STUDENT SURVEY.IE

The Irish Survey of Student Engagement (ISSE)

Results from 2017

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CONTENTS

INTRODUCTION AND OVERVIEW

This report presents results from fieldwork of the Irish Survey of Student Engagement (ISSE). 2017 saw the second deployment of a revised survey instrument. The original survey questions were first used in a national pilot with twenty six institutions in 2013 and, thereafter, in 2014 and 2015. The questions were revised for 2016 fieldwork and were used again in 2017. This revised question set will be used for the foreseeable future.

Almost 60,000 students responded to the original ISSE questions from 2013 to 2015 and more than 65,000 have responded to the current questions in 2016 and 2017. 35,850 students from twenty seven higher education institutions participated in the survey in 2017, contributing to an increasingly valuable data set on how students engage with their learning environments. In this context, the survey of student engagement explores the amount of time and effort that students put into their studies and other educationally purposeful activities, and, also, how effectively institutions facilitate, encourage and promote student engagement in activities that are linked to learning. The results of the survey are intended to add value at institutional level (for students and for staff) and to inform national policy.

Overview of the report

CHAPTER 1 of the report outlines the focus on student engagement with learning and provides an overview of the structure of the survey. This chapter reiterates the objectives for developing and implementing the ISSE and offers some guidance on interpreting the resulting data.

CHAPTER 2 of the report provides details of student responses to each of the questions asked. These are presented as percentages of students selecting each response. Results are provided for all participating students and for each of the year groups / cohorts i.e. first year undergraduate, final year undergraduate and taught postgraduate. Questions are grouped together according to the indicator to which they contribute. Questions that do not contribute to specific indicators are included in the final section.

CHAPTER 3 presents an analysis of indicator scores relating to student engagement. Indicators present an additional way to explore the data by signalling differences in results of different groups of students or of similar groups over multiple survey iterations. The term 'indicator' has been adopted to replace the previously used term, 'index', in order to support greater understanding. As such, scores for any given indicator act as 'signposts' to areas of potential further interest. The chapter includes charts illustrating 2017 indicator scores for various student groupings i.e. indicator scores presented by each year group / cohort, by institution-type, by mode of study (full-time or part-time) and by field of study. Some key observations follow each chart. Fuller understanding of what the data may tell us requires consideration of influencing factors, including the local context.

CHAPTER 4 considers the results from ISSE 2017 in a wider context. This chapter presents an overview of 2017 and 2016 indicator scores, noting that scores have increased for five of the nine indicators and are not statistically significantly different for the remaining four. When individual years / cohorts are considered, increases in scores for *Quantitative Reasoning, Quality of Interactions* and *Supportive Environment* are statistically significant for each cohort.

CHAPTER 5 provides a deeper insight into particular subsets of the data. This chapter is intended to illustrate the potential offered by further analysis of the rich dataset generated by the ISSE. It explores responses of different student groups to question items not considered in previous years' national reports. The chapter focuses on results from the fields of study of Science, Technology, Engineering and Mathematics (STEM) and also on the free text responses provided by all first year respondents. Free text responses are often found to be extremely valuable to elicit details of the student experience not fully captured by fixed response options, but free text can be considerably more difficult to analyse. Free text responses are offered for the questions, 'what does your institution do best to engage students in learning?' or 'what could your institution do to improve students' engagement in learning?' This initial analysis provided at national level signals the (largely untapped) potential of responses to these questions.

The analysis in this chapter exemplifies the detail that can be explored to inform discussion of identified local, sectoral or national objectives and priorities.

CHAPTER 6 considers ISSE results in an international context. The use of revised survey questions since 2016 facilitates consideration of Irish results alongside results of similar surveys undertaken in other countries. Results for first year and final year undergraduate students from a selection of questions are presented for Ireland, the US and the UK to illustrate the potential. Care is needed when considering comparisons with other higher education systems. It is important to note that institutional participation in the UK and US surveys is voluntary whilst the ISSE is system-wide. Cultural and contextual differences also impact on results but it is informative to explore the international context.

CHAPTER 7 provides an outline of continuing actions being taken to support and encourage institutions to realise the potential of this increasingly valuable source of data. It refers to national workshops organised in partnership with the National Forum for the Enhancement of Teaching and Learning where national data are explored by field of study with academic staff from those fields. It notes the changing emphasis of other ISSE data workshops towards facilitation of bespoke explorations prompted by individual institutions. This forms one strand of ongoing activities to support increasing number of staff and students to interact with, and interpret, the data in local contexts. A number of other key developments are also referenced. There has been a commitment, from the start of the ISSE project, to develop a set of question items that would meet the needs of students, institutions and other stakeholders in terms of postgraduate research. A working group has begun to explore this area with the intention of implementing a pilot survey for research students during the 2017-2018 academic year.

CHAPTER 1
CONTEXT FOR THE IRISH SURVEY OF STUDENT ENGAGEMENT

1.1
WHAT IS STUDENT ENGAGEMENT?

The term 'student engagement' is used in a variety of contextual understandings to refer to a range of related, but distinct, understandings of the interaction between students and the higher education institutions they attend. Most, if not all, interpretations of student engagement are based on the extent to which students actively avail of opportunities to involve themselves in "educationally beneficial" activities and the extent to which institutions enable, facilitate and encourage such involvement. The ISSE focuses on students' engagement with their learning and their learning environments. It does not directly explore, for example, students' involvement in quality assurance or in institutional decision-making.

Accordingly, for the purposes of the ISSE, student engagement reflects two key elements:

The first is the amount of time and effort that students put into their studies and other educationally purposeful activities. The second is how institutions deploy resources and organise curriculum and other learning opportunities to encourage students to participate in meaningful activities that are linked to learning.

What students do...

What institutions do...

STUDENTS' PERSPECTIVE: THE ROLE OF STUDENTS IN THE ISSE AND USES OF DATA

Nationally, ISSE represents the importance of student engagement as a core ethos of our Higher Education sector, and the Union of Students of Ireland (USI) has a proud history working to develop and support this crucial work. ISSE provides a key opportunity to close the feedback loop, and integral to that is the work of students to promote the survey to their peers. Students' Unions across the country work hard each year to reach more students and ensure that the response rate continues to increase.

As ISSE becomes more pivotal in the academic calendar, and becomes more widely utilised in the enhancement of Irish Higher Education, it is more important than ever to recognise the need to engage students in all stages of the annual cycle of data collection and use. USI is working with member Students' Unions to build and develop capacity in data collection and in the ability to read and interpret data. We know that our continued partnership with ISSE over the coming years will be essential in helping to build that capacity among elected Student Officers. It is through this work that we can advance the role of the student voice in the interpretation of the data they create, and in the identification of the change that must come from the results collected.

However, it is not just the role of USI, ISSE, or local Students' Unions to engage in evolving the student voice. It is also imperative that our institutions advance the cause of student representation and engagement in all forms of quality assurance, not least in the use of survey data such as ISSE. Across Ireland, while the concept of students as partners in their education is now more widely discussed and recognised, consideration of how to develop students to become partners has yet to be fully realised.

Higher Education Institutions and their Students' Unions are involved in considerable work to shape and create innovative policy and initiatives to involve students in quality assurance and enhancement processes. Meanwhile the work of the National Forum for the Enhancement of Teaching and Learning and of the National Student Engagement Programme (NStEP) has highlighted best practice and helped to ensure that the ethos of students as partners begins to flourish in the sector.

It is in that context that the use of ISSE sits, and it is that context that makes ISSE so valuable. The ability of class reps and students across the country to engage and understand the very data they created is one of the key challenges of the work ahead, but it is also the most promising aspect of the future success of the survey. USI is keen to see institutions making data more widely available and accessible to students, and especially to their elected representatives, be they class reps or Education Officers. The availability of this data to students on Programme Boards, Student Staff Liaison Committees, and across structures of academic governance, is vital to ensuring that student engagement is embedded throughout the feedback loop, and that students are afforded their rightful role

Union of Students in Ireland
Aontas na Mac Léinn in Éirinn
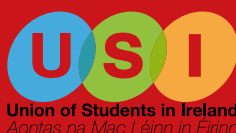
1.2
USING ISSE TO SUPPORT ENHANCEMENT

Development and implementation of the ISSE is driven by the intention to inform, support and encourage enhancement discussions and activities – primarily, but not exclusively, at institutional level - and to inform national policy discussions. As noted in previous years' reports, there is greater variation in results within institutions than between institutions. The survey explores many aspects of students' experiences of higher education and can be used for varied purposes. The "main" coordination or contact point for the ISSE varies between institutions, reflecting the range of potential uses of the data. Potential users include teaching and learning units, quality offices, student experience or support offices, Registrar's offices as well as disciplinary teams. The focus of interpretation of the data can vary according to the primary purpose of that interpretation. Greatest value is evident when those exploring the data are fully informed of the local context. The capacity to interpret the data in a timely manner varies between, and across, institutions and the national project continues to promote and support capacity for analysis of ISSE data through workshops at national, regional and local level.

The ultimate aim of the ISSE is to encourage and support institutions (and / or units within institutions) to progress through the stages of:

- collecting data,
- analysing and understanding data,
- making decisions based on analysis of the data, leading to impact at local level.

These stages can be illustrated by some of the logos and taglines used to promote the survey.
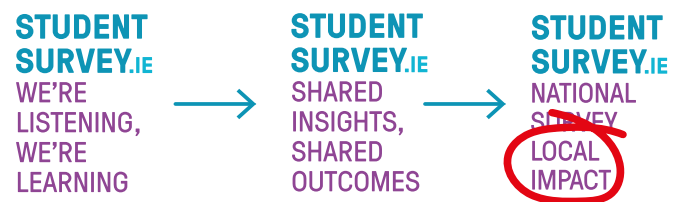
It is, of course, acknowledged that institutions have a rich variety of sources of data on their students and that many institutions make extensive and sophisticated use of these sources to inform enhancement activities. It is intended that the ISSE can form a valuable addition to other information sources because of the ability to review data in the context of similar institution-types, all participating institutions nationally, and some international comparators.

Higher Order Learning	Reflective and Integrative Learning	Quantitative Reasoning	Learning Strategies
Collaborative Learning	Student-Faculty Interaction	Effective Teaching Practices	Quality of Interactions
Supportive Environment	Other (non-indicator) items		
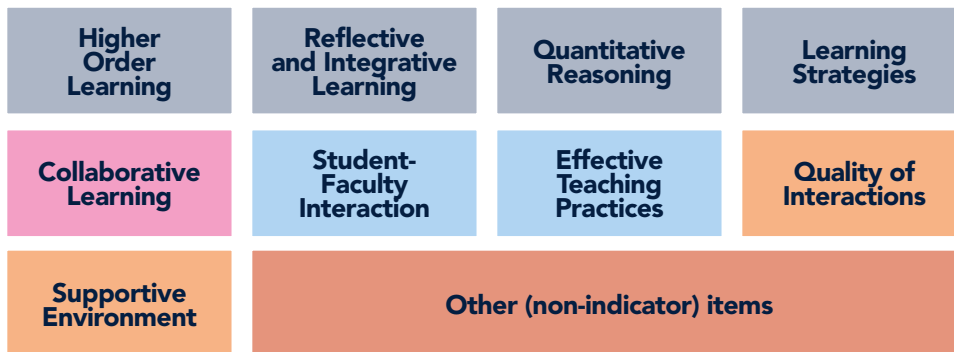
The full set of questions and the indicators to which they contribute are provided in appendix 2.

1.3
STRUCTURE OF THE SURVEY

The current questionnaire has 67 question items. To aid navigation, these questions can be grouped under certain engagement indicators. The term 'indicator' has been adopted to replace the previously used term, 'index', in order to support greater understanding. Questions can be grouped according to the indicator to which they have

been proven to contribute. (Details of statistical testing of ISSE data are provided on **www.studentsurvey.ie**). Indicators can be regarded as an additional navigation tool to explore the data and offer one approach to disaggregating data into more accessible subsets e.g. there may be a particular interest in collaborative learning. The following indicators are used, and responses to contributing questions are presented for each indicator in Chapter 2. It is worth noting that there are also questions that do not directly contribute to an engagement indicator but which are included because of their perceived value.

NOTES FOR INTERPRETING THE DATA

NOTES

Q: How is the score for each indicator calculated?

Indicator scores are indicators of relative performance and are **not** percentages. They are calculated scores to enable interpretation of the data at a higher level than individual questions i.e. to act as signposts to help the reader to navigate large data sets. With the revised survey in use from 2016, responses to individual question items are converted to a 60 point scale (rather than the 100 point scale used in the original survey) with the lowest response placed at 0 and the highest response placed at 60. To illustrate, if response 3 is chosen from 4 possible responses to this question, this response converts to a score of 40 as in the example below:

Question	Responses			
(During the current year, how much has your coursework emphasised...) Evaluating a point of view, decision, or information source	Very little	Some	Quite a bit	Very much
Responses transformed to 60-point scale	0	20	40	60

Indicator scores are calculated for an individual student when he/ she provides responses to all or almost all contributing questions. The exact number of responses required varies according to the indicator, based on psychometric testing undertaken for the NSSE. All responses are required for *Higher Order Learning, Quantitative Reasoning, Learning Strategies, Collaborative Learning* and *Student-Faculty Interaction*. All but one response are required for *Reflective and Integrative Learning*, *Effective Teaching Practices*, *Quality of Interactions*, and *Supportive Environment*. The indicator score is calculated from the mean of (non-blank) responses given. Indicator scores for any particular student group, for example first years, are calculated as the mean of individual indicator scores. Other than demographic data presented in table 2.1, all data in this report are weighted as outlined in section 2.2.

Q: How can I make best use of indicator scores?

Indicator scores provide greatest benefit when used as signposts to explore the experiences of different groups of students - for example, final year full-time students and final year part-time students. In particular, indicator scores provide an insight into the experiences of comparable cohorts over multiple datasets e.g. the experiences of 2017 first year students relative to 2016 first year students. If a particular indicator score prompts interest, it is most appropriate to investigate further by considering the number of respondents (to check if responses may be regarded as representative of that group) and by reviewing responses to contributing questions.

STEPS TO CONSIDER WHEN INTERPRETING INDICATOR SCORES

Indicator score appears higher / lower than for other groups → Review number of respondents to form view on how representative the data may be → Review responses to related questions → Potentially, explore further with student groups
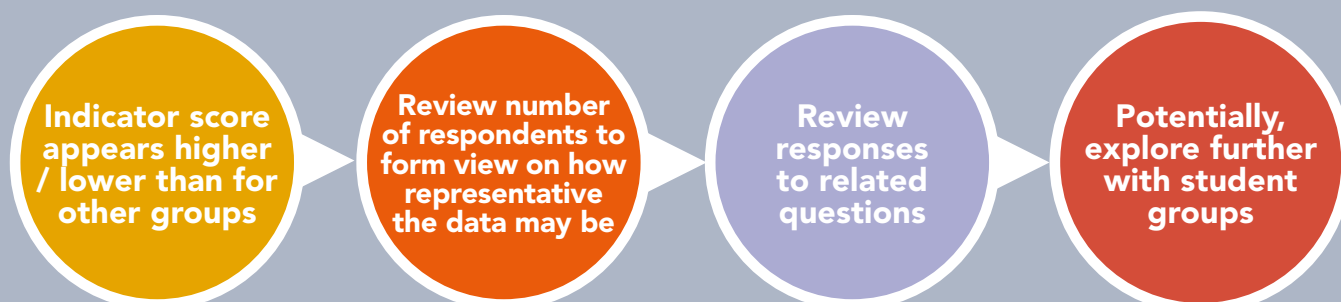
Q: Should I compare scores for different indicators?

Different indicators should not be compared to each other. For example, there is no simple direct link between scores for *Collaborative Learning* and scores for *Student-Faculty Interaction*. The following chart is used to illustrate this point. No useful interpretation can be drawn from the fact that scores for *Collaborative Learning* are generally higher than scores for *Student-Faculty Interaction*. However, the following differences may usefully be explored: *Collaborative Learning* scores for final year students are higher than *Collaborative Learning* scores for other cohorts; *Student-Faculty Interaction* scores appear notably lower for first years than *Student-Faculty Interaction* scores for other cohorts.
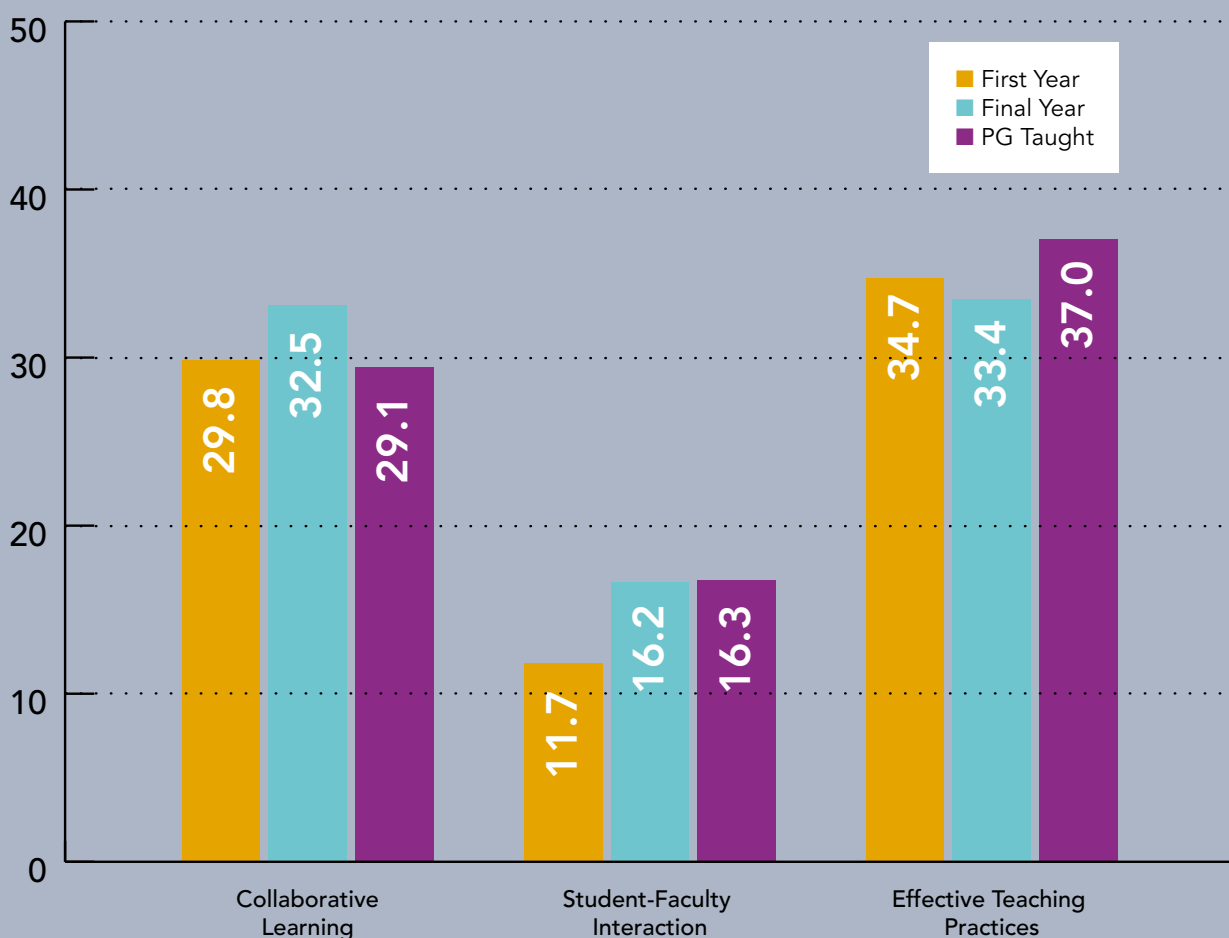
Interpretation of responses requires appreciation of the local context.

