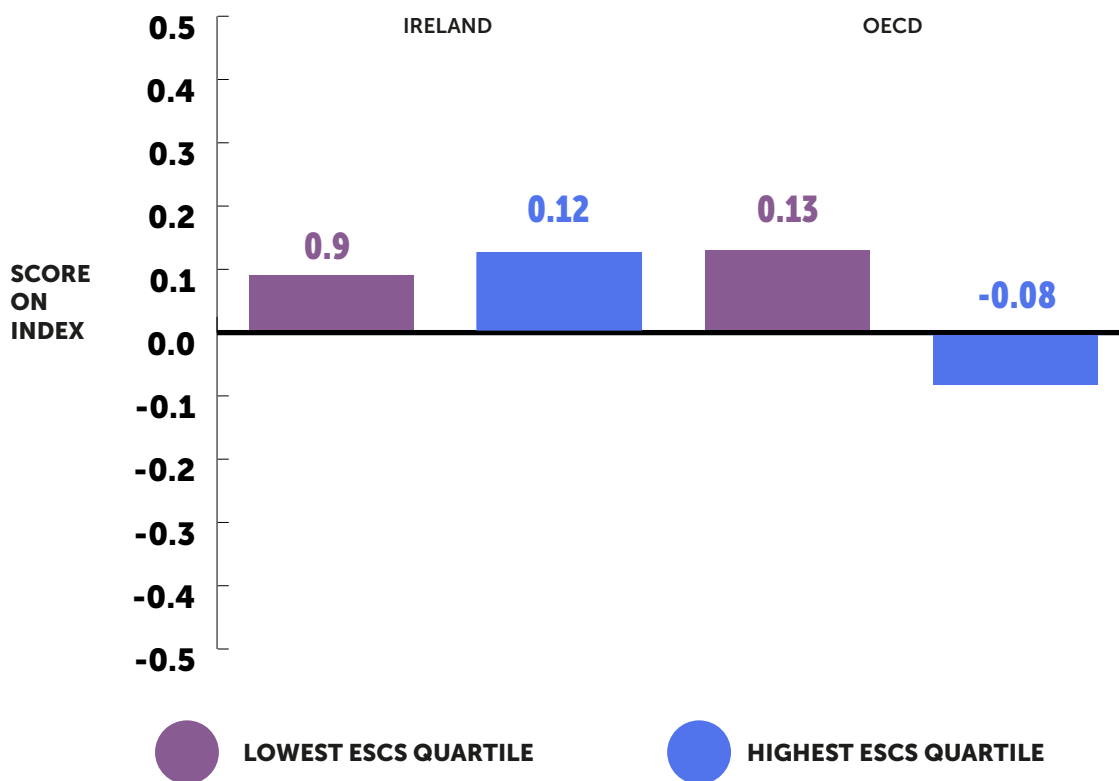


Table 4.13 presents the mean scores of students on the index of participation in creative activities in school according to the sector and gender composition of their school. Students in girls' secondary schools reported the highest level of participation in creative activities in school, significantly higher than those in all other school types.

Table 4.13 Mean scores on the index of participation in creative activities within school, in Ireland by school sector/gender composition

		Mean
School type	Girls' secondary (ref. group)	0.24
	Boys' secondary	0.00
	Mixed secondary	0.10
	Community/comprehensive	0.00
	ETB vocational	0.10

*Significant differences are shown in **bold**.

4.5 Summary

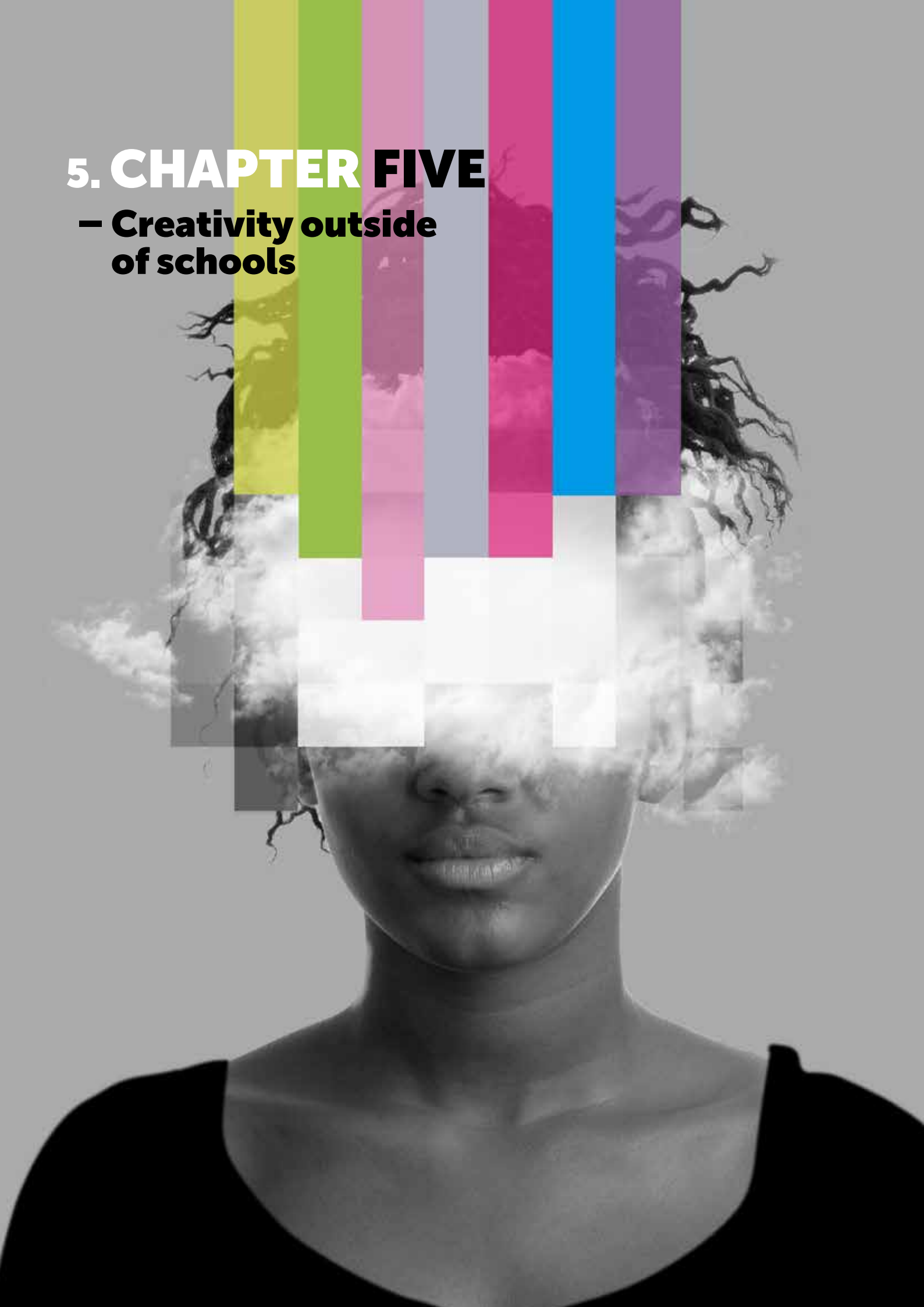
According to both students' and principals' reports, creative pedagogies are, on average, fostered to a greater extent in schools in Ireland than on average across OECD countries. On average, Irish students' views on the extent to which creative pedagogies are fostered in their school did not vary significantly by students' gender, or by the sector/gender composition of their school. On the other hand, according to school principals, students in girls' secondary schools experienced, on average, the greatest level of support for creative thinking from their teachers, significantly greater than those in mixed-secondary and community/comprehensive schools.