This informs the view that staff and students within individual institutions are best placed to own and interrogate institution-level data as they are best placed to understand the local context and to plan appropriate enhancement actions.

CHAPTER 2
RESULTS AND FINDINGS OF THE 2017 ISSE

2.1
INTRODUCTION

This chapter presents results from implementation of the Irish Survey of Student Engagement (ISSE) in 2017. It provides an overview of response rates for different groups of the student population and of the demographic profile of respondents. This is followed by national-level percentage responses for individual questions. Responses to individual questions are presented in groups corresponding to the indicator to which they contribute.

2.2
RESPONSE RATES AND DEMOGRAPHICS

A total of 35,850 students responded to the 2017 survey. This produced an overall national response rate of 27.2%, representing a notable increase from the comparable figure of 22.2% in 2016. The sample includes 17,902 first year undergraduate students, 12,554 final year undergraduate students and 5,394 postgraduate students. Table 2.1 presents the demographic profile of respondents.

As in previous years, the profile of respondents closely matches the overall student population profile at national level. For clarity, other than the demographic data presented in table 2.1, results used in this report are weighted by sex, mode of study and year / cohort. The use of weighting improves the extent to which respondents match the target student population and is regarded as standard practice with survey data.

It is positive to note that the number of responses nationally has increased substantially from previous years. The response rate for Universities, overall, increased from 19.2% in 2016 to 23.7% in 2017. The response rate for Institutes of Technology, overall, increased from 24.2% in 2016 to 31.1% in 2017. The response rate for 'other institutions' slightly decreased from 31.8% in 2016 to 31.0% in 2017. It is noted that the incorporation of three colleges of education into a university may have impacted on these changes. Response rates for any one year should not be taken as a direct indication of the effort expended to promote participation within individual institutions as experience demonstrates that a range of factors can influence the number of responses achieved in any given year.

The ISSE continues to contribute to a substantial dataset to inform discussion of the experiences of students in Irish higher education institutions. Almost 60,000 students responded to the original ISSE questions from 2013 to 2015 and more than 65,000 have responded to the current questions in 2016 and 2017.

Institutions and other partners acknowledge that it is important to continue to increase response rates to support reliable analysis of the experiences of sub-groups of the student population within institutions, for example, at faculty or school level. This is critical to maximise the value of the survey as a tool for the enhancement of teaching and learning within each institution. It is noted, however, that with seventeen of the twenty seven participating institutions achieving response rates greater than 25%, and with twelve response rates greater than 30%, some institutions are likely to find it challenging to continue to increase response dates on an annual basis. Indeed, in some cases, it may prove more beneficial, overall, to increase the emphasis on interpretation of the data and decision-making based on this analysis rather than focussing primarily on increasing response rates. This is a judgement to be made at institutional level. A realistic aim in the medium term may be to ensure that

the number of responses is sufficient to enable reliable analysis of the subsets of the data that correspond to the organisational structures that are likely to make greatest use of this analysis. At any particular time, in some institutions this may equate to faculty / school / department / programme or other units. It is important that all institutions continue to act (in an appropriate manner) on the data they have available rather than "wait" for some target response rate. Students will respond to the survey when it is clear that the staff they encounter on a regular basis convey the value of the survey to them. This is the factor that will have greatest impact on the number of responses and, accordingly, enable reliable analysis of increasingly disaggregated data.

Analysis of ISSE data to date demonstrates that, in common with other countries that have implemented comparable surveys, greatest variation is evident within institutions rather than between institutions. This informs the view that staff and students within individual institutions are best placed to own and interrogate institution-level data as they are best placed to understand the local context and to plan appropriate enhancement actions.

Table 2.1 Demographic characteristics of respondents

Characteristic	Population		Responses		Response Rate (%)
National	**131,709**		**35,850**		**27.2%**
Age					
23 and Under	74,903	56.9%	23,454	65.4%	31.3%
24 and Over	56,806	43.1%	12,396	34.6%	21.8%
Gender					
Female	67,323	51.1%	20,845	58.2%	31.0%
Male	64,386	48.9%	15,005	41.9%	23.3%
Institution-type					
Universities	69,438	52.7%	16,480	46.0%	23.7%
Institutes of Technology	53,842	40.9%	16,760	46.8%	31.1%
Other institutions	8,429	6.4%	2,610	7.3%	31.0%
Mode of Study					
Full-time	105,286	79.9%	32,025	89.3%	30.4%
Part-time / remote	26,423	20.1%	3,825	10.7%	14.5%
Field of Study					
Generic Programmes & Qualifications	127	0.1%	21	0.1%	16.5%
Education	9,089	6.9%	2,298	6.4%	25.3%
Arts & Humanities	20,063	15.2%	5,779	16.1%	28.8%
Social Sciences, Journalism & Information	7,806	5.9%	1,930	5.4%	24.7%
Business, Administration & Law	28,595	21.7%	7,650	21.3%	26.8%
Natural Sciences, Mathematics & Statistics	11,101	8.4%	3,562	9.9%	32.1%
Information & Communication Technologies	10,995	8.4%	3,221	9.0%	29.3%
Engineering, Manufacturing & Construction	14,460	11.0%	3,543	9.9%	24.5%
Agriculture, Forestry, Fisheries & Veterinary	2,002	1.5%	660	1.8%	33.0%
Health & Welfare	20,871	15.9%	5,283	14.7%	25.3%
Services	6,600	5.0%	1,903	5.3%	28.8%
Year/Cohort					
Undergraduate – First Year	55,807	42.4%	17,902	49.9%	32.1%
Undergraduate – Final Year	47,627	36.2%	12,554	35.0%	26.4%
Postgraduate (taught)	28,275	21.5%	5,394	15.1%	19.1%

2.3
RESPONSES TO INDIVIDUAL QUESTIONS

The majority of individual questions relate to a specific indicator or grouping. The scores for each indicator are calculated from responses to multiple questions that contribute to that indicator. Percentage responses to each question are presented in the following section and are grouped under the relevant indicator title. This national report also includes percentage responses for questions that do not contribute to specific indicators but are included in the survey because of their value. These questions are presented in section 2.3.10

2.3.1
QUESTIONS RELATING TO HIGHER ORDER LEARNING

These questions explore the extent to which students' work emphasises challenging cognitive tasks such as application, analysis, judgement, and synthesis.

Question and percentage response *During the current academic year, how much has your coursework emphasised...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Applying facts, theories, or methods to practical problems or new situations	Very little	6.3%	6.8%	6.8%	3.5%
	Some	25.5%	27.9%	25.5%	18.2%
	Quite a bit	42.1%	41.9%	41.5%	44.3%
	Very much	26.1%	23.5%	26.3%	34.0%
Analysing an idea, experience, or line of reasoning in depth by examining its parts	Very little	8.0%	9.2%	8.0%	4.1%
	Some	29.4%	32.4%	29.6%	19.0%
	Quite a bit	39.2%	38.8%	39.2%	40.6%
	Very much	23.4%	19.5%	23.2%	36.3%
Evaluating a point of view, decision, or information source	Very little	8.1%	9.3%	8.3%	3.6%
	Some	30.0%	33.2%	29.8%	20.1%
	Quite a bit	39.8%	39.0%	40.2%	41.7%
	Very much	22.1%	18.5%	21.7%	34.6%
Forming an understanding or new idea from various pieces of information	Very little	5.8%	6.5%	6.0%	3.3%
	Some	26.9%	28.9%	27.8%	18.3%
	Quite a bit	42.2%	42.7%	42.0%	41.1%
	Very much	25.1%	22.0%	24.2%	37.3%

2.3.2
QUESTIONS RELATING TO
REFLECTIVE AND INTEGRATIVE LEARNING

These questions explore the extent to which students relate their own understanding and experiences to the learning content being used.

Question and percentage response *During the current academic year, about how often have you...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Combined ideas from different subjects / modules when completing assignments	Never	6.1%	8.2%	4.4%	2.9%
	Sometimes	37.8%	41.7%	36.2%	28.8%
	Often	39.4%	37.1%	40.8%	43.8%
	Very often	16.7%	13.0%	18.5%	24.5%
Connected your learning to problems or issues in society	Never	18.4%	21.7%	16.8%	11.0%
	Sometimes	40.5%	42.7%	41.1%	32.2%
	Often	28.1%	25.8%	28.7%	34.3%
	Very often	13.0%	9.8%	13.4%	22.5%
Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in discussions or assignments	Never	32.9%	36.5%	31.4%	24.6%
	Sometimes	38.1%	38.4%	38.3%	36.6%
	Often	20.2%	18.1%	20.8%	25.7%
	Very often	8.8%	7.0%	9.5%	13.1%
Examined the strengths and weaknesses of your own views on a topic or issue	Never	11.4%	13.4%	10.8%	5.9%
	Sometimes	42.3%	44.6%	42.4%	34.3%
	Often	35.5%	33.0%	35.8%	42.9%
	Very often	10.9%	9.0%	11.0%	17.0%
Tried to better understand someone else's views by imagining how an issue looks from their perspective	Never	8.2%	9.6%	7.6%	5.1%
	Sometimes	39.3%	40.9%	39.4%	33.8%
	Often	37.8%	36.1%	38.5%	41.8%
	Very often	14.7%	13.4%	14.6%	19.3%
Learned something that changed the way you understand an issue or concept?	Never	3.6%	4.0%	3.5%	2.3%
	Sometimes	35.4%	36.5%	36.5%	28.8%
	Often	44.1%	44.0%	43.8%	45.0%
	Very often	17.0%	15.5%	16.1%	24.0%
Connected ideas from your subjects / modules to your prior experiences and knowledge	Never	3.5%	4.3%	3.2%	1.6%
	Sometimes	31.8%	35.4%	32.2%	19.3%
	Often	42.4%	41.5%	43.6%	43.0%
	Very often	22.2%	18.8%	21.1%	36.1%

2.3.3
QUESTIONS RELATING TO
QUANTITATIVE REASONING

These questions explore students' opportunities to develop their skills to reason quantitatively – to evaluate, support or critique arguments using numerical and statistical information.

Question and percentage response *During the current academic year,* *about how often have you...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Reached conclusions based on your analysis of numerical information (numbers, graphs, statistics, etc.)	Never	26.0%	28.3%	24.2%	22.8%
	Sometimes	40.9%	42.0%	39.6%	40.2%
	Often	23.9%	21.9%	25.9%	25.8%
	Very often	9.2%	7.8%	10.4%	11.2%
Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)	Never	38.6%	42.3%	36.5%	31.7%
	Sometimes	37.5%	36.9%	38.3%	37.9%
	Often	17.5%	15.6%	18.5%	21.1%
	Very often	6.4%	5.2%	6.8%	9.4%
Evaluated what others have concluded from numerical information	Never	37.4%	39.9%	35.7%	33.1%
	Sometimes	42.3%	42.4%	42.2%	42.0%
	Often	16.4%	14.6%	17.8%	19.2%
	Very often	3.9%	3.1%	4.3%	5.7%

2.3.4
QUESTIONS RELATING TO
LEARNING STRATEGIES

These questions explore the extent to which students actively engage with, and analyse, course material rather than approaching learning passively.

Question and percentage response *During the current academic year, about how often have you...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Identified key information from recommended reading materials	Never	10.0%	13.1%	8.7%	3.2%
	Sometimes	40.0%	44.1%	39.7%	27.3%
	Often	36.8%	33.2%	38.2%	45.6%
	Very often	13.1%	9.6%	13.4%	23.9%
Reviewed your notes after class	Never	8.7%	8.0%	10.9%	6.2%
	Sometimes	43.1%	44.1%	44.4%	37.2%
	Often	34.2%	33.7%	32.5%	39.5%
	Very often	14.0%	14.2%	12.2%	17.1%
Summarised what you learned in class or from course materials	Never	9.7%	9.5%	10.6%	8.2%
	Sometimes	43.0%	44.6%	42.5%	39.0%
	Often	35.0%	34.1%	35.2%	37.4%
	Very often	12.3%	11.8%	11.7%	15.4%

2.3.5
QUESTIONS RELATING TO
COLLABORATIVE LEARNING

These questions explore the extent to which students collaborate with peers to solve problems or to master difficult material, thereby deepening their understanding.

Question and percentage response *During the current academic year, about how often have you...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Asked another student to help you understand course material?	Never	10.9%	10.2%	10.2%	15.0%
	Sometimes	47.5%	46.8%	46.3%	52.5%
	Often	29.8%	31.1%	30.3%	24.1%
	Very often	11.8%	11.9%	13.1%	8.4%
Explained course material to one or more students	Never	6.5%	6.8%	5.5%	7.7%
	Sometimes	46.0%	47.4%	43.4%	47.8%
	Often	33.8%	33.3%	36.0%	30.5%
	Very often	13.7%	12.6%	15.1%	13.9%
Prepared for exams by discussing or working through course material with other students	Never	16.4%	17.4%	12.6%	21.8%
	Sometimes	37.1%	39.8%	34.3%	34.4%
	Often	30.1%	29.4%	31.8%	28.4%
	Very often	16.5%	13.5%	21.3%	15.4%
Worked with other students on projects or assignments	Never	10.9%	11.2%	9.0%	14.2%
	Sometimes	33.0%	36.2%	29.5%	30.8%
	Often	32.4%	33.5%	32.5%	28.7%
	Very often	23.7%	19.1%	29.0%	26.3%

2.3.6
QUESTIONS RELATING TO
STUDENT-FACULTY INTERACTION

These questions explore the extent to which students interact with academic staff. Interactions with academic staff can positively influence cognitive growth, development and persistence of students.

Question and percentage response *During the current academic year,* *about how often have you...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Talked about career plans with academic staff	Never	50.2%	59.4%	39.8%	44.2%
	Sometimes	33.6%	28.3%	39.8%	36.4%
	Often	12.1%	9.3%	15.3%	14.1%
	Very often	4.1%	3.0%	5.2%	5.4%
Worked with academic staff on activities other than coursework (committees, student groups, etc.)	Never	67.1%	71.0%	62.5%	64.7%
	Sometimes	22.4%	20.2%	25.0%	23.7%
	Often	8.0%	6.9%	9.4%	8.3%
	Very often	2.5%	1.9%	3.0%	3.3%
Discussed course topics, ideas, or concepts with academic staff outside of class	Never	42.3%	50.5%	35.8%	30.6%
	Sometimes	38.4%	34.2%	41.5%	45.1%
	Often	14.7%	12.0%	17.3%	17.6%
	Very often	4.5%	3.3%	5.4%	6.7%
Discussed your performance with academic staff	Never	38.5%	45.2%	32.6%	30.3%
	Sometimes	43.2%	40.0%	45.9%	47.5%
	Often	14.6%	11.9%	17.1%	17.5%
	Very often	3.7%	2.9%	4.4%	4.7%

2.3.7
QUESTIONS RELATING TO
EFFECTIVE TEACHING PRACTICES

These questions explore the extent to which students experience teaching practices that contribute to promoting comprehension and learning.

Question and percentage response *During the current academic year, to what extent have lecturers / teaching staff...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Clearly explained course goals and requirements	Very little	5.5%	5.3%	6.2%	4.3%
	Some	25.0%	25.3%	26.8%	20.0%
	Quite a bit	43.0%	43.6%	43.0%	41.2%
	Very much	26.5%	25.8%	23.9%	34.5%
Taught in an organised way	Very little	4.1%	3.5%	5.2%	3.8%
	Some	26.6%	26.4%	29.1%	21.6%
	Quite a bit	44.2%	45.0%	44.1%	41.9%
	Very much	25.0%	25.1%	21.6%	32.7%
Used examples or illustrations to explain difficult points	Very little	4.1%	3.4%	5.2%	3.5%
	Some	22.3%	21.8%	24.7%	18.1%
	Quite a bit	41.6%	41.5%	42.0%	40.9%
	Very much	32.1%	33.3%	28.1%	37.5%
Provided feedback on a draft or work in progress	Very little	21.4%	21.6%	21.7%	19.9%
	Some	32.9%	33.5%	33.3%	30.0%
	Quite a bit	28.7%	28.5%	28.9%	28.6%
	Very much	17.1%	16.4%	16.1%	21.5%
Provided prompt and detailed feedback on tests or completed assignments	Very little	21.3%	20.5%	23.2%	19.7%
	Some	32.9%	33.5%	33.4%	29.7%
	Quite a bit	28.9%	29.4%	28.4%	28.7%
	Very much	16.8%	16.5%	15.0%	21.9%

2.3.8
QUESTIONS RELATING TO
QUALITY OF INTERACTIONS

These questions explore student experiences of supportive relationships with a range of other people and roles on campus, thereby contributing to students' ability to find assistance when needed and to learn from and with those around them. Not applicable is available as a response option. 'Not applicable' responses have been removed from these results.

Question and percentage response *At your institution, please indicate the quality of interactions with...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Students	Poor	1.7%	1.5%	1.9%	1.7%
	2	2.1%	2.0%	2.4%	1.9%
	3	5.1%	4.8%	5.6%	4.8%
	4	11.3%	11.3%	11.9%	10.0%
	5	20.2%	20.8%	20.4%	17.8%
	6	22.8%	23.0%	22.0%	23.9%
	Excellent	36.8%	36.6%	35.8%	39.9%
Academic advisors	Poor	6.0%	5.5%	7.3%	4.1%
	2	7.0%	7.3%	7.4%	5.0%
	3	11.4%	12.2%	11.9%	7.8%
	4	18.2%	19.2%	18.5%	14.3%
	5	21.6%	22.1%	21.5%	20.4%
	6	17.9%	17.2%	17.4%	21.1%
	Excellent	18.0%	16.5%	16.1%	27.3%
Academic staff	Poor	3.6%	3.5%	4.3%	2.6%
	2	5.2%	5.6%	5.3%	3.9%
	3	9.6%	10.3%	10.0%	6.8%
	4	16.1%	17.4%	16.3%	11.7%
	5	21.9%	22.4%	22.2%	20.1%
	6	21.4%	20.4%	21.8%	24.0%
	Excellent	22.0%	20.5%	20.2%	31.0%

Question and percentage response *At your institution, please indicate the quality of interactions with...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Support services staff (career services, student activities, accommodation, etc.)	Poor	7.6%	6.4%	9.2%	7.2%
	2	8.0%	7.2%	9.4%	7.0%
	3	11.9%	11.3%	13.2%	10.5%
	4	16.4%	16.4%	16.8%	15.1%
	5	19.7%	19.9%	19.4%	19.4%
	6	17.4%	18.3%	15.9%	18.2%
	Excellent	19.1%	20.4%	16.1%	22.7%
Other administrative staff and offices (registry, finance, etc.)	Poor	7.5%	7.0%	8.7%	6.1%
	2	8.4%	7.9%	9.8%	6.8%
	3	11.5%	11.1%	12.8%	10.0%
	4	17.1%	17.8%	17.4%	14.2%
	5	19.9%	20.2%	19.5%	19.9%
	6	17.2%	17.2%	16.1%	19.7%
	Excellent	18.3%	18.7%	15.7%	23.4%

2.3.9
QUESTIONS RELATING TO
SUPPORTIVE ENVIRONMENT

These questions explore students' perceptions of how much an institution emphasises services and activities that support their learning and development.

Question and percentage response *How much does your institution emphasise...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Providing support to help students succeed academically	Very little	9.2%	7.3%	11.5%	9.5%
	Some	31.7%	29.1%	35.7%	30.8%
	Quite a bit	38.9%	40.1%	37.1%	39.4%
	Very much	20.2%	23.4%	15.6%	20.3%

Question and percentage response *How much does your institution emphasise...*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Using learning support services (learning centre, computer centre, maths support, writing support etc.)	Very little	15.2%	12.5%	18.2%	17.1%
	Some	28.9%	26.2%	32.1%	29.9%
	Quite a bit	33.4%	34.1%	32.4%	33.5%
	Very much	22.5%	27.1%	17.4%	19.5%
Contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	Very little	23.4%	20.2%	27.4%	24.3%
	Some	34.6%	34.1%	35.8%	33.4%
	Quite a bit	27.8%	29.7%	25.4%	27.0%
	Very much	14.3%	16.0%	11.5%	15.3%
Providing opportunities to be involved socially	Very little	14.3%	10.7%	16.8%	20.2%
	Some	31.2%	28.0%	34.4%	34.1%
	Quite a bit	34.1%	36.4%	32.4%	30.5%
	Very much	20.3%	24.8%	16.4%	15.2%
Providing support for your overall well-being (recreation, health care, counselling, etc.)	Very little	14.5%	11.0%	16.8%	20.5%
	Some	30.5%	28.0%	32.7%	33.5%
	Quite a bit	33.8%	35.6%	32.8%	30.4%
	Very much	21.1%	25.4%	17.7%	15.5%
Helping you manage your non-academic responsibilities (work, family, etc.)	Very little	37.8%	32.5%	43.0%	42.7%
	Some	34.3%	35.5%	33.3%	32.5%
	Quite a bit	19.9%	22.5%	17.3%	17.6%
	Very much	8.0%	9.5%	6.4%	7.2%
Attending campus activities and events (special speakers, cultural performances, sporting events, etc.)	Very little	18.0%	15.5%	20.0%	21.6%
	Some	33.7%	31.6%	36.7%	33.7%
	Quite a bit	32.6%	34.2%	31.3%	30.2%
	Very much	15.7%	18.6%	12.1%	14.6%
Attending events that address important social, economic, or political issues	Very little	26.2%	23.5%	29.6%	26.9%
	Some	36.4%	35.7%	37.6%	36.1%
	Quite a bit	26.2%	27.6%	24.5%	25.4%
	Very much	11.2%	13.2%	8.3%	11.6%

2.3.10
QUESTIONS NOT RELATING TO INDICATORS

These questions do not contribute to specific indicators but are included in the survey because of the value of student responses to each individual item.

Question and percentage response (Different question stems are used to prefix these items)		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Asked questions or contributed to discussions in class, tutorials, labs or online *During the current academic year, about how often have you...*	Never	8.3%	10.6%	7.3%	3.1%
	Sometimes	40.8%	44.8%	39.9%	29.4%
	Often	30.9%	29.0%	31.9%	34.6%
	Very often	20.0%	15.5%	20.8%	32.9%
Come to class without completing readings or assignments *During the current academic year, about how often have you...*	Never	30.0%	30.3%	26.7%	36.5%
	Sometimes	48.3%	48.1%	48.3%	48.7%
	Often	15.4%	15.4%	17.4%	10.7%
	Very often	6.3%	6.1%	7.6%	4.2%
Made a presentation in class or online *During the current academic year, about how often have you...*	Never	19.4%	25.2%	12.7%	16.0%
	Sometimes	44.7%	46.9%	42.8%	41.5%
	Often	24.3%	20.4%	28.6%	27.5%
	Very often	11.5%	7.5%	15.8%	15.0%
Improved knowledge and skills that will contribute to your employability *During the current academic year, about how often have you...*	Never	5.9%	7.5%	4.7%	3.4%
	Sometimes	31.0%	34.0%	30.7%	21.6%
	Often	40.9%	39.1%	42.8%	42.7%
	Very often	22.2%	19.4%	21.9%	32.3%
Explored how to apply your learning in the workplace *During the current academic year, about how often have you...*	Never	19.9%	25.6%	16.2%	9.7%
	Sometimes	36.4%	37.7%	37.3%	30.2%
	Often	29.2%	25.4%	31.7%	35.8%
	Very often	14.5%	11.3%	14.8%	24.2%
Exercised or participated in physical fitness activities *During the current academic year, about how often have you...*	Never	29.1%	28.4%	27.8%	34.4%
	Sometimes	30.4%	30.0%	31.0%	30.1%
	Often	20.3%	20.4%	20.9%	18.4%
	Very often	20.3%	21.2%	20.3%	17.1%
Blended academic learning with workplace experience *During the current academic year, about how often have you...*	Never	29.2%	38.2%	22.5%	15.6%
	Sometimes	31.6%	31.5%	32.9%	28.6%
	Often	24.9%	20.3%	28.9%	30.9%
	Very often	14.3%	10.0%	15.7%	24.9%

Question and percentage response *(Different question stems are used to prefix these items)*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Worked on assessments that informed you how well you are learning *During the current academic year, about how often have you...*	Never	23.3%	22.9%	25.4%	19.5%
	Sometimes	42.8%	44.2%	42.9%	38.2%
	Often	26.5%	25.7%	25.5%	31.2%
	Very often	7.4%	7.2%	6.2%	11.1%
Memorising course material *During the current academic year, how much has your coursework emphasised...*	Very little	15.2%	12.4%	12.0%	31.5%
	Some	34.0%	36.2%	30.5%	34.9%
	Quite a bit	34.8%	36.5%	37.0%	24.1%
	Very much	16.0%	14.8%	20.6%	9.4%
Work with academic staff on a research project *Which of the following have you done or do you plan to do before you graduate from your institution...*	Have not decided	32.9%	44.8%	22.5%	18.9%
	Do not plan to do	23.5%	17.0%	33.4%	21.2%
	Plan to do	27.4%	34.8%	14.7%	33.2%
	Done or in progress	16.3%	3.4%	29.5%	26.7%
Community service or volunteer work *Which of the following have you done or do you plan to do before you graduate from your institution...*	Have not decided	27.1%	29.5%	24.6%	25.2%
	Do not plan to do	24.7%	15.5%	32.3%	36.8%
	Plan to do	29.7%	40.7%	18.9%	19.3%
	Done or in progress	18.5%	14.3%	24.2%	18.7%
Spending significant amounts of time studying and on academic work *How much does your institution emphasise...*	Very little	4.4%	5.0%	3.9%	3.2%
	Some	25.3%	29.0%	22.5%	19.9%
	Quite a bit	47.0%	46.5%	47.4%	47.6%
	Very much	23.4%	19.4%	26.2%	29.3%
Writing clearly and effectively *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	12.8%	15.9%	10.0%	9.3%
	Some	31.4%	36.4%	27.1%	25.4%
	Quite a bit	37.1%	34.4%	39.8%	39.3%
	Very much	18.7%	13.3%	23.0%	26.0%
Speaking clearly and effectively *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	14.3%	17.0%	11.1%	13.3%
	Some	31.0%	33.9%	28.5%	27.7%
	Quite a bit	36.3%	34.3%	38.6%	37.2%
	Very much	18.4%	14.8%	21.9%	21.7%
Thinking critically and analytically *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	4.2%	5.0%	3.5%	3.4%
	Some	22.0%	25.2%	19.7%	17.2%
	Quite a bit	42.1%	43.4%	40.7%	41.4%
	Very much	31.7%	26.4%	36.1%	38.0%

Question and percentage response *(Different question stems are used to prefix these items)*		All Students	Undergraduate - Year 1	Undergraduate - Final Yr	Postgraduate
Analysing numerical and statistical information *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	21.1%	22.3%	19.2%	21.7%
	Some	31.3%	32.8%	29.8%	29.6%
	Quite a bit	29.7%	29.3%	30.5%	29.4%
	Very much	17.9%	15.5%	20.5%	19.3%
Acquiring job- or work-related knowledge and skills *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	13.0%	15.2%	11.7%	9.0%
	Some	29.7%	32.6%	27.6%	25.5%
	Quite a bit	34.1%	32.2%	36.1%	35.5%
	Very much	23.2%	20.0%	24.6%	30.0%
Working effectively with others *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	7.1%	7.0%	6.4%	9.1%
	Some	25.0%	26.1%	23.1%	25.9%
	Quite a bit	39.9%	40.3%	40.5%	37.3%
	Very much	28.0%	26.5%	30.1%	27.7%
Solving complex real-world problems *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	16.6%	18.5%	15.6%	12.8%
	Some	34.0%	35.9%	32.9%	30.2%
	Quite a bit	32.0%	30.1%	33.1%	35.5%
	Very much	17.4%	15.5%	18.3%	21.4%
Being an informed and active citizen (societal / political / community) *How much has your experience at this institution contributed to your knowledge, skills and personal development in the following areas...*	Very little	22.8%	23.8%	22.2%	21.3%
	Some	34.5%	36.4%	33.6%	30.4%
	Quite a bit	27.6%	26.6%	28.1%	29.4%
	Very much	15.2%	13.3%	16.1%	18.9%
How would you evaluate your entire educational experience at this institution?	Poor	2.7%	1.7%	3.9%	2.9%
	Fair	14.4%	12.9%	16.8%	13.4%
	Good	50.6%	51.7%	50.7%	46.8%
	Excellent	32.4%	33.6%	28.7%	36.9%
If you could start over again, would you go to the same institution you are now attending?	Definitely no	3.4%	2.1%	5.5%	2.6%
	Probably no	11.3%	9.5%	14.4%	9.9%
	Probably yes	42.6%	42.3%	43.2%	42.0%
	Definitely yes	42.8%	46.1%	37.0%	45.5%

CHAPTER 3
ENGAGEMENT INDICATORS AT NATIONAL LEVEL

3.1
INTRODUCTION

Having provided detail of responses to individual questions in the previous chapter, this chapter presents an analysis of indicators from a variety of perspectives, including:

- By year/cohort

- By institution-type

- By mode of study

- By programme-type

- By field of study

Data generated by the original and revised ISSE surveys have been tested for reliability and validity. Results of this testing are published on **www.studentsurvey.ie**. In addition, 2017 results presented in this and the following chapters have been tested for statistical significance and the commentary that accompanies each chart refers only to those differences that can be proven with 95% confidence or greater i.e. statistically significant[1].

NOTES FOR INTERPRETING THE DATA

Indicator scores provide signposts to the experiences of students. These are NOT percentages.

Please refer to notes for interpreting the data on pages 8-9

Compare scores WITHIN each Indicator and NOT between Indicators

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[1] A single asterisk (*) denotes where there is no statistically significant difference between pairs of scores included in a chart with two or three bars. Asterisks are not shown for charts with a large number of bars (for example, 3.5 and 3.6) due to the amount of additional detail necessary to illustrate every possible set of pairs.

3.2
YEAR/COHORT
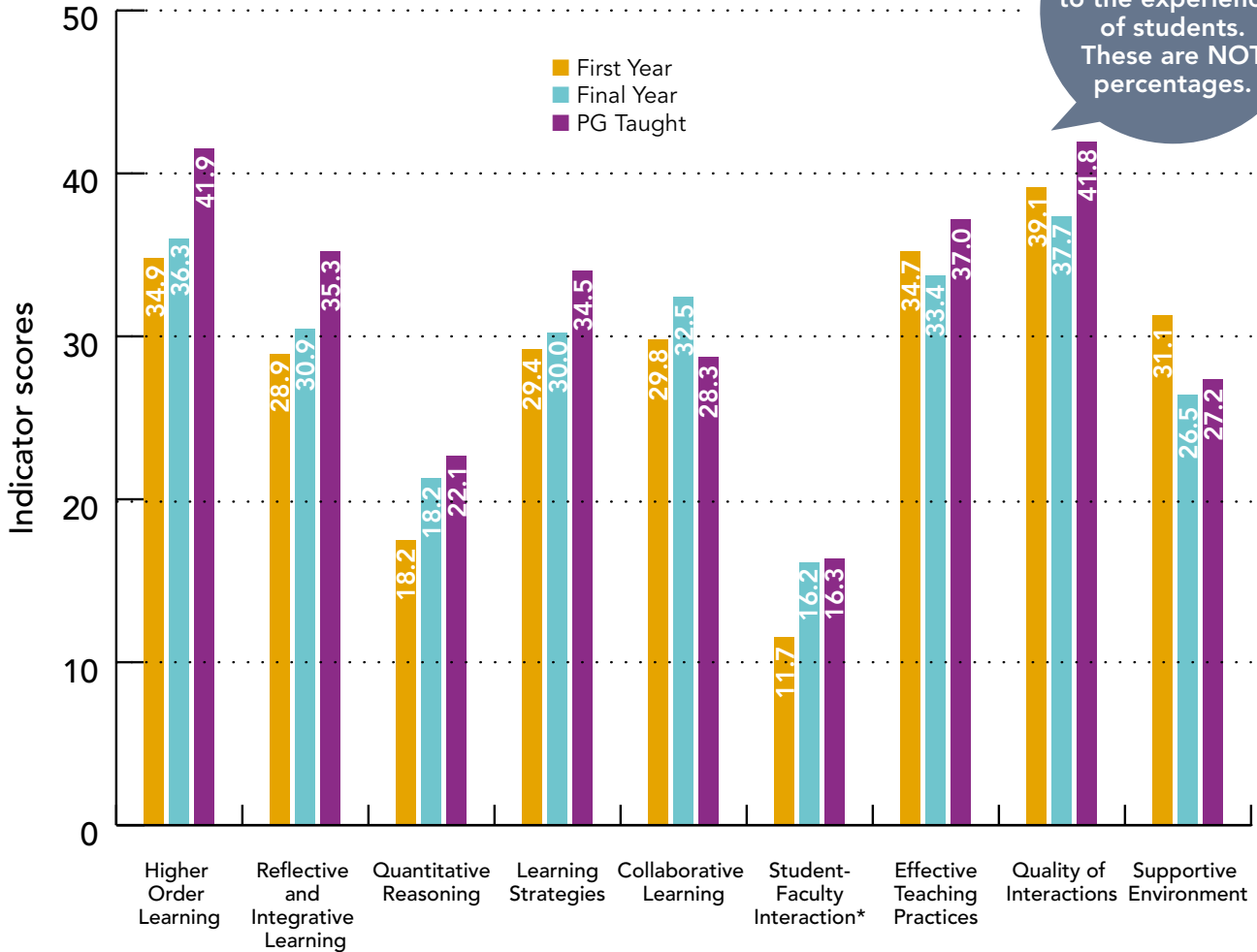
Figure 3.2 presents indicator scores for all students from each year of study. It illustrates that *Higher Order Learning* scores and *Learning Strategies* scores are highest for postgraduate students and lowest for first years, with the greatest difference between undergraduate and postgraduate experiences. Indicator scores for *Reflective and Integrative Learning* and for *Quantitative Reasoning* follow the same pattern of increasing scores as students progress through their studies.

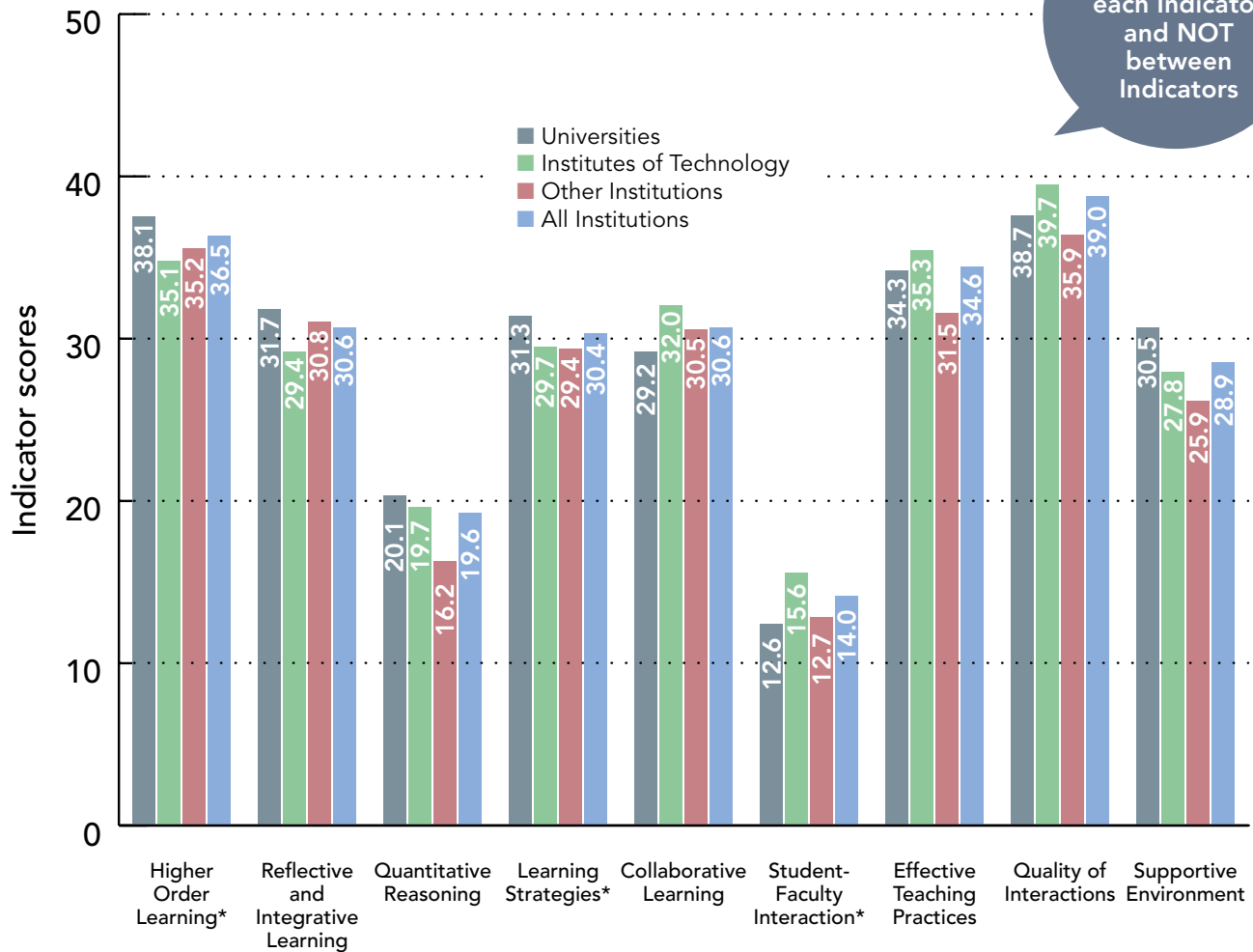As noted in previous annual results, indicator scores for *Student-Faculty Interaction* are lowest for first year undergraduate students. However, the trend of increased scores for this indicator, as reflected in the previous year's national report, continues with an indicator score of 11.7 in 2017 compared to 11.4 in 2016. Also as in previous years, first year respondents generate higher scores than other cohorts for *Supportive Environment*.