Students in Ireland were also more likely than their OECD peers to have principals who held positive views about their students' openness to creativity and intellect. Again, students in girls' secondary schools had principals who reported the most positive views of students' openness to intellect and creativity, on average. Students in Ireland, in general, also had greater access to (according to principals' reports) and were more likely to participate in (according to students' reports) creative activities at school, than their OECD counterparts. The creative activities that students in Ireland reported participating in most regularly are art and music activities. On average, female students reported significantly greater levels of participation in creative activities than male students in Ireland, although the opposite pattern is observed on average across OECD countries. Similarly in Ireland, students in girls' secondary schools, on average, reported significantly greater participation in creative activities than students in any other school type, even though students in girls' secondary schools only had significantly greater access to creative activities when compared to students in boys' secondary schools, but not those in other school types.

Students in DEIS schools, on average, had similar beliefs to those in non-DEIS schools about the extent to which creative pedagogies are fostered within their schools, and also did not differ in terms of their principals' perceptions about creative pedagogies in their schools. Similarly, no difference was found between students in DEIS and non-DEIS schools, on average, in terms of their principals' perceptions about students' openness to intellect and creativity. While, in Ireland, students from the most advantaged socioeconomic backgrounds were more likely to participate in creative activities at school than those from disadvantaged backgrounds, no significant differences were found between students in DEIS and non-DEIS schools in terms of average participation in or access to creative activities at school.

5. CHAPTER FIVE

– Creativity outside of schools



5.1 Introduction

This chapter examines students' exposure to attitudes and home environments that support creative thinking and creativity, as well as their engagement in creative activities outside of school. The data presented here draw on responses from both students and their parents to items in the questionnaires that were administered as part of the study. Some of the items were not administered in every country and therefore, the number of countries that make up the OECD average in each section may vary. For example, in PISA 2022, nine OECD countries, including Ireland, administered a questionnaire to the parents of students who participated in the assessment. For indices that draw on data from the parent questionnaire, the OECD average will, in most cases, refer to the average across these nine countries. On the other hand, at least 33 of the 37 participating OECD countries collected data on the indices drawn from the student questionnaire. Where a country did not collect data for a particular index from the student questionnaire, this is noted under the relevant tables.

The following sections present students' perceptions of the support they receive from their family and peers for creative thinking, their parents' ratings of creativity in the home, as well as parents' and students' openness to creativity and intellectual thought. The extent to which students engage in creative activities outside of school is also examined. The associations of each of these factors with gender, student- and school-level socioeconomic status, as well as the DEIS status of the school that students attend, are also examined.

5.2 Creative peers and family environment

Students were asked to rate their agreement with six statements about the support they receive from their peers and family for creative thinking (Table 5.1). At least three-quarters of students in Ireland agreed to some extent with each of the statements indicating widespread feelings of support for creative thinking. Students in Ireland were most likely to agree that their family encourages them to try new things (89.9%) and that their friends are open to new ideas (87.3%), while they were least likely to agree that they and their friends encourage each other to come up with new ideas (76.7%).

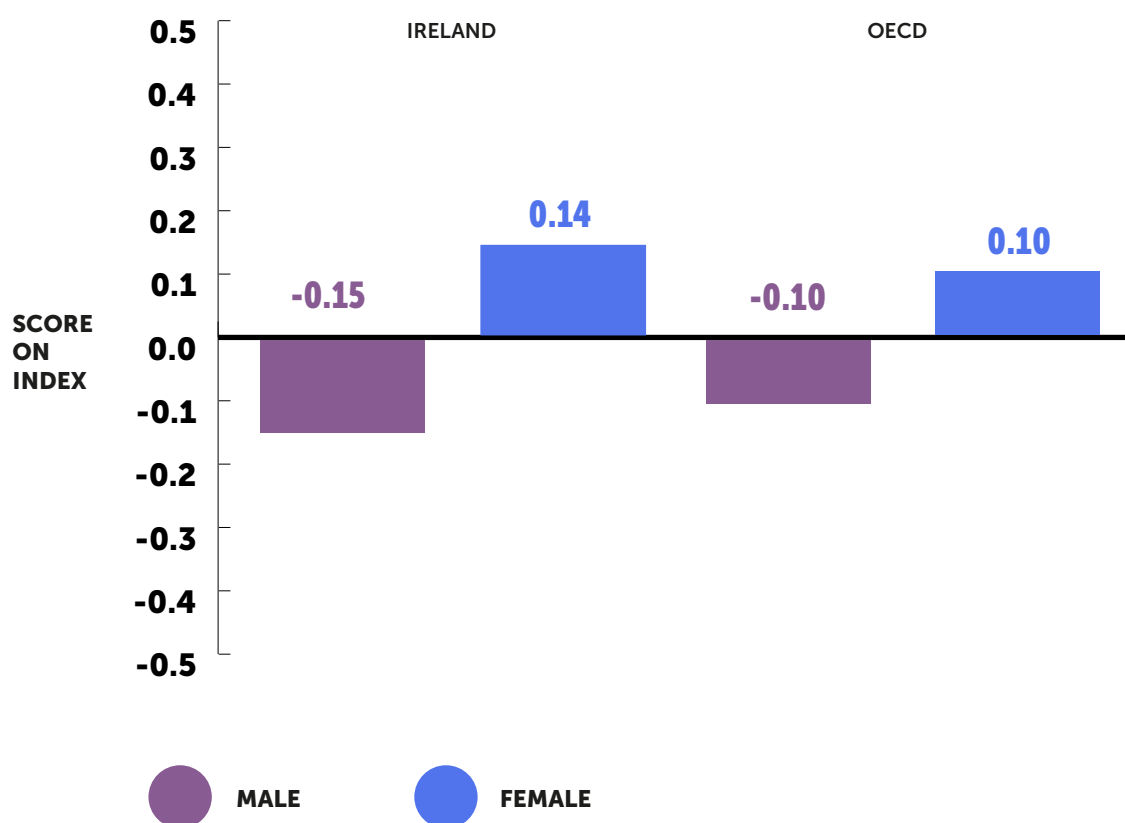
Table 5.1 Percentages of students reporting their level of agreement with various statements related to peer and family support for creative thinking, in Ireland and at the OECD* average

		Strongly disagree/ disagree %	Strongly agree/ agree %
My friends are open to new ideas	Ireland	12.7	87.3
	OECD	15.8	84.2
My friends and I give one another feedback about our ideas	Ireland	16.5	83.5
	OECD	16.2	83.8
My friends and I encourage each other to come up with new ideas	Ireland	23.3	76.7
	OECD	21.6	78.4
My family encourages me to try new things	Ireland	10.1	89.9
	OECD	17.0	83.0
At home, I am encouraged to use my imagination	Ireland	19.0	81.0
	OECD	23.9	76.1
Discussions I have at home help me come up with new ideas	Ireland	21.0	79.0
	OECD	27.0	73.0

* Israel, Japan, Sweden and the United States did not collect data for this index and therefore are not included in the OECD average scores

Students' ratings across the six statements were combined into a single index that was set to have a mean score of zero and a standard deviation of one across OECD countries. Ireland's mean score on the index of creative peers and family environment is almost identical to the OECD average, (0.00 for both Ireland and the OECD average). Female students have significantly higher mean scores than male students on this index, both in Ireland and on average across OECD countries, indicating that, in general, female students perceive greater levels of support for creative thinking among their peers and family (Figure 5.1).

Figure 5.1 Mean scores on the index of creative peers and family environment, by student gender in Ireland and at the OECD average (*based on student reports*)



5.3 Creative home environment

The parents of students in some countries were asked to rate their agreement with nine statements about creativity in the home environment (Table 5.2). In Ireland, almost all parents agreed or strongly agreed that they are open to new ideas (98.2%) or that they encourage trying new things (98.4%) at home. Similarly, over 90% of parents in Ireland reported that, in their homes, they encourage being imaginative, they try to fix things that are broken, and they have discussions that help with developing new ideas. On the other hand, parents were least likely to agree that they create works of art together at home, with just 36.2% of parents in Ireland and 37.9% of parents across the nine OECD countries that collected data, reporting doing so.

Table 5.2 Percentages of parents reporting their level of agreement with various statements related to creativity in the home environment, in Ireland and at the OECD* average

		Strongly disagree/ disagree %	Strongly agree/ agree %
In our family, we encourage participating in extracurricular activities that require creativity	Ireland	14.9	85.1
	OECD	16.5	83.5
At home, we are open to new ideas	Ireland	1.8	98.2
	OECD	5.2	94.8
At home, we encourage trying new things	Ireland	1.6	98.4
	OECD	6.6	93.4
At home, we encourage being imaginative	Ireland	5.2	94.8
	OECD	10.3	89.7
Discussions we have at home help with developing new ideas	Ireland	8.1	91.9
	OECD	14.1	85.9
At home, we create works of art together (e.g. paintings, sculptures)	Ireland	63.8	36.2
	OECD	62.1	37.9
At home, we discuss the books we are reading	Ireland	37.7	62.3
	OECD	46.1	53.9
At home, we try to fix things that are broken	Ireland	7.8	92.2
	OECD	14.2	85.8
At home, we discuss different solutions to social problems (e.g. unemployment, pollution)	Ireland	19.4	80.6
	OECD	19.1	80.9

* The OECD average for the creative home environment index is based on data from nine OECD countries that collected parent data as part of PISA 2022. These are Belgium, Colombia, Costa Rica, Germany, Ireland, Italy, Korea, Latvia and Portugal.

A creative home environment index was created by combining the ratings of parents across the nine statements. This index was set to have a mean of about zero and a standard deviation of about one across the nine OECD countries that collected parent data. Ireland's mean score on this index is 0.17, which is significantly above the corresponding OECD average (-0.01), indicating that parents in Ireland perceive the home environment as more creative than their OECD peers.

In Ireland and at the OECD average, no significant differences were noted between mothers (or female guardians) and fathers (or male guardians) in their ratings of creativity in the home environment (Figure 5.2).

Figure 5.2 Mean scores on the index of creative home environment, by parent gender in Ireland and at the OECD average
(based on parents' reports)



5.4 Creativity and openness to intellect

Parents were asked to rate their agreement on nine statements about their own creativity and openness to intellect (Table 5.3), which refers to “an individual’s receptivity to appreciate and engage with abstract or complex information, primarily through reasoning” (OECD, 2024). Parents’ ratings across these statements are somewhat mixed. In Ireland and across the nine OECD countries that collected data, the vast majority of parents agreed that they enjoy learning new things (97.2% and 92.5%, respectively). Similarly, 85.6% of parents in Ireland agreed that they have a good imagination, which is considerably higher than the corresponding OECD average (75.8%). On the other hand, fewer parents in Ireland and across OECD countries, agreed that they are creative (66.6% and 68.8%, respectively) or that they enjoy artistic activities (59.9% and 64.2%, respectively), while just 24.5% of parents in Ireland agreed that they express themselves through art, compared to 31.7% at the OECD average.

Table 5.3 Percentages of parents reporting their level of agreement with various statements related to their own creativity and openness to intellect, in Ireland and at the OECD* average

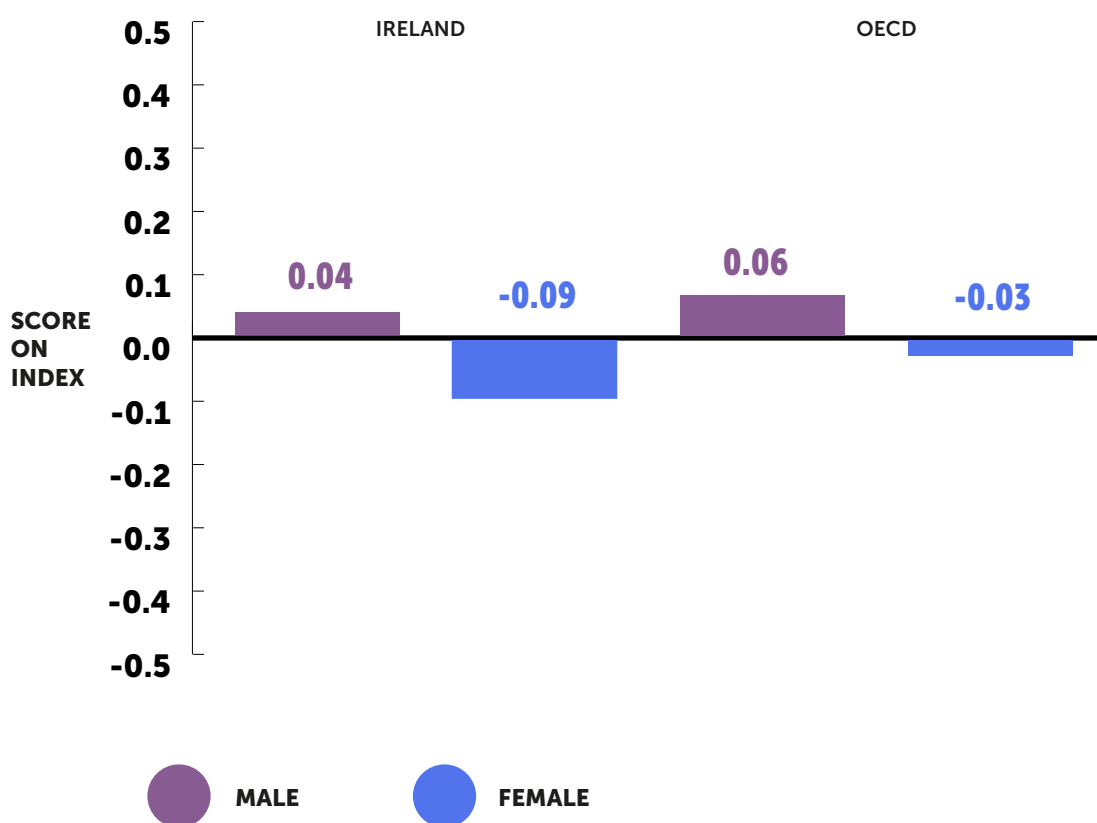
		Strongly disagree/ disagree %	Strongly agree/ agree %
I am very creative	Ireland	33.4	66.6
	OECD	31.2	68.8
I enjoy projects that require creative solutions	Ireland	24.6	75.4
	OECD	24.0	76.0
I enjoy solving complex problems	Ireland	28.6	71.4
	OECD	33.0	67.0
I enjoy learning new things	Ireland	2.8	97.2
	OECD	7.5	92.5
I enjoy artistic activities	Ireland	40.1	59.9
	OECD	35.8	64.2
I express myself through art	Ireland	75.5	24.5
	OECD	68.3	31.7
I have difficulty using my imagination	Ireland	82.5	17.5
	OECD	74.9	25.1
I have a good imagination	Ireland	14.4	85.6
	OECD	24.2	75.8
I like to be spontaneous	Ireland	28.6	71.4
	OECD	22.7	77.3

* The OECD average for the Parents' creativity and openness to intellect index is based on data from nine OECD countries that collected parent data as part of PISA 2022. These are Belgium, Colombia, Costa Rica, Germany, Ireland, Italy, Korea, Latvia and Portugal.

Responses across these nine statements were combined to create an index of parents' creativity and openness to intellect. This index was scaled to have a mean score of about zero and a standard deviation of about one across the nine OECD countries that collected parent data. Ireland's mean score on this index (-0.05) is significantly lower than the OECD average (-0.01), indicating that the parents of students in Ireland were less likely to perceive themselves as being creative and open to engaging with abstract or complex information than their OECD counterparts.

In Ireland and at the OECD average, mothers or female guardians reported significantly lower levels of creativity and openness to intellect than fathers or male guardians (Figure 5.3).