The difference between *Student-Faculty Interaction* scores for final year and postgraduate students is not statistically significant.

3.3
INSTITUTION TYPE

Compare scores WITHIN each Indicator and NOT between Indicators

Legend:
- Universities
- Institutes of Technology
- Other Institutions
- All Institutions

Indicator	Universities	Institutes of Technology	Other Institutions	All Institutions
Higher Order Learning*	38.1	35.1	35.2	36.5
Reflective and Integrative Learning	31.7	29.4	30.8	30.6
Quantitative Reasoning	20.1	19.7	16.2	19.6
Learning Strategies*	31.3	29.7	29.4	30.4
Collaborative Learning	29.2	32.0	30.5	30.6
Student-Faculty Interaction*	12.6	15.6	12.7	14.0
Effective Teaching Practices	34.3	35.3	31.5	34.6
Quality of Interactions	38.7	39.7	35.9	39.0
Supportive Environment	30.5	27.8	25.9	28.9

Figure 3.3 presents indicator scores by institution-type nationally. The institution-types are: Universities, Institutes of Technology and other institutions. Participating institutions are listed under these groupings in appendix 3. The results are presented for the full cohort of students.

Indicator scores for each institution-type are broadly similar, reflecting the fact that surveys of student engagement tend to find greater variation within institutions than between institutions (in Ireland and internationally). Some differences are illustrated in this chart. These differences may reflect the mission, ethos or culture of different institutions. For example, the potential impact of differing proportions of students pursuing particular disciplines is illustrated in chart 3.6 which presents national results for different fields of study.

Indicator scores for *Higher Order Learning, Learning Strategies* and *Supportive Environment* are higher for Universities than for other institution-types. Scores for *Collaborative Learning* and for *Student-Faculty Interaction* are higher for Institutes of Technology than for other institution-types.

The differences in indicator scores between institutes of technology and other institutions for *Higher Order Learning* and for *Learning Strategies* are not statistically significant. The difference in scores for *Student-Faculty Interaction* for Universities and other institutions is not statistically significant.
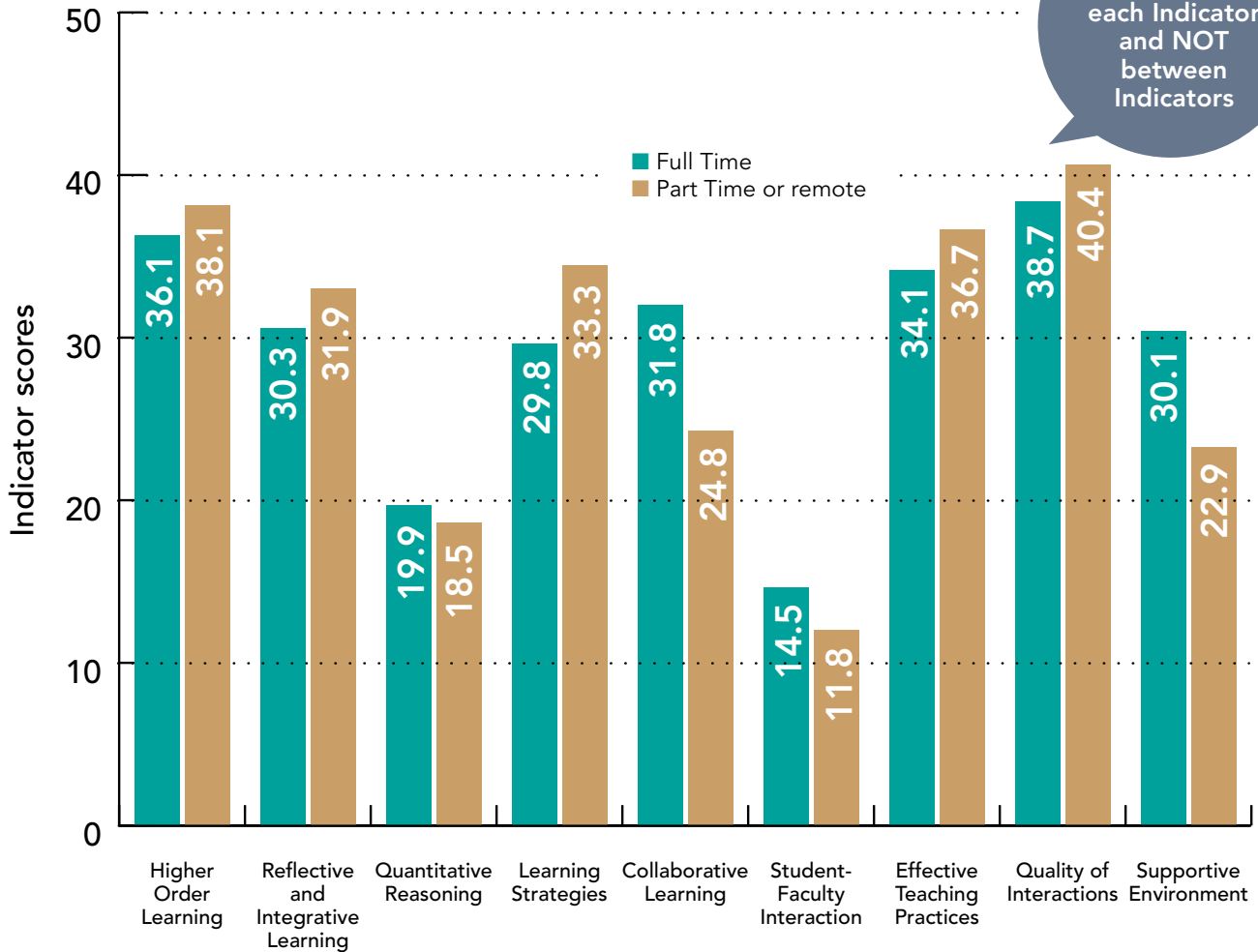
3.4
MODE OF STUDY

Compare scores WITHIN each Indicator and NOT between Indicators

Legend:
- ■ Full Time
- ■ Part Time or remote

Y-axis: Indicator scores (0 to 50)

Indicator	Full Time	Part Time or remote
Higher Order Learning	36.1	38.1
Reflective and Integrative Learning	30.3	31.9
Quantitative Reasoning	19.9	18.5
Learning Strategies	29.8	33.3
Collaborative Learning	31.8	24.8
Student-Faculty Interaction	14.5	11.8
Effective Teaching Practices	34.1	36.7
Quality of Interactions	38.7	40.4
Supportive Environment	30.1	22.9

Figure 3.4 presents indicator scores for full-time and part-time / remote students. The chart illustrates that full-time students report more positive experiences of *Quantitative Reasoning*, *Collaborative Learning*, *Student-Faculty Interaction* and *Supportive Environment* whereas part-time students report more positive experiences for the indicators *Higher Order Learning*, *Learning Strategies*, *Effective Teaching Practices* and *Quality of Interactions*.

3.5
PROGRAMME TYPE

Indicator scores provide signposts to the experiences of students. These are NOT percentages.
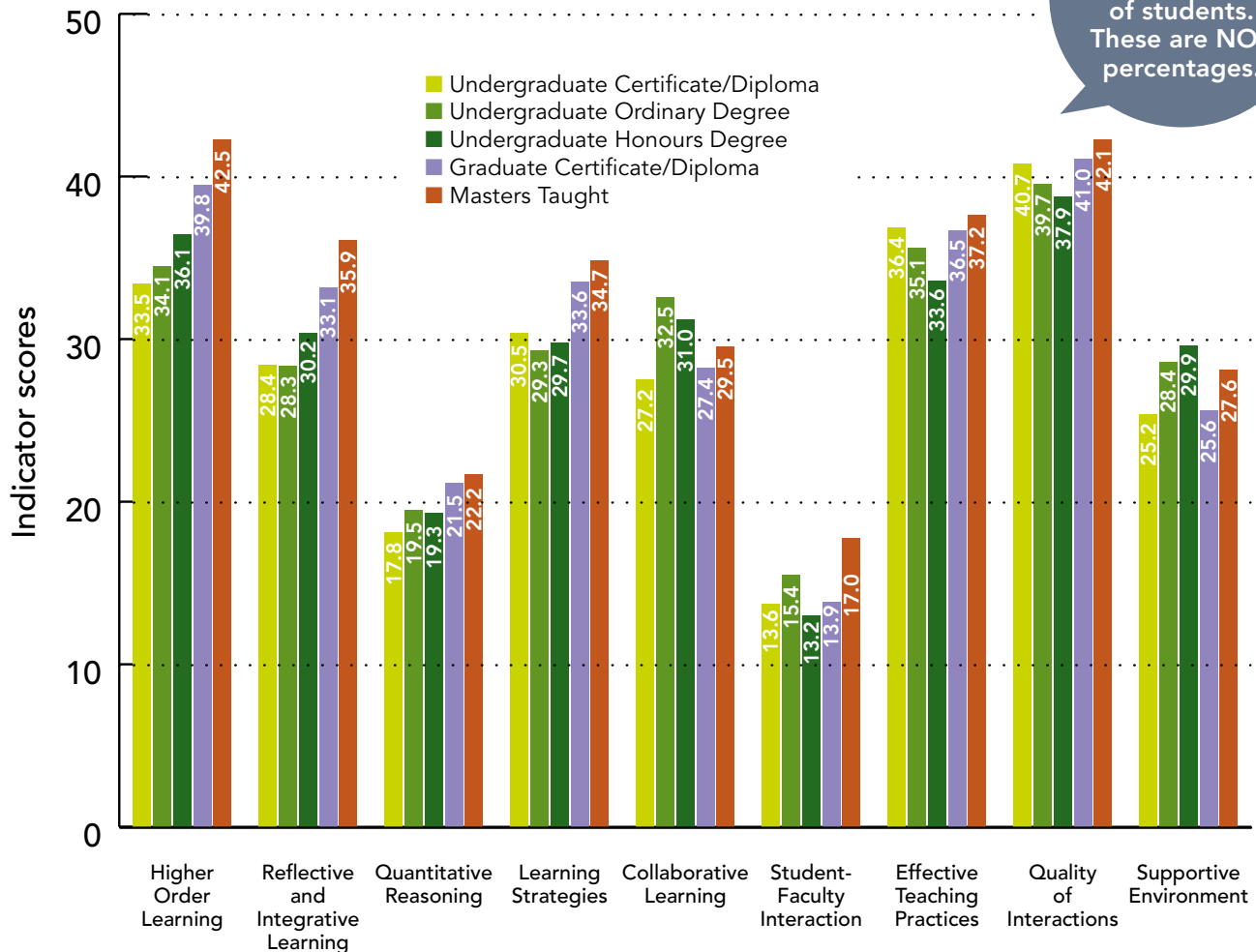
Figure 3.5 presents indicator scores by programme-type (i.e. programmes leading to Higher Certificate, Ordinary Bachelor Degree, Honours Bachelor Degree, Higher Diploma / Postgraduate Diploma, Masters Degree, qualifications at levels 6 to 9 of the National Framework of Qualifications) for all respondents nationally.

This figure illustrates that students pursuing Masters Degrees generate higher indicator scores than other students for *Higher Order Learning, Reflective and Integrative Learning* and *Quantitative Reasoning.*

Students pursuing Ordinary Bachelor and Honours Bachelor Degrees report higher scores for *Collaborative Learning* than other groups. Differences in scores for *Student-Faculty Interaction* for students on programmes leading to Undergraduate Certificate / Diploma, Undergraduate Honours Degree or Graduate Certificate / Diploma are not statistically significant. This is also the case for the two numerically closest scores for each of the other indicators i.e. most visual differences in the chart are statistically significant.

3.6
FIELD OF STUDY
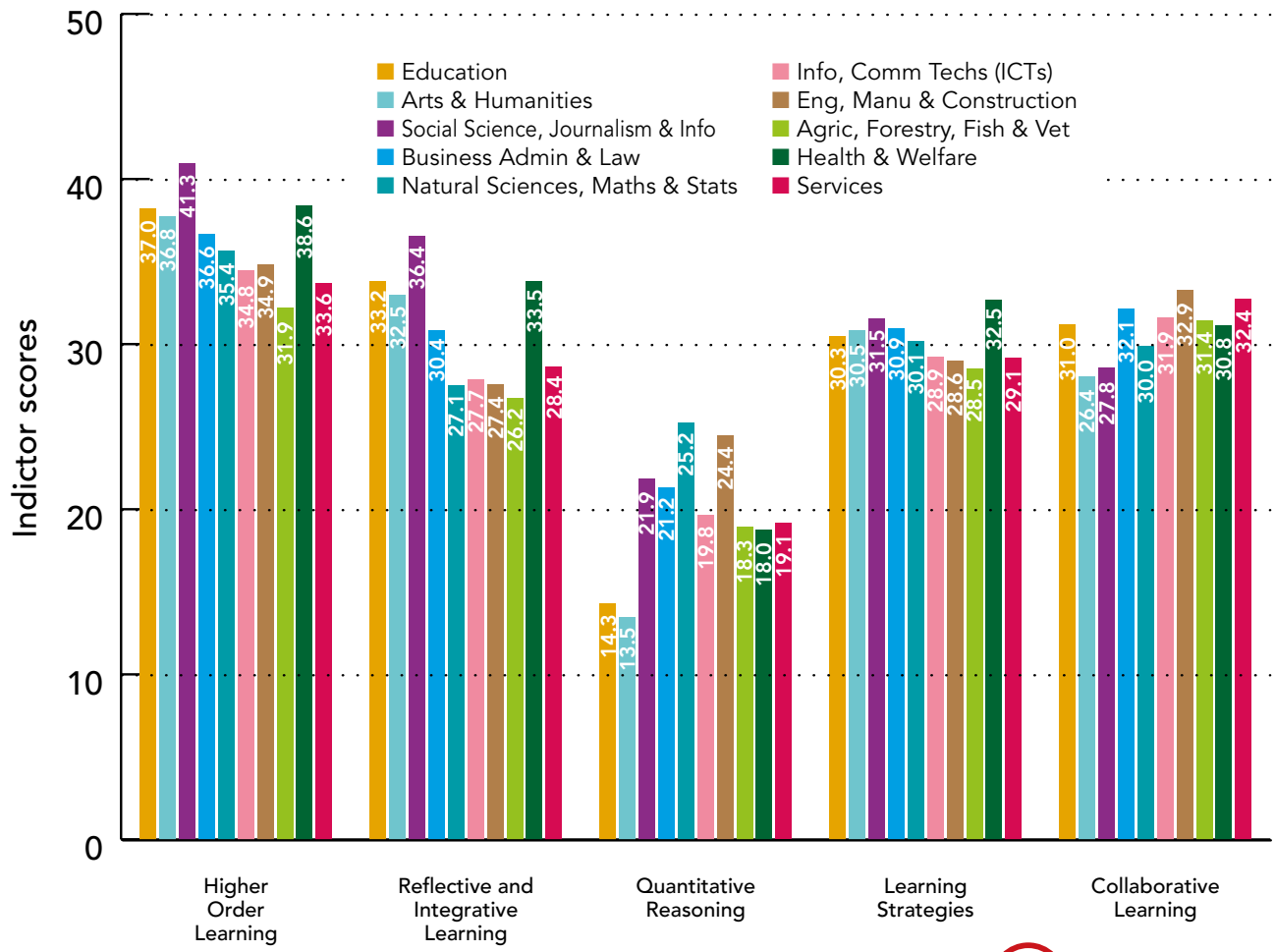
Figure 3.6 presents scores for broad fields of study. As one might expect, there are notable differences between fields of study. Social Sciences, journalism and information students generate the highest indicator scores for *Higher Order Learning*, and for *Reflective and Integrative Learning*; students of Natural Sciences, Mathematics and Statistics generate highest scores for *Quantitative Reasoning*, closely followed by students taking Engineering, Manufacturing & Construction who also present the highest scores for *Collaborative Learning* whereas Arts and Humanities students score for *Collaborative Learning* is the lowest. Students pursuing Education programmes present the lowest scores for *Supportive Environment* and for *Effective Teaching Practices* with students taking Agriculture,

Indicator scores provide signposts to the experiences of students. These are NOT percentages.

forestry, fisheries and veterinary also generating a low score for *Effective Teaching Practices.* It is worth noting that use of a common set of questions for all students taking part in ISSE cannot equally reflect the diverse nature of some disciplines' programmes.