Figure 5.3 Mean scores on the index of parents' creativity and to intellect, by parent gender in Ireland and at the OECD average (based on parents' reports)



Parents were also asked to rate their agreement with eight statements about their child's openness to creativity and intellect (Table 5.4). Over 90% of parents in Ireland agreed that their child enjoys learning new things (95.2%) and that they have a good imagination (93.1%). About four out of five parents in Ireland agreed that their child is creative (81%) or that their child enjoys projects that require creative solutions (81.0%). As was the case for their perceptions of their own openness to creativity and intellect, parents in Ireland were least likely to agree that their child expresses him/herself through art, with just 37.3% doing so.

Table 5.4 Percentages of parents reporting their level of agreement with various statements related to their child's creativity and openness to intellect, in Ireland and at the OECD* average

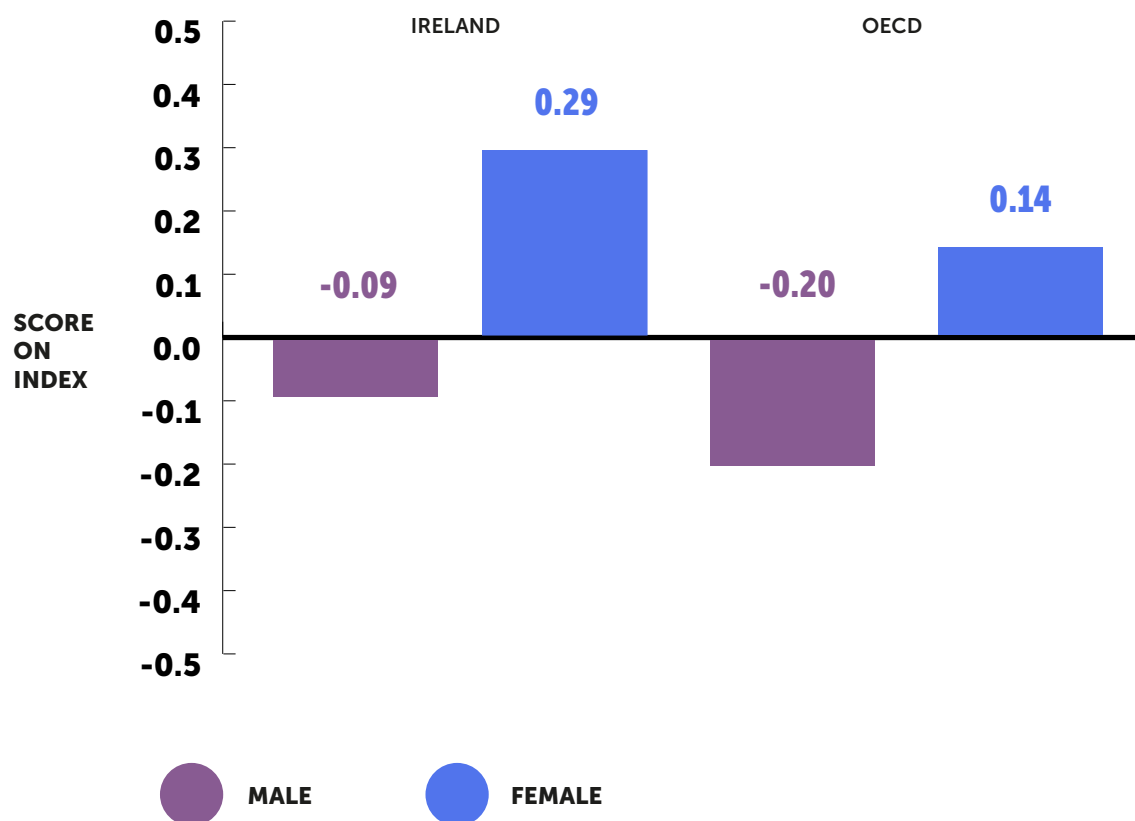
		Strongly disagree/ disagree %	Strongly agree/ agree %
My child is very creative	Ireland	19.0	81.0
	OECD	23.6	76.4
My child enjoys projects that require creative solutions	Ireland	19.3	80.7
	OECD	26.9	73.1
My child enjoys solving complex problems	Ireland	32.1	67.9
	OECD	44.1	55.9
My child enjoys learning new things	Ireland	4.8	95.2
	OECD	10.9	89.1
My child enjoys artistic activities	Ireland	37.6	62.4
	OECD	38.1	61.9
My child expresses him/herself through art	Ireland	62.7	37.3
	OECD	58.5	41.5
My child has a good imagination	Ireland	6.9	93.1
	OECD	17.0	83.0
My child likes to be spontaneous	Ireland	27.9	72.1
	OECD	25.1	74.9

* The OECD average for the child's creativity and openness to intellect index is based on data from nine OECD countries that collected parent data as part of PISA 2022. These are Belgium, Colombia, Costa Rica, Germany, Ireland, Italy, Korea, Latvia and Portugal.

An index of parents' perceptions of their child's creativity and openness to intellect was created by combining responses across the eight statements into a single scale that was set to have a mean score of about zero and a standard deviation of about one across the nine OECD countries that included the parent questionnaire in PISA 2022. Ireland's mean score on this index (0.10) is significantly above the corresponding OECD average score (-0.02) indicating that parents in Ireland were more likely than their OECD peers to rate their child as being creative and open to engaging with complex or abstract information.

Parents in Ireland and on average across OECD countries were significantly more likely to rate their child as being creative and open to intellect if their child was female rather than male (Figure 5.4).

Figure 5.4 Mean scores on the index of child's creativity and openness to intellect, by student gender in Ireland and at the OECD average (based on parents' reports)



5.5 Participation in creative activities outside of school

Students were asked to indicate how often they participate in creative activities outside of school (Table 5.5). In Ireland, students were least likely to take part in science clubs or publication activities (such as a newspaper or literary magazine), with over 80% saying that they never or almost never do so and 10.2% saying that these activities are not available to them. The most frequent activities reported by students in Ireland were music activities (such as a choir or band) and art classes or activities. Almost 20% of students in Ireland participated in music activities, while 15.2% took part in art activities, on at least a weekly basis, which is broadly in line with the corresponding OECD averages. On average across OECD countries, students were slightly more likely to participate on at least a weekly basis in computer programming activities (11.2%), science clubs (8.0%) or publication activities (7.0%) when compared to students in Ireland (7.8%, 3.1% and 3.7%, respectively).

Table 5.5 Percentages of students reporting how often they participate in various creative activities outside of school, in Ireland and at the OECD* average