Legend:
- Education
- Arts & Humanities
- Social Science, Journalism & Info
- Business Admin & Law
- Natural Sciences, Maths & Stats
- Info, Comm Techs (ICTs)
- Eng, Manu & Construction
- Agric, Forestry, Fish & Vet
- Health & Welfare
- Services

Student-Faculty Interaction: 13.5, 14.3, 13.2, 13.5, 12.1, 14.0, 14.8, 14.1, 14.2, 18.0

Effective Teaching Practices: 32.3, 35.7, 35.7, 35.4, 34.0, 34.7, 33.8, 32.6, 34.9, 36.1

Quality of Interactions: 36.3, 39.1, 39.1, 38.4, 38.7, 41.0, 39.0, 37.8, 39.5, 40.1

Supportive Environment: 24.6, 30.4, 30.6, 28.9, 30.2, 28.4, 27.1, 27.8, 29.6, 28.6

Compare scores WITHIN each Indicator and NOT between Indicators

3.7
STUDENT CHARACTERISTICS

The final section of this chapter presents scores for
each engagement indicator according to the following
selected student characteristics:

- Gender

- Age group

- Domiciliary

These characteristics are likely to correlate with other
presentations of data. The 2016 national report
explored potential inter-relationships with a series of
tabular statistics in chapter 5, "Looking Deeper". For
example, particular modes of study or gender may
be over- or under-represented in specific fields of
study. Results for *Quantitative Reasoning* may reflect
typical gender balances in identified disciplines.
Similarly, some of the differences reported by different
age groups may relate to the programme-type most
frequently being pursued.

3.7.1 Gender

Indicator scores provide signposts to the experiences of students. These are NOT percentages.
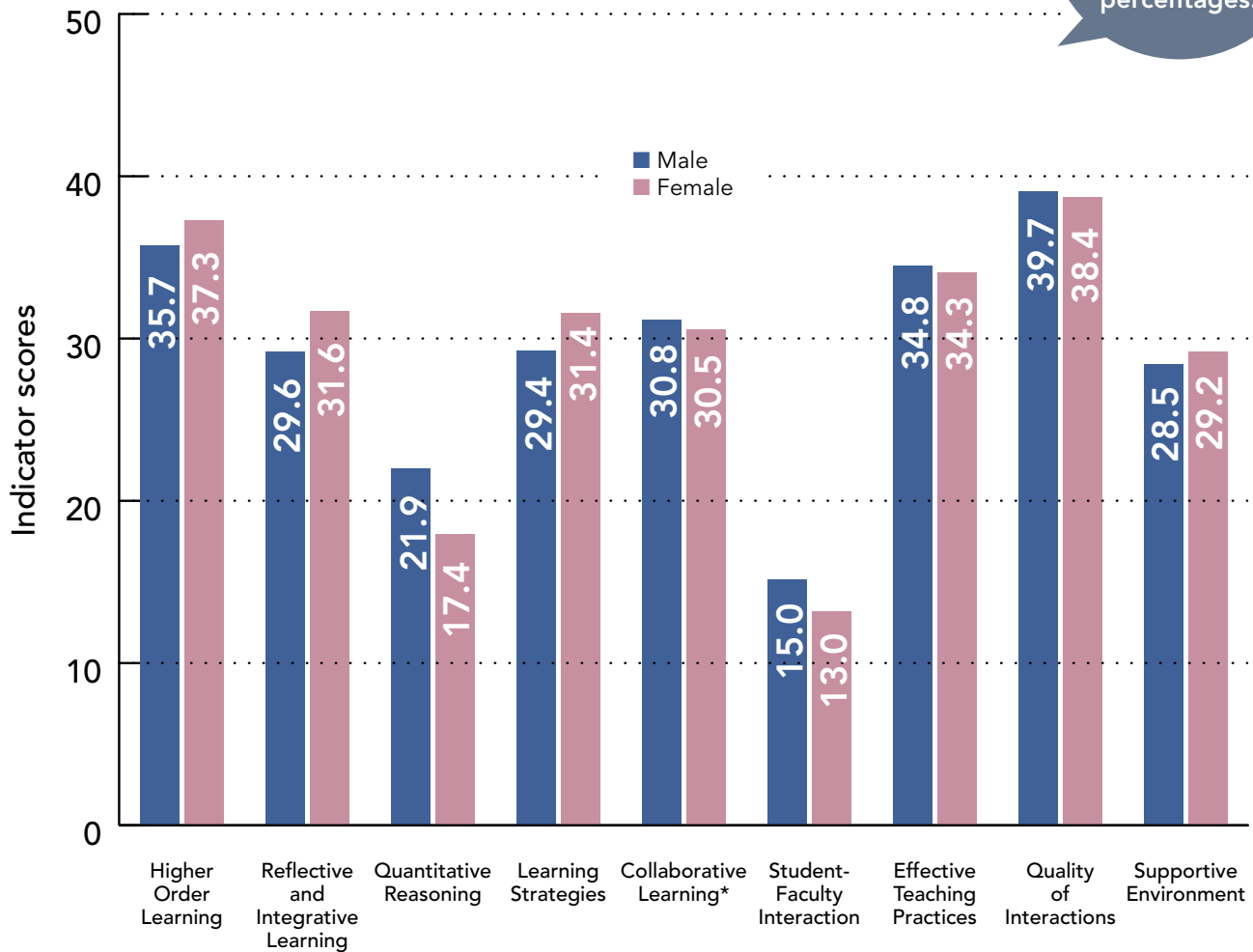
Figure 3.7.1 presents scores for engagement indicators by gender. It illustrates that, while scores are broadly similar for male and female students, female students' responses generate higher scores than male students for *Higher Order Learning*, *Reflective and Integrative Learning*, *Learning Strategies* and *Supportive Environment.* Responses from male students result in higher scores for *Quantitative Reasoning*, Student-Faculty Interaction and for *Quality of Interactions.*

3.7.2 Age group

Indicator scores provide signposts to the experiences of students. These are NOT percentages.
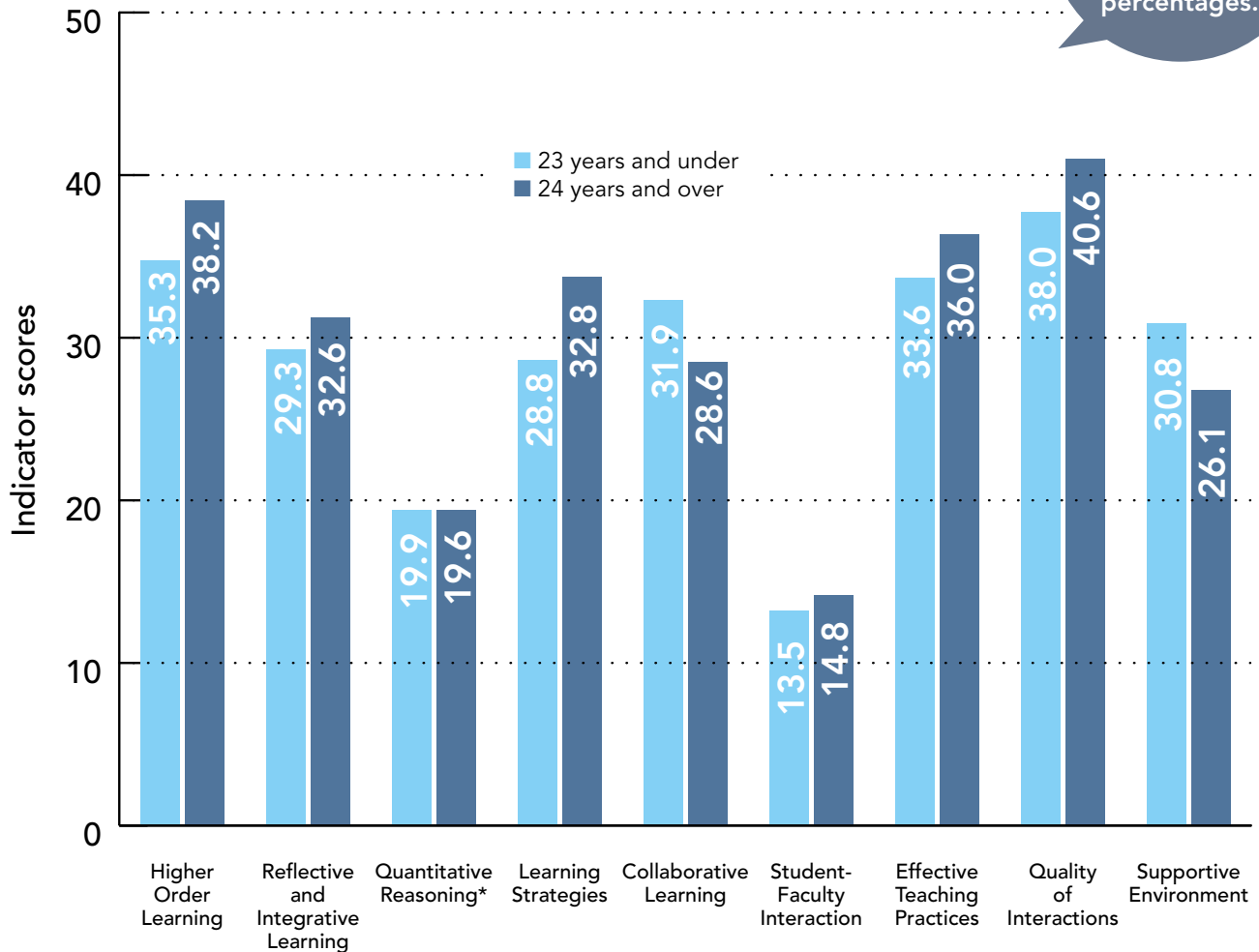
Figure 3.7.2 presents indicator scores by age group. It illustrates that scores for *Higher Order Learning, Reflective and Integrative Learning, Effective Teaching Practices, Quality of Interactions and Learning Strategies* are higher for students aged 24 years and older than for other students. Younger students generate higher scores for *Collaborative Learning and for Supportive Environment.*

The difference in scores for *Quantitative Reasoning* is not statistically significant.

3.7.3 Domicile
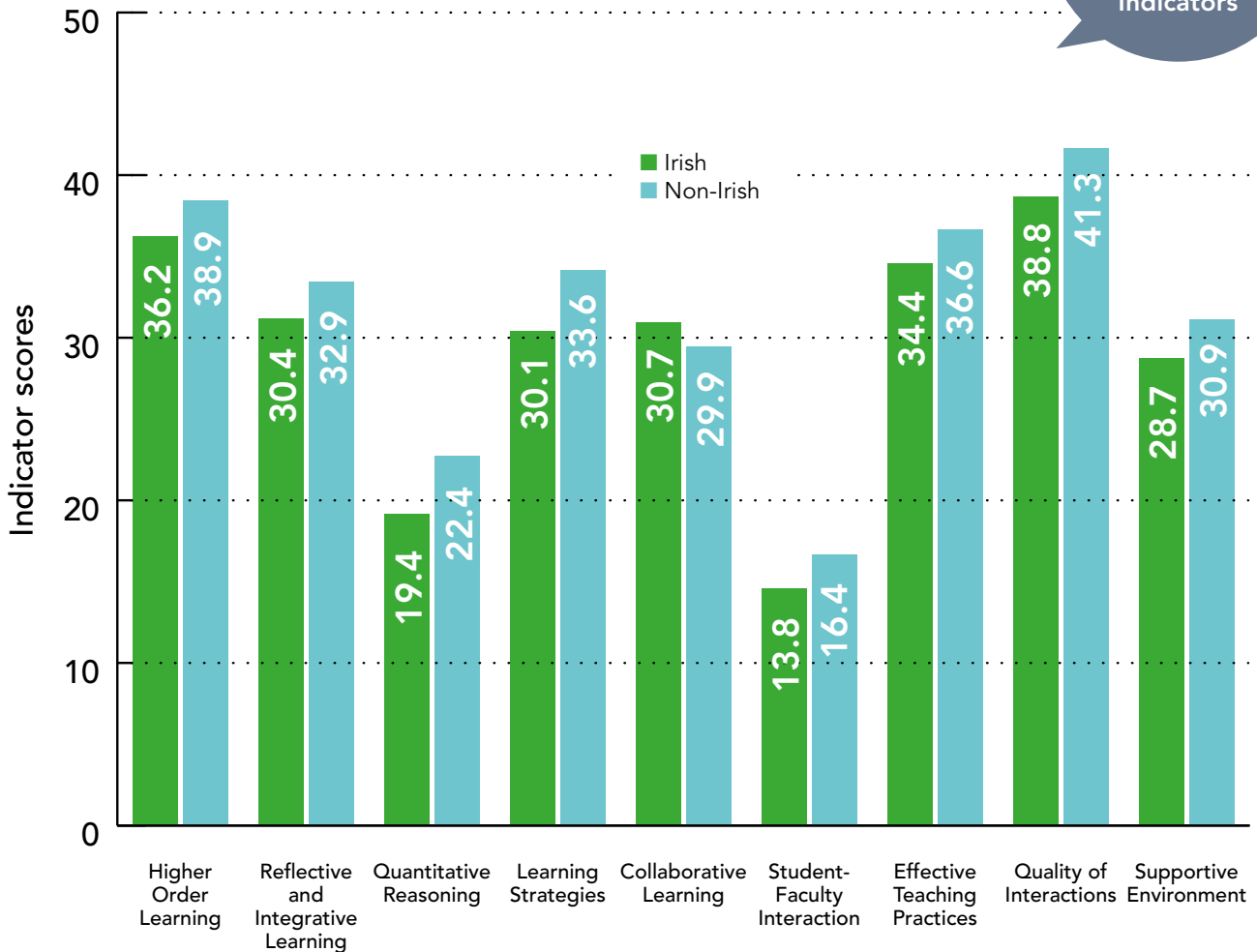
Figure 3.7.3 demonstrates that indicator scores for non-Irish students are higher than for Irish students for all indicators other than *Collaborative Learning.*

CHAPTER 4
NATIONAL RESULTS IN CONTEXT

4.1
INTRODUCTION

In this chapter, a selection of results from ISSE 2017 is presented alongside results from 2016. At national level, there is limited difference in results from year to year which reflects the fact that results are regarded as reliable due to the limited change at "system level" in any given year. Nevertheless, the majority of changes in indicator scores are positive. It is noted that greater variation is likely within data for any individual institution. In addition, responses are presented for a number of questions that are used in engagement surveys in other countries. Care should be taken when interpreting such results as there are many potential influencing factors on student responses but, nevertheless, there is interest in considering how results from Ireland compare to results from other jurisdictions.

4.2
NATIONAL RESULTS FROM 2016 AND 2017

Indicator scores for *Higher Order Learning, Quantitative Reasoning, Student-Faculty Interaction, Quality of Interactions* and *Supportive Environment* are higher in 2017 than in the previous year.

The differences in scores from 2016 and 2017 for *Reflective and Integrative Learning, Learning Strategies, Collaborative Learning and Effective Teaching Practices* are not statistically significant.

In the 2016 national report, the equivalent chapter on national results in context explored the impact of the use of revised questions and indicators for the first time. It noted that forty five of the sixty seven questions used in the revised (current) survey were closely related to questions used in the original version of ISSE since 2013. In particular, all questions relating to *Student-Faculty Interactions* were left largely unchanged with the revision. This means that scores for the entire indicator can be examined over time. The report noted that 2016 results for this indicator were the most positive to date. It is pleasing that 2017 results for this indicator have improved again, which could be regarded as indicating the potential benefits of focussing over time on specific aspects of the student experience.
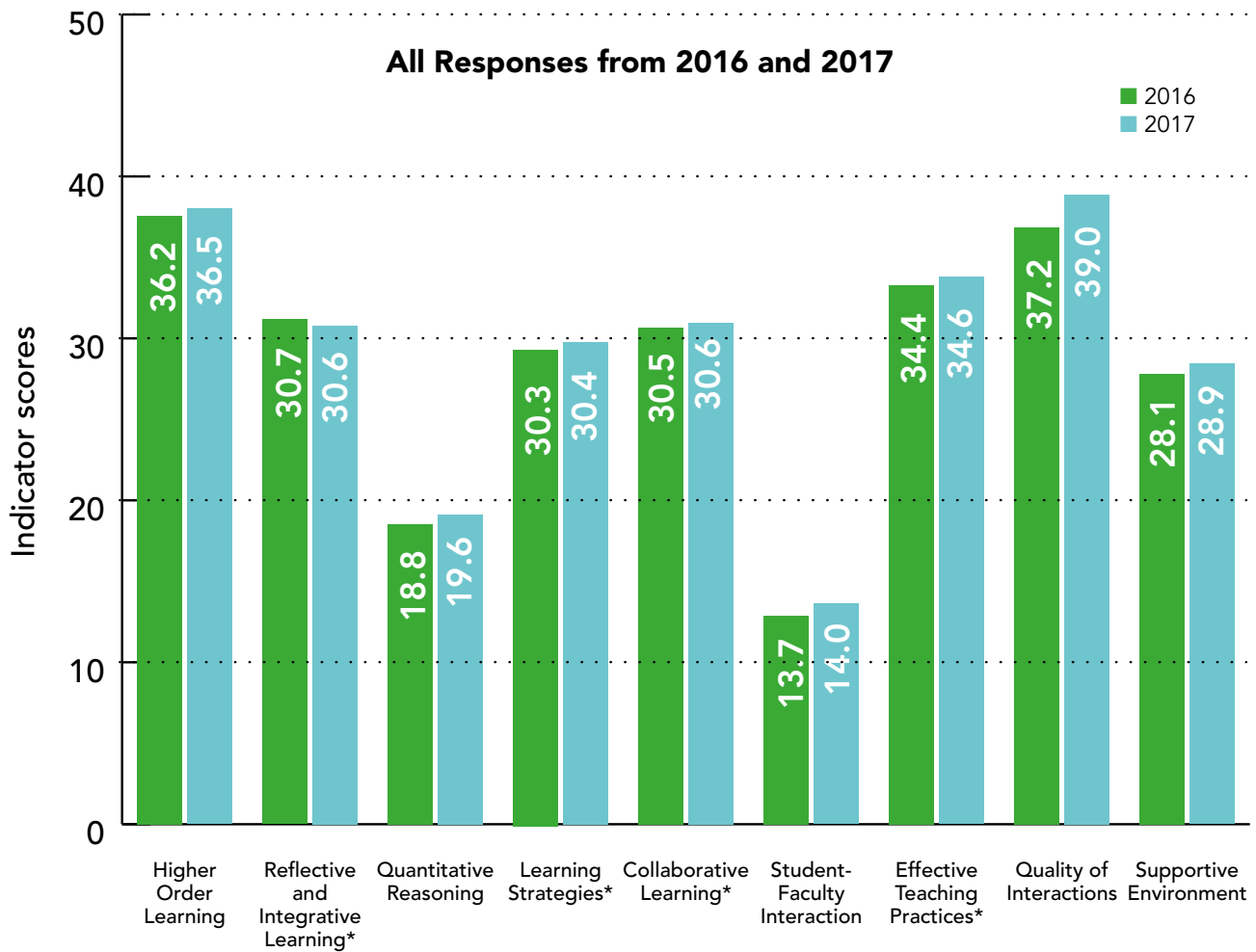
National results from 2016 and 2017

Figure 4.2 Results 2016 and 2017

While more research would be required to confirm the accuracy of such a perception in Ireland, the experiences of other countries in implementing engagement surveys would suggest that continued focus on specific aspects of the student experience tends to lead to more positive results. This trend was referred to as a "general trajectory of improvement" in chapter 5 of the report on the 2013 national pilot of the ISSE.