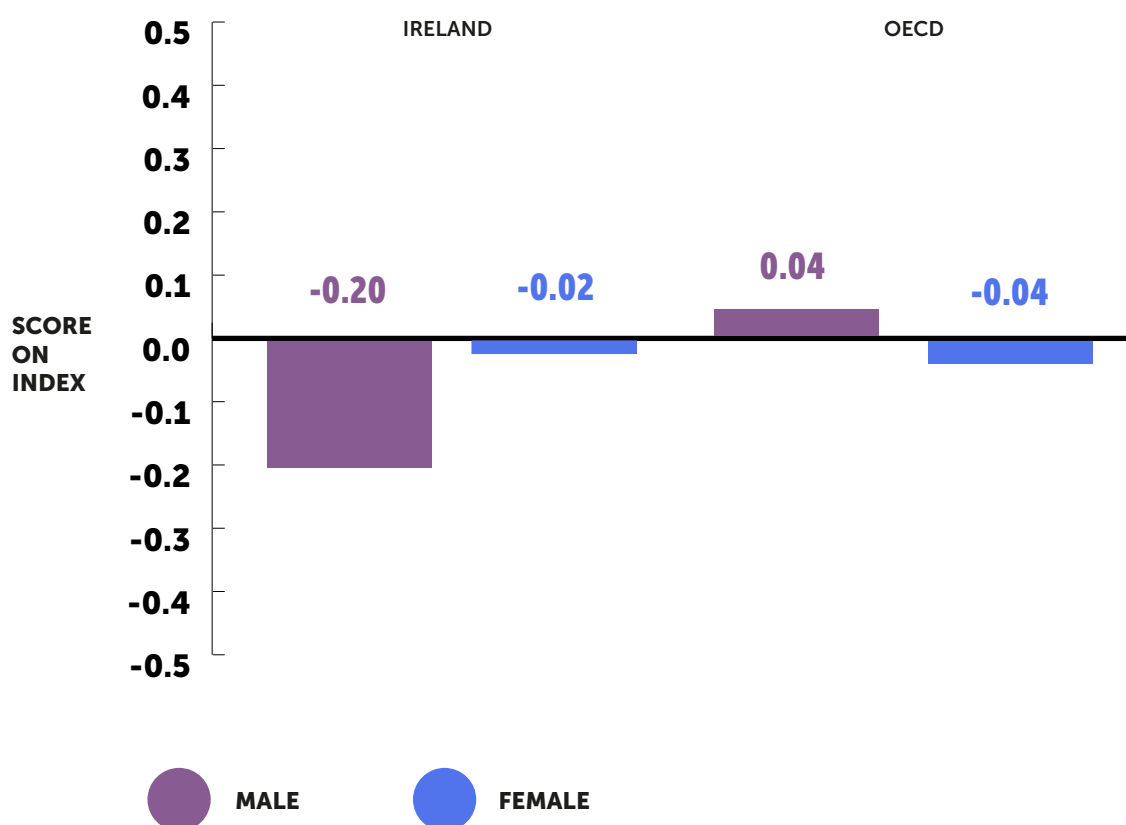
		Never or almost never	About once or twice a year	About once or twice a month	At least once a week	Not available
		%	%	%	%	%
Art classes/activities (e.g. painting, drawing)	Ireland	68.5	5.1	5.2	15.2	6.0
	OECD	60.4	6.6	6.9	15.7	10.4
Creative writing classes/activities	Ireland	71.2	6.0	5.3	9.3	8.1
	OECD	63.7	6.8	6.4	10.3	12.7
Music classes/activities (e.g. choir, band)	Ireland	67.2	4.7	4.5	19.5	4.0
	OECD	60.9	5.6	6.3	17.4	9.8
Debate club	Ireland	76.6	4.4	3.6	5.8	9.7
	OECD	68.5	4.4	4.6	7.5	15.1
Dramatics, theatre class/activities	Ireland	75.4	4.9	3.3	9.3	7.0
	OECD	69.2	4.8	4.4	8.7	12.9
Publications (e.g. newspaper, yearbooks, literary magazine)	Ireland	80.1	3.4	2.6	3.7	10.2
	OECD	70.0	4.3	4.2	7.0	14.4
Science club	Ireland	81.1	2.6	2.0	3.1	11.2
	OECD	69.2	4.2	4.1	8.0	14.5
Computer programming classes/activities	Ireland	74.8	4.3	3.6	7.8	9.5
	OECD	65.3	5.0	5.2	11.2	13.3

* Japan, Sweden and the United States did not collect data for this index and therefore are not included in the OECD average scores

An index of students' reports of participation in creative activities outside of school was created by combining students' responses across the eight activities. The index was set to have a mean of zero and a standard deviation of about one across OECD countries. Ireland's score on this index is significantly below the corresponding OECD average (-0.11 and 0.00, respectively), meaning that students in Ireland report engaging in creative activities outside of school less often than their OECD peers.

In Ireland, female students were significantly more likely than male students to report engaging in creative activities outside of school (Figure 5.5). The opposite pattern was observed at the OECD average. While the gender difference was small, male students across OECD countries were, on average, significantly more likely to report engaging in creative activities outside of school than female students.

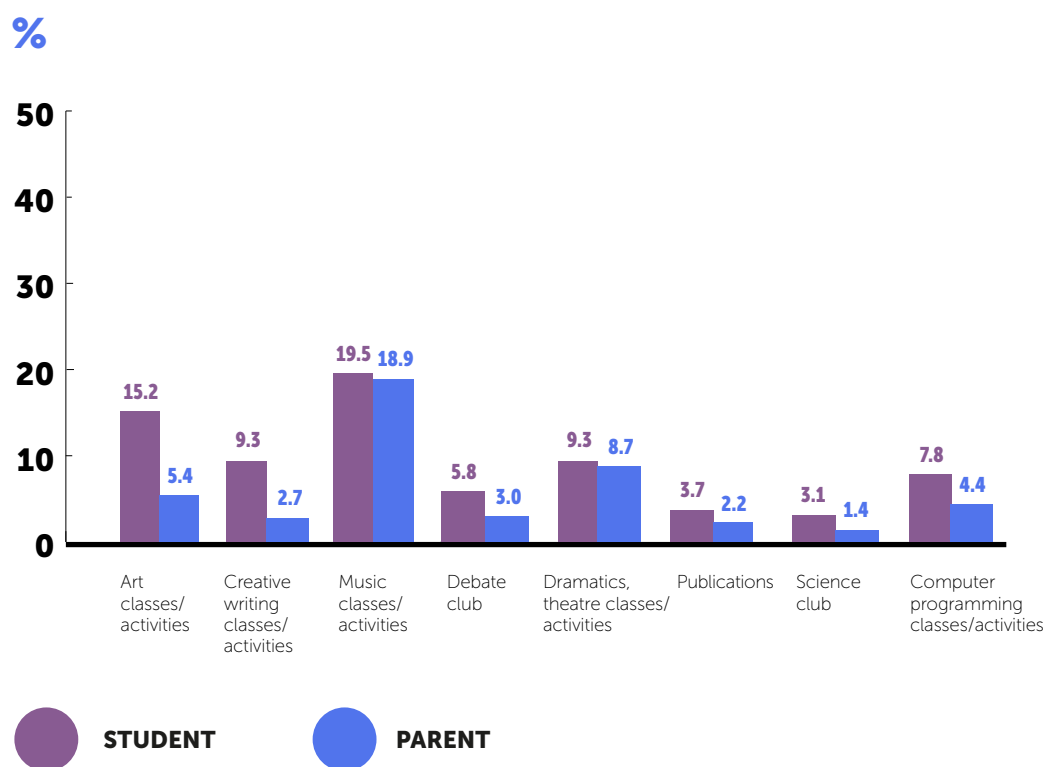
Figure 5.5 Mean scores on the index of participation in creative activities outside of school, by student gender in Ireland and at the OECD average (*based on students' reports*)



Parents were also asked to indicate how often their child participates in creative activities outside of school and their responses were also combined to create an index of out-of-school engagement with creative activities. Across all activities, students were more likely than their parents to indicate that they participate in the activity on at least a weekly basis (Figure 5.6). While the differences were very small in most cases, they

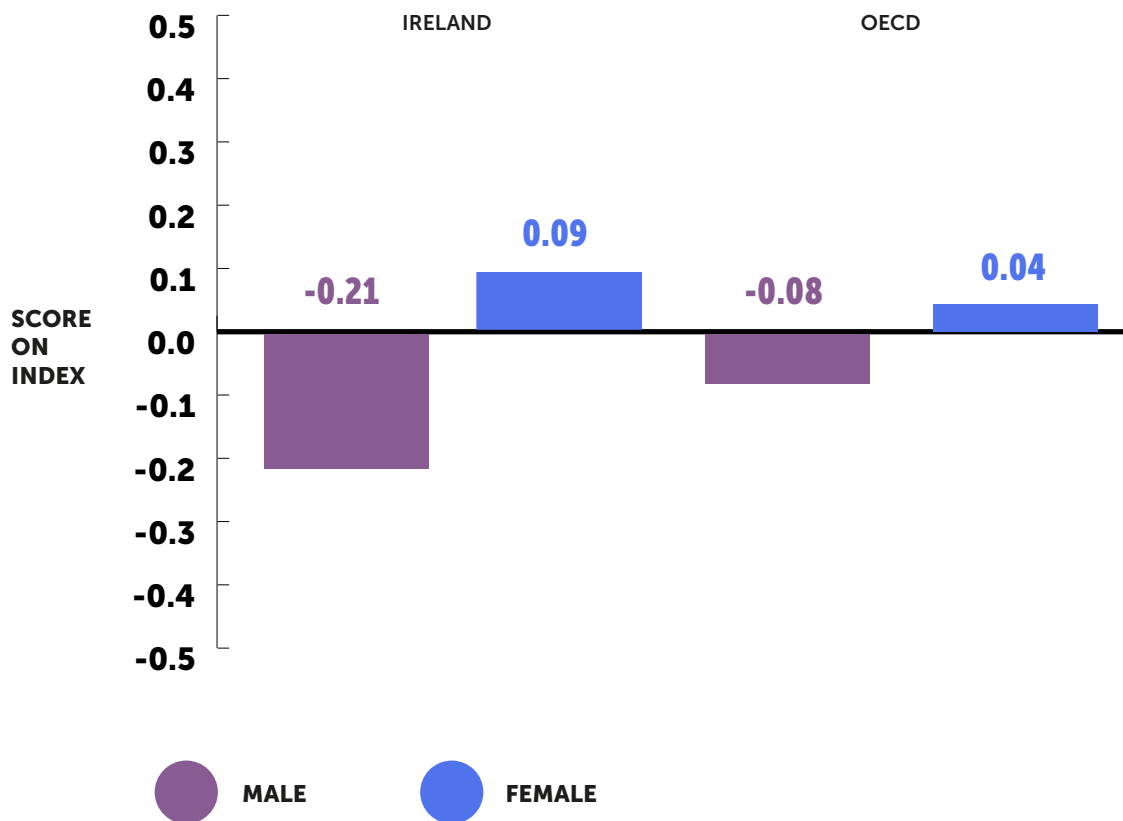
were particularly pronounced for art classes or activities (such as painting and drawing) and creative writing classes or activities. Just over 15% of students in Ireland reported taking part in art activities outside of school on at least a weekly basis, while 5.4% of parents indicated that this was the case. Similarly, 9.3% of students said they participate in creative writing activities outside of school at least once a week, compared to 2.7% of parents reporting they did so.

Figure 5.6 Percentages of students and parents reporting engagement in various creative activities outside of school on at least a weekly basis, in Ireland



Similarly to the index of students' reports on their participation in creative activities outside of school, Ireland's mean score on the index of parents' reports was significantly below the corresponding OECD average (-0.06 and -0.02, respectively). This indicates that both students and parents in Ireland report lower levels of student engagement in creative activities outside of school than their OECD peers. Both in Ireland and at the OECD average, parents of female students reported that their child engaged in creative activities outside of school more frequently than parents of male students (Figure 5.7).

Figure 5.7 Mean scores on the index of participation in creative activities outside of school, by student gender in Ireland and at the OECD average (*based on parents' reports*)



5.6 Creativity outside of school, socioeconomic status and DEIS status

This section examines the extent to which a students' socioeconomic status is related to their exposure environments, attitudes and activities outside of school that support creativity. PISA's index of Economic, Social and Cultural Status (ESCS), is based on students' reports of parental occupation, highest level of parental education, and home possessions, and is used as a proxy measure for student socioeconomic status in this report.

While the indices presented in this chapter focus on out-of-school exposure to creativity, and schools may be considered to have little influence on the types of activities or environments that students experience outside of school, it is worthwhile examining the extent to which the types of experiences that students have outside of school may vary across schools with different socioeconomic profiles. This section also examines school-level ESCS, which is computed by averaging the ESCS scores of students within a school and can give an indication of the socioeconomic profile of a school.

Table 5.6 presents the correlation coefficients between each of the indices related to creativity presented in this chapter and students' ESCS, as well as the average ESCS of the school they attend. For each of the indices measuring creativity outside of school, the relationship with students' ESCS is weak, with all correlation coefficients falling below 0.21.

The relationships between school-level ESCS and each of the indices measuring creativity outside of school are even weaker, with all correlation coefficients falling below 0.10, and can be considered negligible in most cases. Related to this, no significant differences were noted between students attending DEIS and non-DEIS schools, in terms of their exposure to creative attitudes, environments and activities outside of school (Table 5.6). These findings suggest that, on average, students' exposure to environments, attitudes, and activities that support creativity outside of school, do not vary according to the socioeconomic profile of the school they attend.

Table 5.6 Correlation coefficients between the various indices measuring creativity outside of school and student- and school-level ESCS, in Ireland and at the OECD average

		Student socioeconomic status Correlation	School socioeconomic status Correlation
Creative peer and family environment (student reports)	Ireland	0.12	0.04
	OECD	0.14	0.10
Creative home environment (student reports)	Ireland	0.17	0.07
	OECD	0.21	0.13
Parents' creativity and openness to intellect (parents' reports)	Ireland	0.11	0.03
	OECD	0.14	0.07
Child's creativity and openness to intellect (parent reports)	Ireland	0.09	0.00
	OECD	0.10	0.06
Creative activities outside of school (student reports)	Ireland	0.04	-0.03
	OECD	0.03	-0.07
Creative activities outside of school (parent reports)	Ireland	0.10	0.00
	OECD	0.10	0.03

Table 5.7 Mean scores on the index of participation in creative activities outside of school, in Ireland by DEIS status *(based on students' reports)*

Index	DEIS Mean	Non-DEIS (ref. group) Mean	Diff (DEIS - Non-DEIS)
Creative Peers and Family Environment (student reports)	-0.02	0.00	-0.02
Creative Home Environment (student reports)	0.16	0.17	-0.01
Parents' Creativity and Openness to Intellect (parents' reports)	-0.03	-0.06	0.02
Child's Creativity and Openness to Intellect (parent reports)	0.15	0.09	0.06
Creative activities outside of school (student reports)	-0.08	-0.12	0.04
Creative activities outside of school (parent reports)	0.00	-0.08	0.08

* Significant differences highlighted in **bold**.

5.7 Summary

This chapter presented findings related to students' access to environments that support creative thinking and creativity outside of school and draws on both students' and parents' reports. The results indicate that, on average, the parents of students in Ireland perceive the home environment as being more supportive of creativity than their OECD peers. On the other hand, no significant difference was observed between Ireland and the OECD average in terms of students' ratings of the support they receive from peers and family for creative thinking. Additionally, both students and parents in Ireland report lower levels of engagement in creative activities outside of school compared to the average across OECD countries.