4.3
SELECTED RESULTS FROM THE ISSE AND INTERNATIONAL ENGAGEMENT SURVEYS

As outlined in the 2016 report, use of the current question set increases the potential for analysing ISSE data alongside the results of other countries' use of student engagement surveys. The National Survey of Student Engagement (NSSE) has been in use in the U.S. since 2000 and was revised in 2013. The NSSE is widely used in the U.S. and Canada. Internationally, NSSE-derived surveys are in use in a number of countries[2]. Results from the ISSE have been included in a paper, *Assessing Undergraduate Education through the Lens of Student Engagement: Lessons from Europe and North America*, which was presented to The European Higher Education Society (EAIR) Forum[3] in September 2017. The paper includes selected cross-national results for first year students in the US, Canada, Denmark, Ireland and the UK. In the US, Canada and the United Kingdom, student engagement surveys are run annually whereas the survey in Denmark was undertaken once in 2014 as part of research undertaken by an Expert Committee on Quality in Higher Education. The Committee recommended that further similar surveys should be undertaken. This has not yet occurred.

Results from the UK Engagement Survey (UKES) are likely to be of particular interest to Irish institutions. The UKES is a voluntary survey designed to gather distinct data from that sought by the regulatory satisfaction-based National Student Survey (NSS). The first non-pilot implementation of the UKES was in 2015 and 23,198 students from 29 higher education institutions took part in 2016.

It is important to take account of cultural and contextual differences when considering comparisons of data from different countries. Perhaps one of the most difficult factors to account for is the fact that the ISSE operates as a system-wide survey for state-funded institutions, whereas participation in other countries' engagement surveys is voluntary. In the US, 512 higher education

institutions took part in 2016 from a total of more than 4000. In the UK, 29 institutions participated in UKES 2016 whereas 167 institutions provide (other) data for analysis to the Higher Education Statistics Agency. This illustrates the risk that such data are potentially not representative of those (other) entire higher education systems. Other influences on the context include the proportional mix of fields of study in different countries and participating institutions, the levels of funding available to institutions in different higher education systems, and the consistency of transnational students' perceptions of response terms such as 'often' or 'quite a bit'. Nevertheless, careful comparison of data offers insights into similarities in, and differences between, students' experiences in various countries.

Individual institutions participating in the ISSE have the potential to interpret results from their own students in the context of similar institution-types nationally, all institutions nationally, and selected institutions and institution groupings internationally. This is entirely an institutional decision and it is likely that greatest benefit will ensue, at institutional level, from consideration of data from other individual institutions with which there are existing, or planned, interactions or those that are regarded as providing examples of good practice in particular areas of interest. In general, access to such data would involve direct contact with, and the agreement of, the institution in question.

The following charts illustrate a selection of results from the US, UK and Ireland for first year and final year students. These questions have been selected because they are worded the same, or very similarly, in each country's implementation, acknowledging that the precise wording may have been amended in each country to reflect students' understanding in the national context. It is noted that selection of question items because they have been phrased similarly should not be interpreted as assuming that they are of greater importance than other items in each individual country's survey, or that they offer a more accurate comparison of the experiences of students in each system. Acknowledging these caveats, the questions chosen attempt to illustrate the breadth of the surveys as they contribute to different engagement indicators.

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2 Coates, H., McCormick, A. (2014) Engaging University Students: International Insights from System-Wide Studies. Springer
3 http://www.eairweb.org/forum2017/

A question from *Higher Order Learning*

Forming an understanding or new idea from various pieces of information

US (2016)
- Final Year: 5 | 24 | 42 | 29
- First Year: 5 | 28 | 44 | 24

UK (2016)
- Final Year: 2 | 15 | 37 | 46
- First Year: 4 | 17 | 40 | 39

Ireland (2017)
- Final Year: 6 | 28 | 42 | 24
- First Year: 6 | 29 | 43 | 22

Percentage

■ Very Little   ■ Some   ■ Quite Often   ■ Very Much
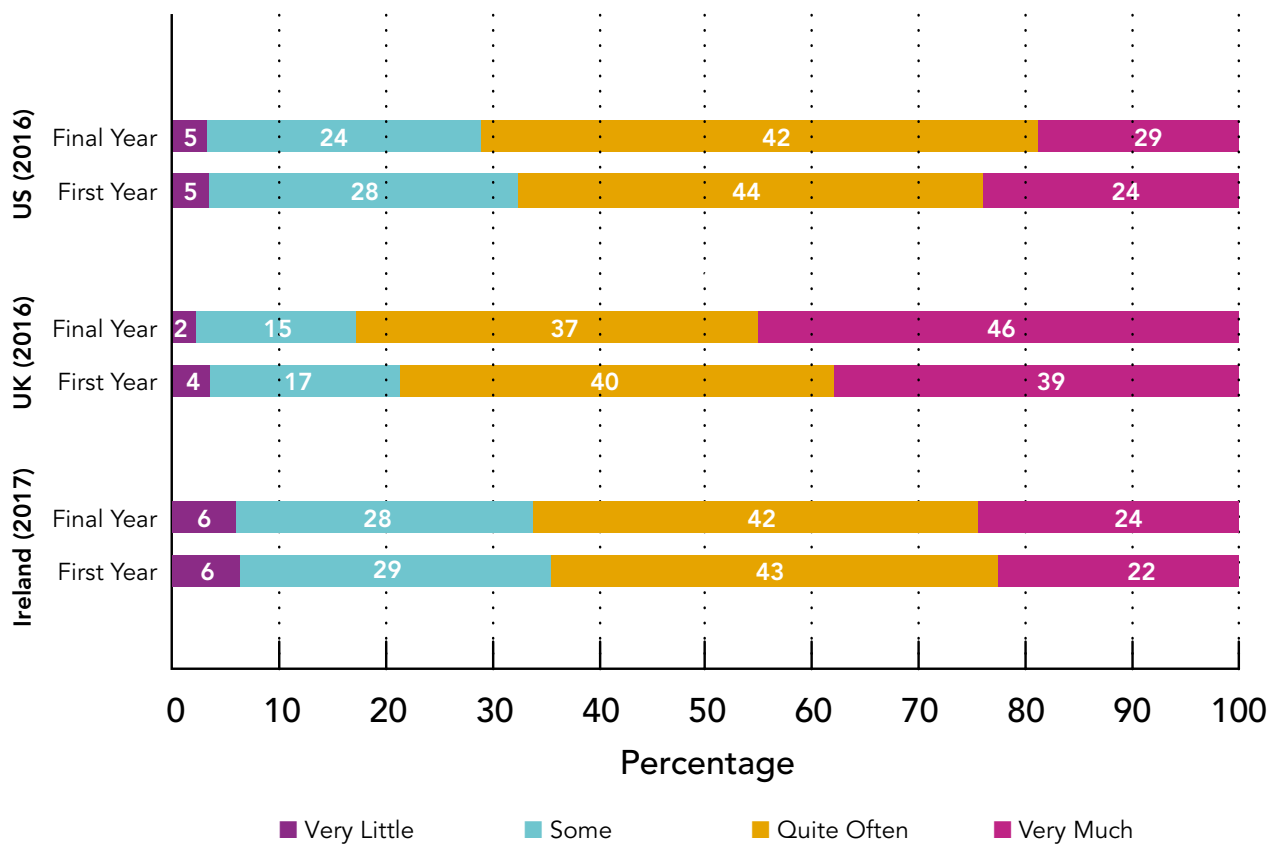
Figure 4.3.1

Figure 4.3.1 illustrates that respondents from the UK report considerably more emphasis on forming an understanding or new idea from various pieces of information than their peers in the US or Ireland with 79% of first year and 83% of final year students reporting 'quite a bit' or 'very much' compared to 68% (first year), 71% (final year) in the US and 65% (first year), 66% (final year) in Ireland. It is noted that the difference in results from first year and final year students is less in Ireland than in either of the other countries.

A question from *Reflective and Integrative Learning*

Learned something that changed the way you understand an issue or concept
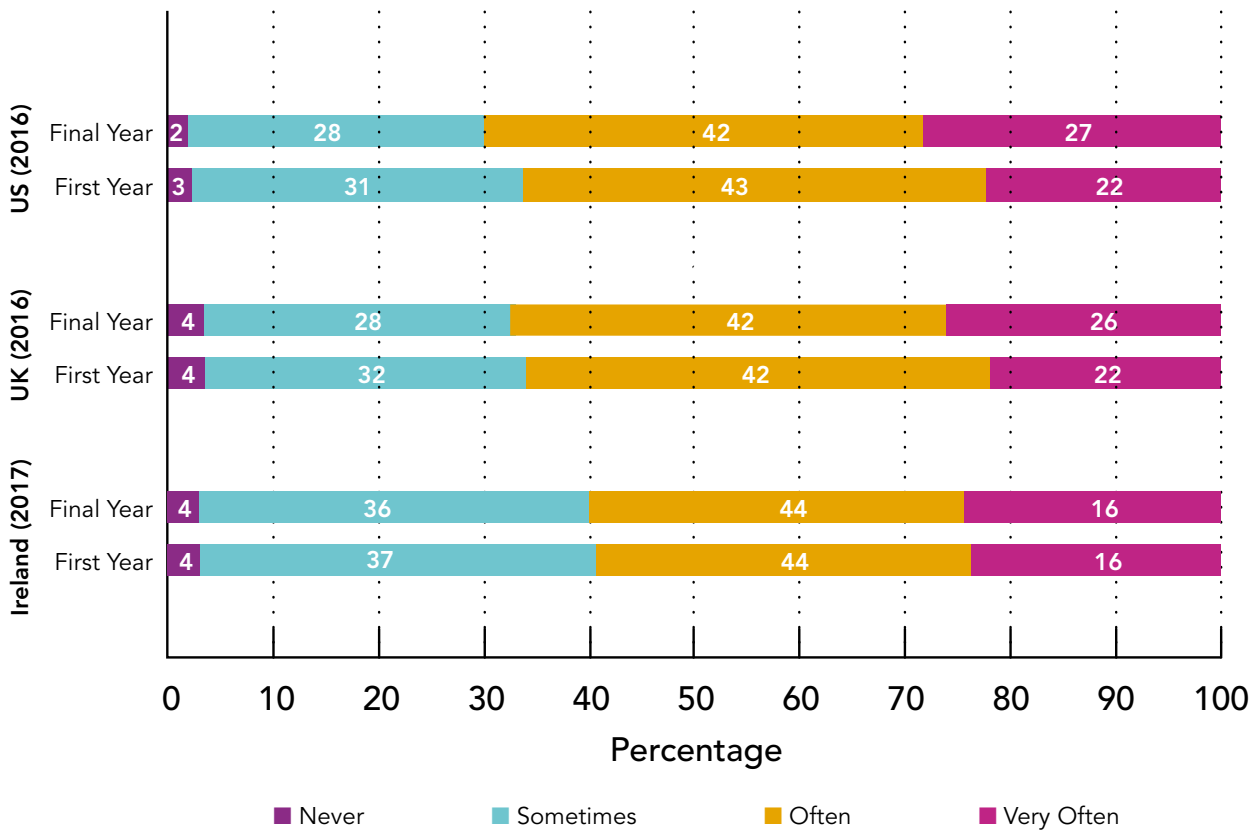
Figure 4.3.2

Figure 4.3.2 illustrates less variation in results from different countries, with 60% to 69% of all respondents selecting 'often' or 'very often' in response to the question *about how often have you learned something that changed the way you understand an issue or concept?* It is noted that 4% of all respondents in the UK and Ireland report that they have 'never' learned something that affected their understanding in that way. Similar to the previous question, there is no difference in the percentage of first year and final year students who report 'often' or 'very often' in response to this question.

A question from *Collaborative Learning*

Worked with other students on projects or assignments
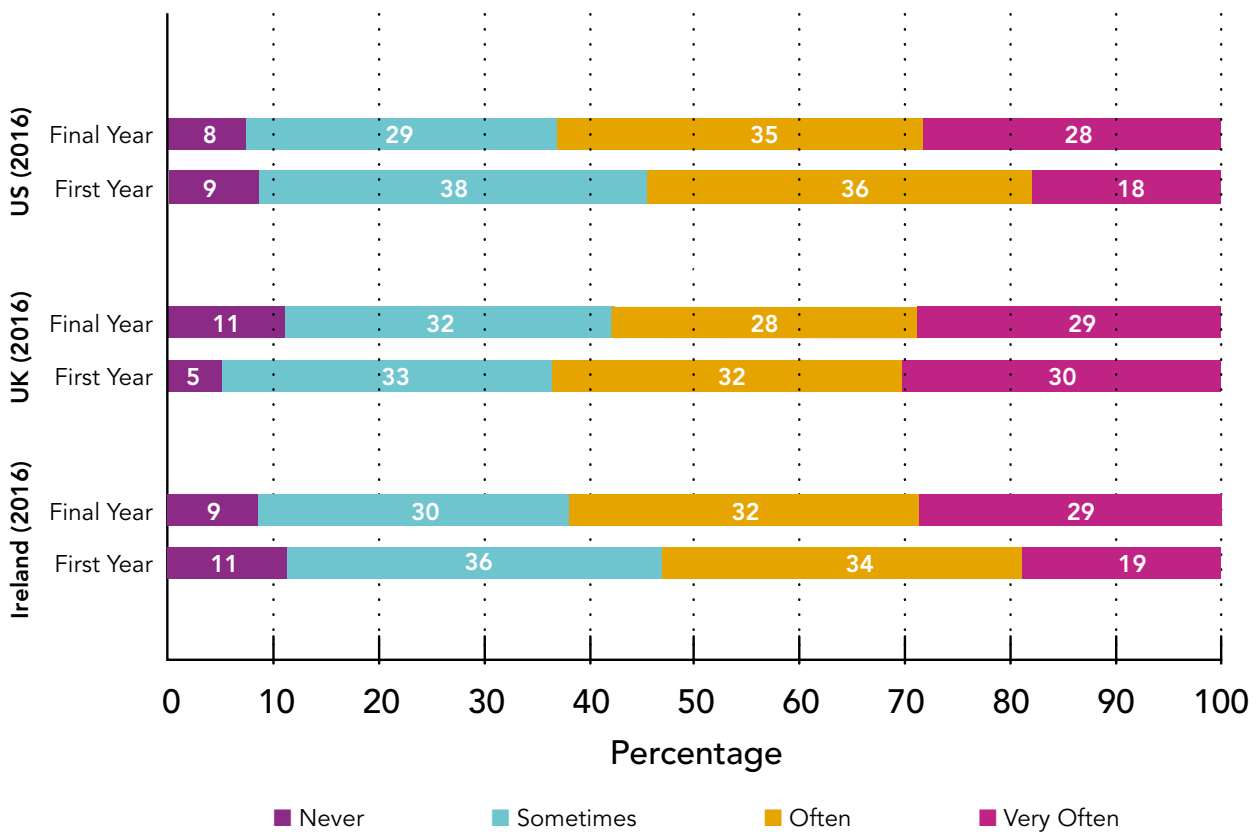
Figure 4.3.3

Figure 4.3.3 illustrates that similar proportions of Irish and US respondents report that they 'often' or 'very often' worked with other students on projects or assignments. 53% of first years in Ireland and 54% of first years in the US report this, while 61% of final years in Ireland and 63% of final years in the US report the same. Results from the UK are somewhat different with less final year students (57%) than first year students (62%) reporting this experience 'often' or 'very often'.

A question *from Student-Faculty Interaction*

Worked with academic staff on activities other than coursework (committees, student groups, etc.)
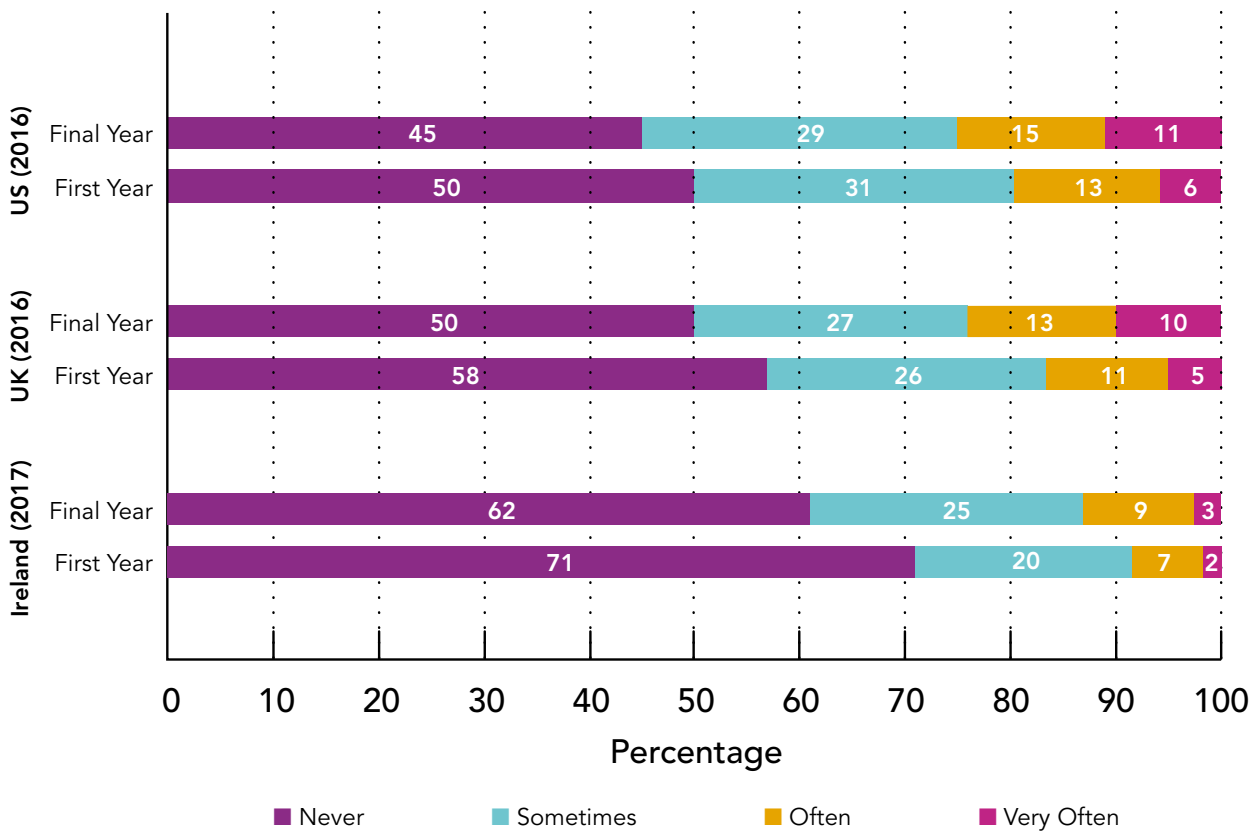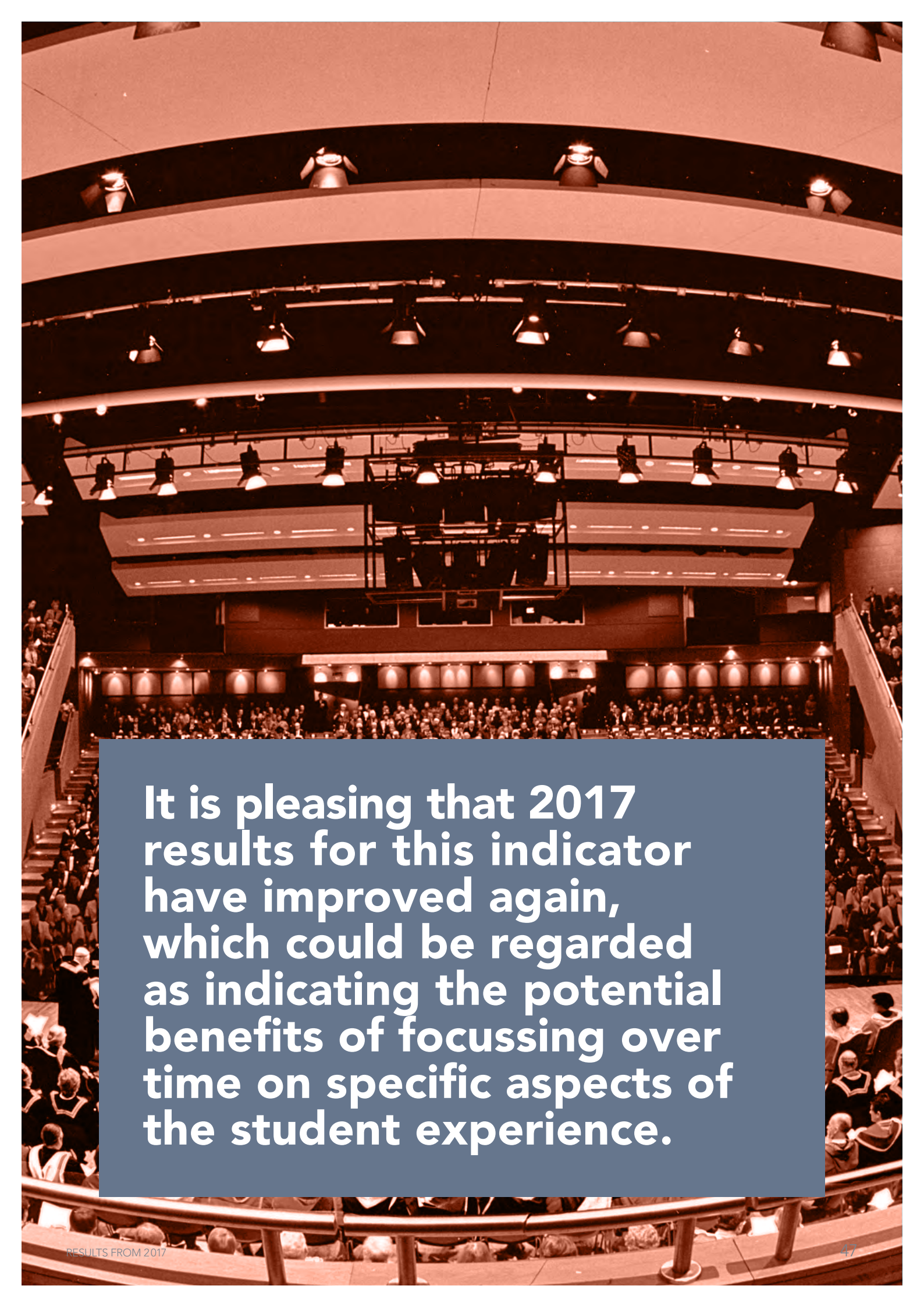
Figure 4.3.4

Figure 4.3.4 illustrates that students in the US and the UK report working with academic staff considerably more than students in Ireland. 71% of first year respondents report 'never' having this experience in Ireland, compared to 50% in the US and 58% in the UK. This reflects known characteristics of the first year experience in Ireland. There is some commentary on *Student-Faculty Interaction* and the pattern of results over time in section 4.2.

It is pleasing that 2017 results for this indicator have improved again, which could be regarded as indicating the potential benefits of focussing over time on specific aspects of the student experience.

CHAPTER 5
LOOKING DEEPER INTO STUDENTS' EXPERIENCES OF STEM SUBJECTS, AND FIRST YEARS' WRITTEN COMMENTS

This chapter illustrates the potential offered by further analysis of the rich dataset generated by the ISSE. This year's dataset is explored from two differing perspectives, neither of which has featured in previous annual reports:

■ All responses from students undertaking studies in STEM fields of study

■ Responses of first year students to questions (with free text responses) asking about what institutions do best to engage students in learning and what could be improved

5.1
STUDENTS STUDYING STEM SUBJECTS

Students in Science, Technology, Engineering and Mathematics (STEM) fields of study are the focus of the first sections of this chapter. STEM fields of study include: Natural Sciences, Mathematics & Statistics, Information and Communication Technologies and Engineering, Manufacturing and Construction.

The importance of STEM is well documented in the literature. A recent report on Science, Technology, Engineering and Mathematics (STEM) Education by the STEM Education Review Group[4] (2016, p.7) reiterates the importance of high quality STEM education "if Ireland is to deliver on its ambitions to be a hub of technological creativity and an innovative leader". While the report focused on primary and post-primary education, its recommendations have a knock-on effect for higher education. For example, students' early experience of STEM may influence their selection of STEM careers as well as impact on their levels of engagement in these subject areas.

The two engagement indicators examined in this chapter are *Higher Order Learning* and *Quantitative Reasoning*. *Higher Order Learning* explores students' experiences of higher order thinking / learning such as application, analysis, judgement and synthesis while *Quantitative Reasoning* seeks to measure students' opportunities to develop their skills quantitatively – to evaluate, support or critique arguments using numerical and statistical information.

The rationale for choosing these two indicators is presented in the analysis that follows. All questions under each indicator are broken down for STEM students and summaries provided for various groups. This provides insight into areas where STEM students report a positive experience and areas where a focus on improvement may be beneficial.

Firstly, key points for both indicators are outlined.

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4. The STEM Education Review Group (2016) A Report on Science, Technology, Engineering and Mathematics (STEM) Education available: http://www.education.ie/en/Publications/Education-Reports/STEM-Education-in-the-Irish-School-System.pdf, [accessed 24 July 2017].

KEY POINTS

There is variation in STEM students' experiences of different aspects of *Higher Order Learning.* Almost three quarters of these students report that their coursework 'quite a bit' or 'very much' emphasised applying facts, theories, or methods to practical problems or new situations. Three fifths of STEM students responded 'quite a bit' or 'very much' when asked how much their work emphasised analysing an idea, experience, or line of reasoning in depth by examining its parts and to forming an understanding or new idea from various pieces of information. About half of STEM students reported that they 'quite a bit' or 'very much' evaluated a point of view, decision, or information source. Looking at the responses in more detail:

- **Over one quarter of STEM students report that their coursework emphasised applying facts, theories or methods to practical problems or new situations. Postgraduate students and those in universities report the most positive experiences here. Approximately 75% of both these groups of students report 'quite a bit' or 'very much' in response to this question**

- **30% of postgraduate STEM students report their coursework emphasised analysing an idea, experience, or line of reasoning in depth by examining its parts 'very much' compared to 21% of final year STEM students and 19% of first year STEM students**

- **51% of first year STEM students and 49% of final year STEM students have 'very little' or 'some' experience of evaluating a point of view, decision, or information source. This compares to 35% of postgraduate STEM students**

- **Students studying STEM subjects in universities report more emphasis on forming an understanding or new idea from various pieces of information than students in institutes of technology or other institutions. One quarter of STEM students in universities respond 'very much' compared to almost one fifth of STEM students in both other institution-types.**

Perhaps surprisingly, STEM students report relatively low levels of *Quantitative Reasoning* compared to students pursuing other fields of study. Three quarters of STEM students have 'never' or 'sometimes' used numerical information to examine a real-world problem or issue and the same is true for evaluating what others have concluded from numerical information. Just over half of all STEM students have 'never' or 'sometimes' reached conclusions based on analysis of numerical information. bit' or 'very much' due to their experience at the institution.

Taking a closer look:

■ The most frequent experiences of reaching conclusions based on analysis of numerical information are reported by final year and by STEM students in universities. 55% of both of these groupings responded 'often' or 'very often' in response to this question. This compares to 43% of first years and of part-time/remote STEM students

■ First year students, part-time/remote students and STEM students in institutes of technology report less frequent experiences of using numerical information to examine a real-world problem or issue than other students. 44% of part-time STEM students report 'never' in response to this question while 42% of both first year students and STEM students in institutes of technology also select 'never'

■ Across all groups, when asked how often you have evaluated what others have concluded from numerical information, the most frequent response was 'sometimes'. Postgraduate STEM students and those in universities report slightly more positive responses to this question with 29% of both groups responding with 'often' or 'very often'.

5.2
OVERVIEW OF HIGHER ORDER LEARNING

Higher Order Learning aims to move beyond a rote-learning approach to one that involves analysis and evaluation. The idea of higher order thinking first came to prominence in 1956 when the work of Benjamin Bloom and his colleagues was published. "Bloom's Taxonomy[5]" highlights six categories or levels of cognitive processes: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. There have been many adaptations and revisions of Bloom's taxonomy but the overall focus remains on progressing students' thinking far beyond recall to evaluation and making decisions. Recent changes in both the mathematics and science Irish post-primary curricula indicate the importance of higher order thinking skills such as inquiry-based learning and problem-solving.

Given the focus on STEM fields of study in this chapter, it is appropriate to analyse data relating to the *Higher Order Learning* indicator. Many, or all, STEM students encounter some form of mathematics during their higher education experience which undoubtedly requires an ability to use higher order learning skills. According to Faulkner et al[6] (2014, p.17), the widening of access to higher education "has led to a change in the student profile of beginning undergraduates to degree programmes involving mathematics" with larger numbers of mathematically under-prepared students than ever before. The analysis in this chapter of *Higher Order Learning* for STEM students provides key insights into first year students who have made this transition to higher education and allows comparisons to be made to students in final year and those undertaking postgraduate study in addition to consideration of other variables such as age, gender, domicile and institution-type.

The following analysis explores *Higher Order Learning* in greater depth. Four questions contribute to this indicator with response options of 'very little', 'some', 'quite a bit' or 'very much'.

- During the current academic year, how much has your coursework emphasised applying facts, theories, or methods to practical problems or new situations?

- During the current academic year, how much has your coursework emphasised analysing an idea, experience, or line of reasoning in depth by examining its parts?

- During the current academic year, how much has your coursework emphasised evaluating a point of view, decision, or information source?

- During the current academic year, how much has your coursework emphasised forming an understanding or new idea from various pieces of information?

As throughout the report, responses are weighted to take account of the population profile at institutional level. The demographic characteristics that are used in the analysis are Irish/non-Irish, age group, gender, part-time/full-time, institution-type, and year/cohort (first, final or postgraduate). The following chart shows the mean *Higher Order Learning indicator* score for STEM students across various groups.

5. Bloom, B. (ed.) (1956) *Taxonomy of Educational Objectives*, the classification of educational goals – Handbook I: Cognitive Domain New York: McKay
6. Faulkner, F., Hannigan, A. and Fitzmaurice, O. (2014) *The role of prior mathematical performance in higher education, International Journal of Mathematical Education in Science and Technology*, 45(5).
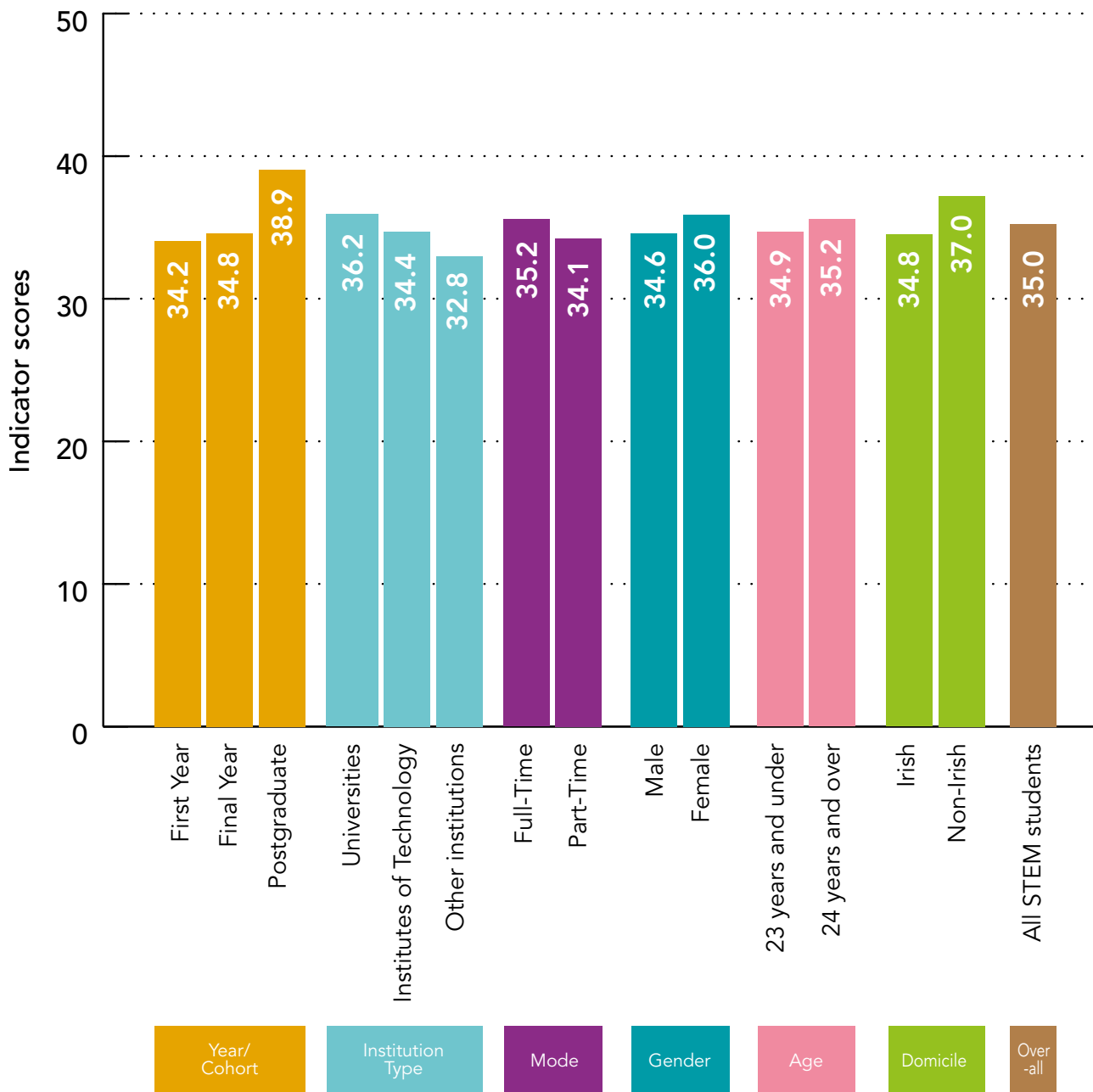
Higher Order Learning (STEM)*

First Year	Final Year	Postgraduate	Universities	Institutes of Technology	Other institutions	Full-Time	Part-Time	Male	Female	23 years and under	24 years and over	Irish	Non-Irish	All STEM students
34.2	34.8	38.9	36.2	34.4	32.8	35.2	34.1	34.6	36.0	34.9	35.2	34.8	37.0	35.0

| Year/Cohort | Institution Type | Mode | Gender | Age | Domicile | Over-all |

Figure 5.2 Higher Order Learning for STEM

Results show that, on average, indicator scores are higher for STEM postgraduate students, non-Irish STEM students, STEM students in universities and female STEM students. The overall indicator score for all STEM students is 35.0. The highest indicator score across various sub groups is 38.9 for postgraduate STEM students. This score is higher than the indicator scores of first year STEM students (34.2) and final year STEM students (34.8). There is no statistical difference in scores for STEM students aged 23 and under or 24 and over.