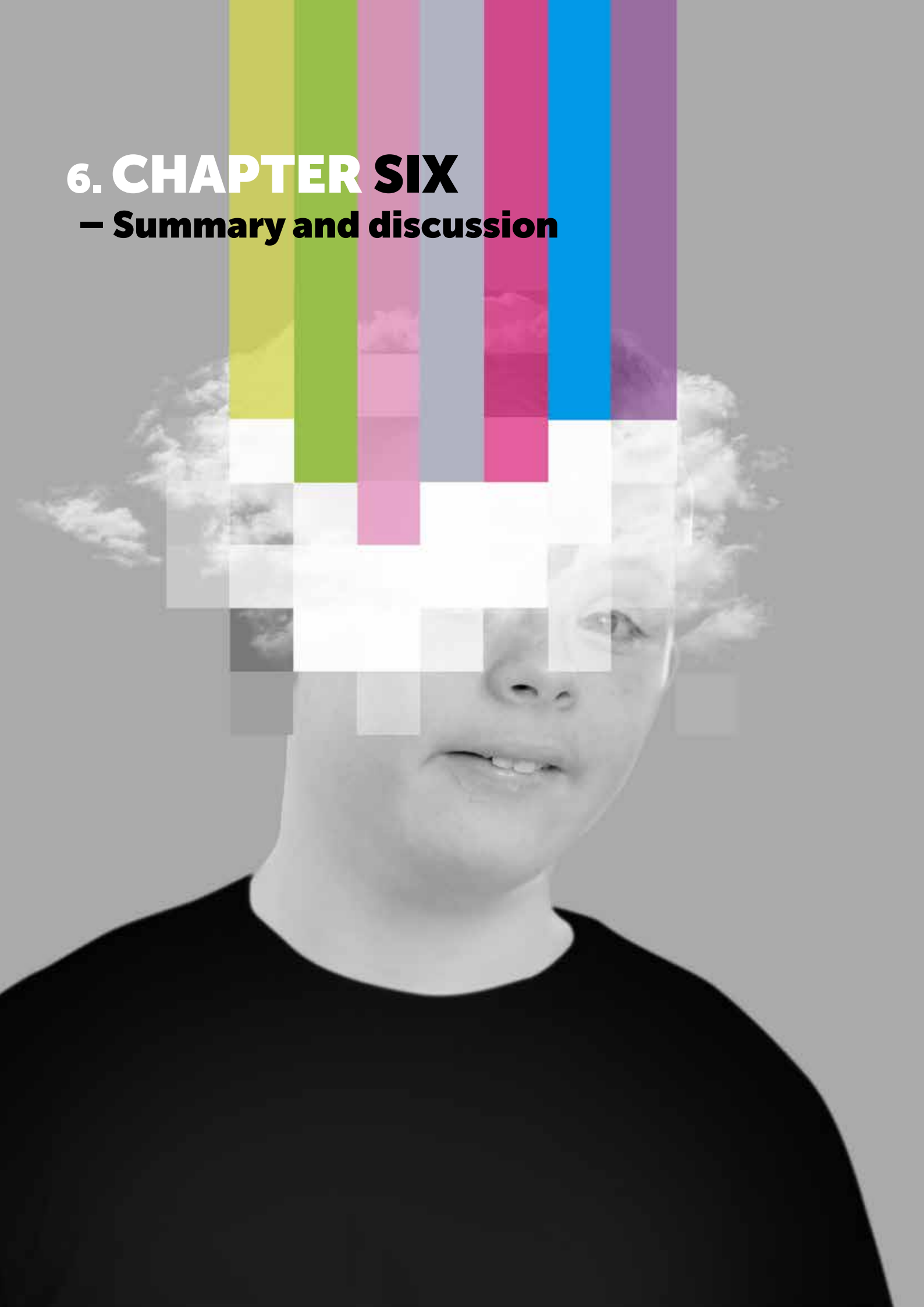
Some gender differences were also observed in the findings. In Ireland, female students perceived greater levels of support from family and peers for creative thinking, although no difference was observed between mothers (or female guardians) and fathers (or male guardians) in their ratings of creativity in the home environment. Female students were also significantly more likely to report engaging in creative activities, such as art classes or music lessons, outside of school. In addition, parents were more likely to report that their child took part in creative activities outside of school if their child was female rather than male.

Parents were also asked to rate their own openness to creativity and intellectual thought, as well as that of their child. While parents in Ireland, on average, were less likely than their OECD counterparts to describe themselves as creative and open to intellect, they were significantly more likely to describe their child in this way compared to the OECD average. Mothers (or female guardians) were significantly less likely to describe themselves as being creative and open to intellect compared to fathers (or male guardians) however, on the other hand, parents were more likely to describe their child this way if their child was female rather than male.

Finally, although students with higher socioeconomic status tend to have greater exposure to environments, attitudes, and activities that support creativity outside of school, the association between socioeconomic status and creativity outside of school is weak. The relationship is weaker again when the socioeconomic profile of the school is considered and, additionally, no differences were found between students in DEIS and non-DEIS schools in terms of their access to environments, attitudes and activities that support creativity outside of school.

6. CHAPTER SIX

– Summary and discussion



This report examined how students in Ireland interact with creativity and creative thinking in terms of their attitudes and beliefs, engagement within and outside school settings, and their experiences of creativity in the home environment. In PISA 2022, information was gathered through the student, teacher, school and parent questionnaires on some of the key drivers of creativity and creative thinking. Chapter 2 set out the research and policy context against which the reported data should be interpreted. Chapter 3 used data gathered from the PISA 2022 student questionnaire to examine the attitudes and beliefs of students in Ireland regarding creativity and modes of creative thinking. Chapter 4 drew on data collected from the school and student questionnaires to explore how students interact and engage with creativity and creative thinking within the school setting. Finally, Chapter 5 examined students' access to environments that support creative thinking and creativity outside of school, using data from the student and parent questionnaires. This final chapter reviews the data presented in the report and reflects on the findings about students' experiences of creativity and creative thinking across a number of themes.

6.1 Student attitudes and beliefs around creativity

Students in Ireland did not differ, on average, from their OECD peers in terms of their beliefs and attitudes towards their own creative self-efficacy, their openness to art and experience, or their use of imagination or sense of adventurousness. When responding to statements used to form the creative self-efficacy index, students in Ireland were more likely to report feeling confident in engaging creatively in interpersonal situations or scenarios. On the openness to intellect index, students in Ireland expressed higher rates of agreement on statements that linked creativity with a sense of satisfaction or novelty, but lower than average rates of agreement when it came to statements that linked creativity to challenge or problem-solving, when compared to the OECD average. Data from the openness to art and experience index followed a similar pattern, with students in Ireland more likely to agree with statements expressing enjoyment in creating art and engaging in artistic activities than the OECD average. Furthermore, the imagination and adventurousness index indicated that students in Ireland favoured novelty and variety, as well as expressing an interest in visiting new places. However, students in Ireland were, on average, significantly less likely to report being open to intellect, indicating that they are not as open as their OECD peers to engaging with abstract or complex information.

Gender differences across these four areas of beliefs tended to show higher rates of agreement or confidence on the indices among female students, on average. Female students in Ireland and across the OECD, on average, had higher mean scores on the creative self-efficacy, openness to art and experience, imagination and adventurousness indices. The openness to art and experience index showed the largest difference between the genders, indicating that female students in Ireland and across the OECD reported being more open to engaging with imagination, new ideas and fantasy than male students, on average.

Differences are also observed according to students' socioeconomic background. The most socioeconomically advantaged students had higher mean scores than the most disadvantaged on all four indices, with the most pronounced difference observed in the creative self-efficacy, and the openness to intellect indices. This means the most advantaged students tended to report higher levels of self-belief in their capacity to engage with creativity, and higher levels of receptivity to abstract or complex information. Smaller differences were observed at school-level Economic, Social and Cultural Status (ESCS) level.

Finally, the mean scores of students in DEIS schools differed from those attending non-DEIS schools on three of the four indices. Statistically significant differences were observed on the creative self-efficacy, openness to intellect, and imagination and adventurousness indices, meaning students in non-DEIS schools were somewhat more likely to report confidence in their creative abilities, engaging with complex and engaging in divergent thinking.

6.2 Creativity in school

The PISA 2022 data provides two separate perspectives (students and principals) on how creativity is supported in schools in Ireland through creative pedagogies using two indices; students' perception of creative pedagogies, and principals' perceptions of creative pedagogies. Students in Ireland reported significantly greater levels of support for creative thinking in their schools compared to their OECD peers, and were also significantly more likely to have principals who reported that creative pedagogies were fostered in their school. The level of agreement among students in Ireland on support for creative pedagogies in their school did not vary significantly, on average, according to student gender, student ESCS, or school-average ESCS composition. While no difference was found between students in DEIS and non-DEIS schools, on average, in terms of their principals' perceptions of creative pedagogies, students attending girls' secondary schools were most likely to have a principal who felt that creative pedagogies were fostered in their school, and significantly more likely than those attending mixed secondary and community/comprehensive schools.

Students in Ireland were also considerably more likely than their OECD peers to have principals who held positive views about their students' openness to intellect and art. On average, no differences were observed between students attending DEIS and non-DEIS schools in terms of their principals' perceptions of students' openness to intellect and art, but students in girls' secondary schools were most likely to have principals who reported positive views of students' openness to intellect and creativity compared to other school types.

When it comes to access to creative activities at school, students in Ireland, on average, reported greater levels of access than their OECD counterparts according to principals' reports. In keeping with the arts education offering in post-primary schools, the activities that students in Ireland reported participating in most regularly are art and music. Students in Ireland also reported high levels of regular participation in creative writing activities.

In Ireland, female students reported significantly greater levels of participation in creative activities in school than male students in Ireland, on average. This contrasts with the pattern at the OECD average, where male students report greater levels of participation. This gendered pattern in Ireland is also reflected in differences on this index according to school type. Students in girls' secondary schools reported significantly greater participation in creative activities in school than students in any other school type, on average.

Finally, it was observed that students in Ireland from the most advantaged socioeconomic backgrounds were more likely to participate in creative activities at school than those from disadvantaged backgrounds. Nevertheless, no significant differences were found between students in DEIS and non-DEIS schools in terms of average participation in, or access to, creative activities at school.

6.3 Creativity outside school

When asked about their experiences of environments that support creative thinking and creativity outside of school, students in Ireland were no different, on average, from their OECD peers in their ratings of the support they receive from peers and family for creative thinking. On the other hand, parents in Ireland were more likely to report, on average, that they perceived the home environment as being supportive of creativity when compared to their OECD peers.

Parents (or guardians) in Ireland were also significantly more likely to describe their child as creative and open to intellect compared to the OECD average. However, when it came to describing themselves, they were less likely to perceive themselves as being creative and open to engaging with abstract or complex information than their OECD counterparts.

Students in Ireland tended to report lower levels of engagement in creative activities outside of school compared to the OECD average. Parents (or guardians) also tended to report that their child engaged in lower levels of creative practices outside of school, compared to the OECD average, though some differences between student reports and parents' reports were noted.

In Ireland, female students were significantly more likely to report engaging in creative activities outside of school than male students, and they perceived greater levels of support for creativity from family and friends. Indeed, parents in Ireland and on average across OECD countries were significantly more likely to rate their child as being creative and open to intellect if their child was female. Parents of female students reported that their child engaged in creative activities outside of school more frequently than parents of male students both in Ireland and across the OECD countries, on average. This is in contrast to the pattern observed at the OECD level on average, where male students were significantly more likely to report engaging in creative activities outside of school than female students. Although there was no difference, on average, in parents' ratings of creativity in the home according to gender, mothers/female guardians tended to rate their own levels of creativity and openness to intellect lower than fathers/male guardians.

Finally, although students with higher socioeconomic status tend to have greater exposure to environments, attitudes, and activities that support creativity outside of school, the association between socioeconomic status and creativity outside of school is weak, and those between school-average socioeconomic status and creativity outside of school were even weaker. No differences were found between students in DEIS and non-DEIS schools in terms of their access to environments, attitudes and activities that support creativity outside of school.

6.4 Conclusion

Creative thinking in PISA is defined as the ability to “engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination” (OECD, 2023, p. 144). This definition has much in common with those used in various policy, strategy, and curriculum documents in Ireland, with the qualities of curiosity, playfulness, open-mindedness, resilience, imagination, and collaboration often included to describe creative thinking and creativity. Creative thinking is increasingly viewed as a key component in education policy and is incorporated into educational frameworks, curriculum specifications, and policy documents both in the Irish context, and internationally.

Students in Ireland seem to experience high levels of support for creativity and creative thinking in school. They are significantly more likely than their OECD peers to report that creative pedagogies are fostered in their classes and are also significantly more likely to have principals who also report this. Students in Ireland are also more likely, on average, to have access to and to participate in creative activities in school, when compared to the OECD average. Furthermore, students in Ireland are more likely than their OECD counterparts to have principals who rate their openness to intellect and art positively.

Despite this ‘above average’ support for creativity in schools, students in Ireland report similar levels of confidence and self-beliefs about creativity when compared to their OECD peers (self-efficacy; openness to art and experience; imagination and adventure) or lower. In particular, students’ ratings of their openness to intellect were significantly lower in Ireland than at the OECD average. This indicates that students in Ireland report lower levels than their OECD peers of receptiveness to abstract or complex information, especially through processes of reasoning. This may be of special relevance to curriculum areas outside of arts education, such as mathematics and science, where students are required to integrate differing pieces of information and use their reasoning to come up with a solution for complex problem-solving tasks. Initiatives that directly address students’ beliefs around openness to intellect may be considered in response to these findings.

Students’ attitudes and self-beliefs can also be influenced by students’ home environment. Parents in Ireland tended to rate creativity in their home more highly than their OECD peers, and they were also significantly more likely to hold positive views of their child’s openness to intellect and creativity. On the other hand, students themselves rated the support they receive from family and peers at about the same levels as their OECD counterparts, on average. Of note, parents in Ireland tended to rate their own creativity and openness to intellect lower than the OECD average. Furthermore, student participation in creative activities outside of school tended to be lower in Ireland than at the OECD average, although this may in some part be related to higher levels of participation in school. In light of these findings, initiatives encouraging students to partake in creative activities outside of school should be continued.

Female students in Ireland and across the OECD on average were more positive in their reports around their own beliefs and attitudes to creativity and creative thinking than their male counterparts and were also more likely to report feeling supported in their creativity by their peers and family, than male students. The parents of students were more likely in Ireland and across OECD countries, on average, to describe their child as being creative if the child was female.

Female students in Ireland were more likely to report participating in creative activities within and outside school than male students. Although at OECD level, on average, male students were more likely to participate in creative activities both inside and outside of school, the gap between genders is narrower there. The gendered nature of engagement with creativity and creative practices seen in the Irish data, is reflected in the findings by school type and school gender. Students in girls' secondary schools were significantly more likely to have principals who held positive views towards their school's engagement with creative pedagogies and indicate high levels of openness to intellect and art among their students than students in mixed secondary schools or community/comprehensive schools. Students attending girls' secondary schools were also more likely to report higher levels of engagement with creative activities within school than students attending any other type of school. These findings are consistent with other studies in Irish context that have noted the how engagement with the arts is often gendered in Ireland. Of particular interest to this report is Smyth's finding (2020), that arts education subjects were more likely to be offered in girls' schools. These findings underline the importance of access across all school types in the post-primary sector to arts education, and in particular all schools should be encouraged to offer the new Leaving Certificate Drama, Film and Theatre Studies subject when it is introduced. Furthermore, it may be that more of an emphasis is given to boys' participation in other types of activities (e.g. sport), though this is not explored in this analysis. Given the gendered patterns observed in terms of male students' attitudes to, participation in, and support for engagement in creative activities, more targeted interventions to encourage male students' participation in creative activities inside and outside school could be considered.

Some associations between ESCS and student beliefs concerning their creativity were found. The largest difference observed between the most socioeconomically advantaged students and the most disadvantaged students was in the creative self-efficacy and the openness to intellect indices. However, when examining links between the same attitudes and beliefs in terms of school ESCS, the associations were weaker. In terms of students' participation in creative activities within school, students from the most advantaged socioeconomic backgrounds were more likely to participate in creative activities at school than those from disadvantaged backgrounds. Students attending DEIS schools were likely to have lower levels of confidence in their capacity to engage with creative activities, less likely to engage with abstract or complex information, and somewhat less open to spontaneity and divergent thinking. However, no significant differences were found between students in DEIS and non-DEIS schools in terms of average participation in or access to creative activities at school. This is in keeping with Smyth's finding (2020) that rates of provision of extracurricular activities were as high in DEIS as non-DEIS schools. Perhaps surprisingly, associations between ESCS status at both student and school level and participation in creative activities were also found to be weak. Further analysis is needed to disentangle the relationship between ESCS and creativity. However, the results underline how important projects that prioritize equity in the provision of arts initiatives (such as the Creative Youth Plan and Creative Schools) are, and they should be continued.

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APPENDIX

APPENDIX A

In Ireland, PISA is administered on behalf of the Department of Education by the Educational Research Centre. The DoE and the ERC are supported in their work by a National Advisory Committee.

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