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* There is no statistically significant difference between indicator scores for first year STEM students and final year STEM students; for STEM students in institutes of technology and STEM students in other institutions; and for STEM students aged 23 and under and STEM students aged 24 and older
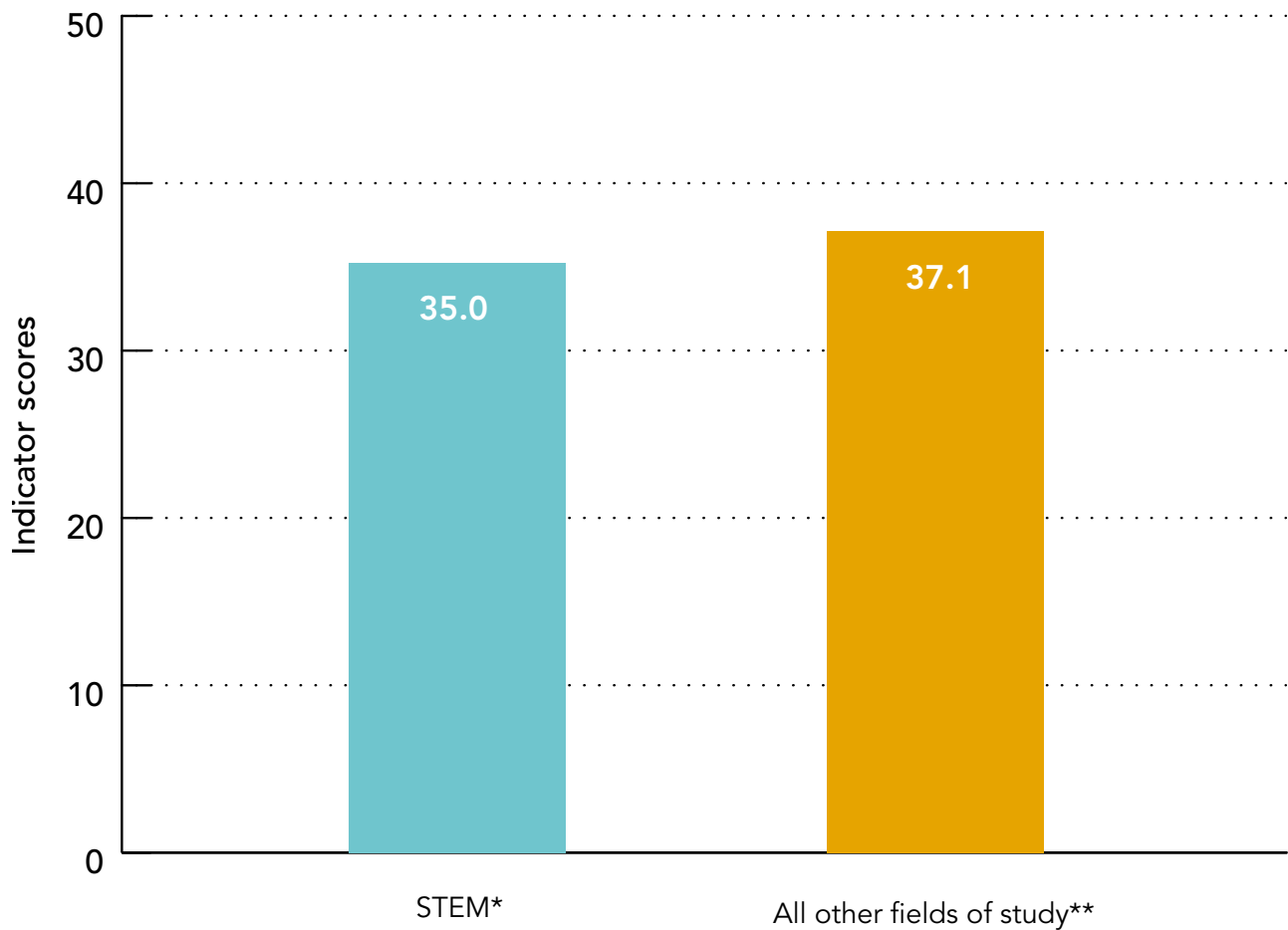
Higher Order Learning by Field of Study

Figure 5.2.1 Indicator scores for STEM and all other fields of study

While this chapter focuses on STEM students, it is worth noting comparisons between STEM and 'All Other Fields of Study' as in Figure 5.2.1

STEM students have, on average, a lower indicator *Higher Order Learning* score (35.0) than students in all other remaining fields of study (37.1). Indicator scores for each individual field of study are illustrated in chart 3.6 in Chapter 3.

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*   STEM = Natural Sciences, Mathematics & Statistics, Information and Communication Technologies, and Engineering, Manufacturing and Construction.
** All Other Fields of Study = Education, Arts & Humanities, Social Sciences, Journalism & Information, Business, Administration & Law, Health & Welfare, Agriculture, Forestry, Fisheries & Veterinary and Services.

5.2.1
DETAILED RESULTS
(HIGHER ORDER LEARNING)

Q1: During the current academic year, how much has your coursework emphasised applying facts, theories, or methods to practical problems or new situations?

The most frequent response to this question was 'quite a bit' which ranged from 42% to 46% across all groupings of STEM students. 46% of postgraduate students, of students in institutes of technology, of part-time/remote students and of those over 24 years of age select 'quite a bit'. 42% of STEM students in universities and of female STEM students select the same response.

More than other groups, students in universities, females and postgraduate STEM students report that they apply facts, theories or methods to practical problems or new

situations 'very much'. Looking specifically at institution-type, 21% of STEM students in other institutions, 23% of those in institutes of technology and 33% of STEM students in universities select 'very much' in response to this question.

As reflected throughout results for *Higher Order Learning*, postgraduate STEM students (30%) select 'very much' more often than first year (27%) or final year (26%) STEM students. 28% of full-time STEM students respond that their coursework 'very much' emphasised applying facts, theories or methods to practical problems or new situations compared to 21% of part-time/remote students. 31% of female STEM students select 'very much' in response to this question compared to 25% of male STEM students.

Across all respondents, 76% of all postgraduate STEM students and 75% of students studying STEM in universities select 'quite a bit' or 'very much. 36% of STEM students in other institutions and 34% of part-time/remote STEM students select 'very little' or 'some' in response to this question.

Comparing students studying STEM subjects to those pursuing 'All Other Fields of Study', 71% of STEM students report that they 'quite a bit' or 'very much' apply facts, theories or methods to practical problems or new situations compared to 67% of non-STEM students.

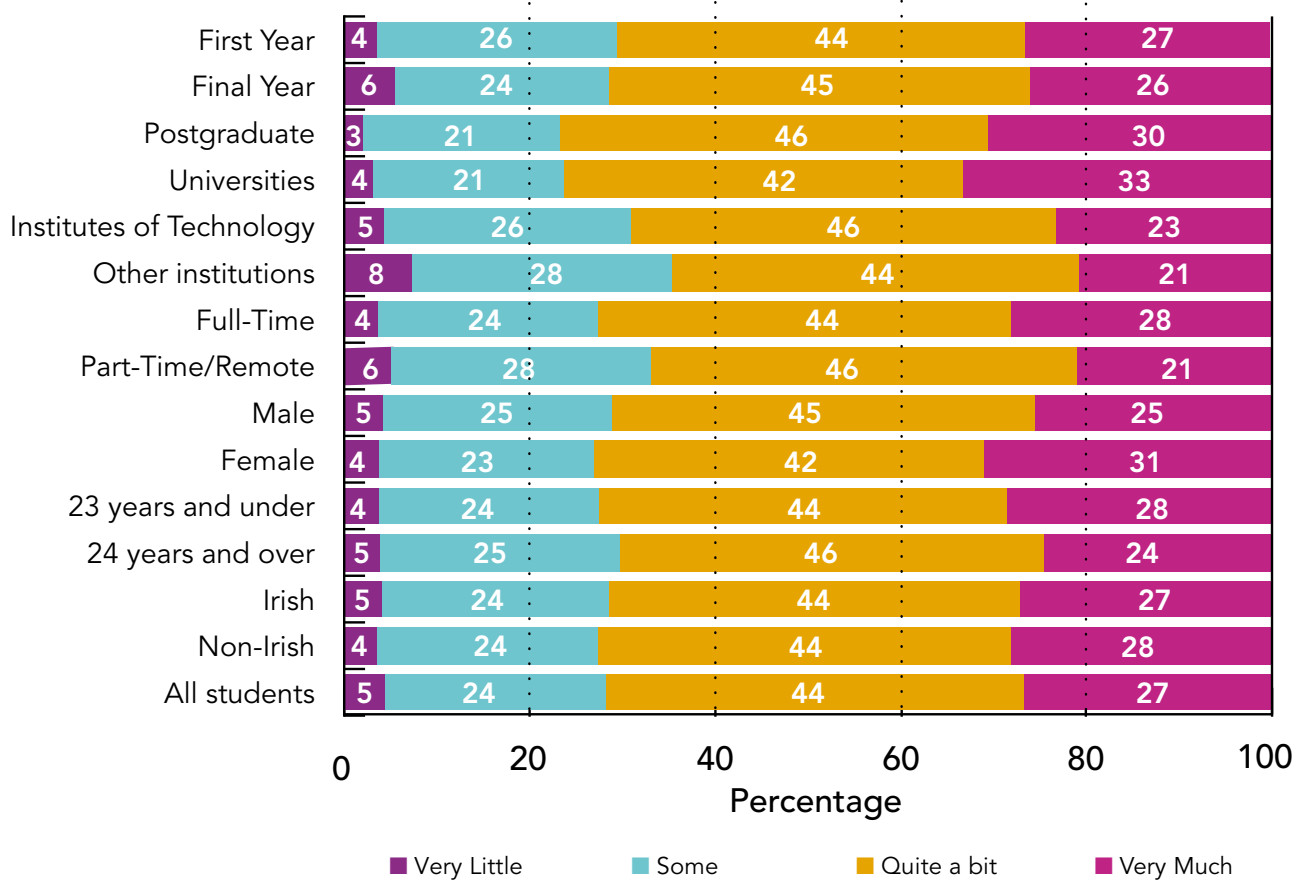## Applying facts, theories, or methods to practical problems or new situations*

	Very Little	Some	Quite a bit	Very Much
First Year	4	26	44	27
Final Year	6	24	45	26
Postgraduate	3	21	46	30
Universities	4	21	42	33
Institutes of Technology	5	26	46	23
Other institutions	8	28	44	21
Full-Time	4	24	44	28
Part-Time/Remote	6	28	46	21
Male	5	25	45	25
Female	4	23	42	31
23 years and under	4	24	44	28
24 years and over	5	25	46	24
Irish	5	24	44	27
Non-Irish	4	24	44	28
All students	5	24	44	27

Figure 5.2.2 Responses from STEM students

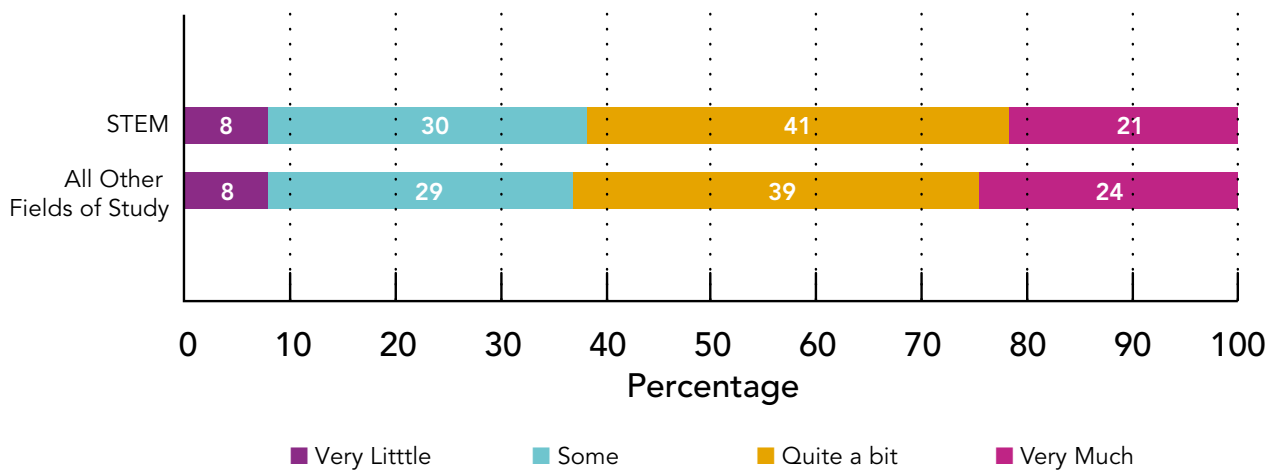|	Very Litttle	Some	Quite a bit	Very Much
STEM	5	24	44	27
All Other Fields of Study	7	26	41	26
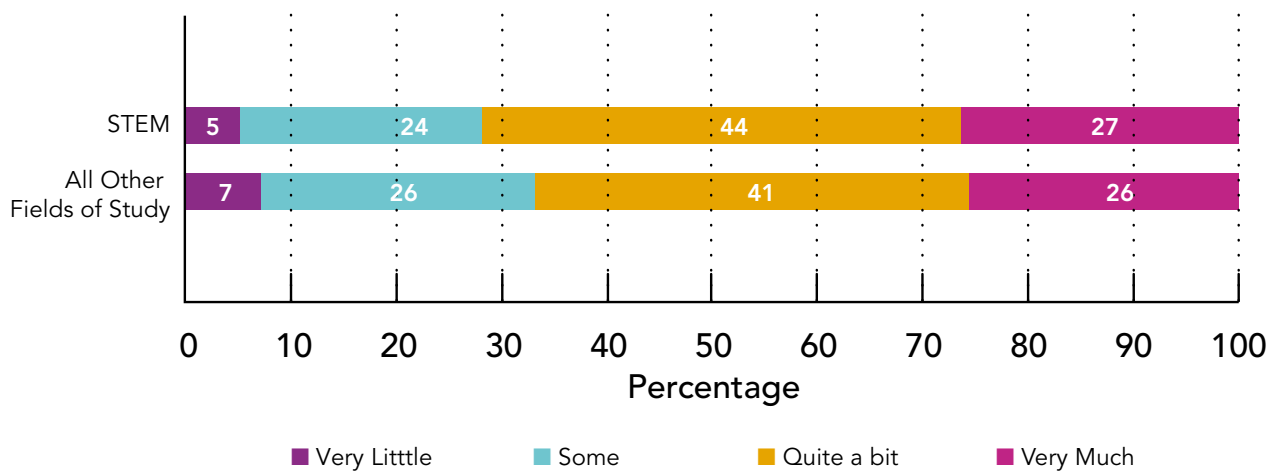
Figure 5.2.3 Responses from STEM and all other fields of study

* There is no statistically significant relationship between responses from Irish and non-Irish students

Q2: During the current academic year, how much has your coursework emphasised analysing an idea, experience, or line of reasoning in depth by examining its parts?

Postgraduate, non-Irish and STEM students in universities report more frequent experiences than all other groups of analysing an idea, experience, or line of reasoning in depth by examining its parts.

14% of STEM students in other institutions select 'very little' in response to this question compared to 8% of STEM students in universities or institutes of technology. 9% of first year and final year STEM students also select 'very little' while only 5% of postgraduate STEM students responded with 'very little' for this question. 64% of female STEM students report that they analyse an idea, experience, or line of reasoning in depth by examining its parts 'quite a bit' or 'very much' while 61% of male students report the same. Irish STEM students (62%) report slightly lower responses to this question than non-Irish STEM students (67%).

21% of STEM students overall report that their coursework has emphasised 'very much' analysing an idea, experience, or line of reasoning in depth by examining its parts compared to 24% of non-STEM students.

Analysing an idea, experience, or line of reasoning in depth by examining its parts*
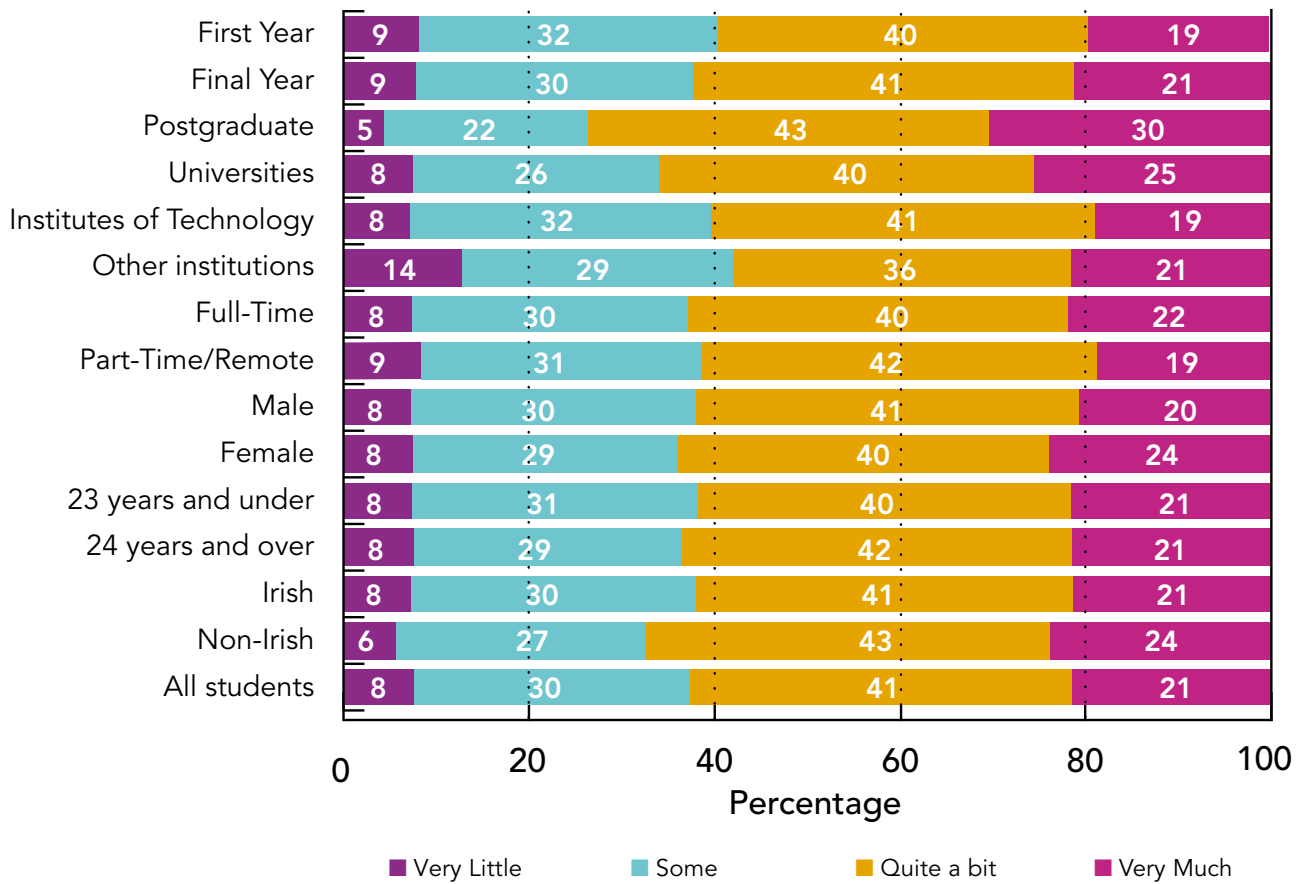
Figure 5.2.4 Responses from STEM students

Figure 5.2.5 Responses from STEM and all other fields of study

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* There is no statistically significant relationship between responses from STEM students' aged 23 years and under and those aged 24 years and older

Q3: During the current academic year, how much has your coursework emphasised evaluating a point of view, decision, or information source?

Reflecting a pattern with *Higher Order Learning* questions, postgraduate students report more frequent experiences of evaluating a point of view, decision, or information source than all other groupings. This is closely followed by non-Irish students.

21% of non-Irish students select 'very much' and 43% select 'quite a bit' in contrast to 14% and 37% of Irish students. STEM students over the age of 24 responded more positively to this question than younger STEM students. 14% of students aged 23 and under report that 'very little' of their coursework emphasised

evaluating a point of view, decision, or information source compared to 11% of older students. As with the previous *Higher Order Learning* questions, female STEM students report slightly greater emphasis than male students with 17% of females selecting 'very much' compared to 14% of males. Across institution-types, 53% of STEM students in institutes of technology answered 'very much' or 'quite a bit' compared to 51% of STEM students in both universities and other institutions. As noted above, postgraduate students report greater emphasis of coursework on evaluating a point of view, decision, or information source than the two other year groups. 23% of STEM postgraduate students answered 'very much' in response to this question in comparison to 15% of final year STEM students and 12% of first year STEM students.

When fields of study are examined, STEM and non-STEM students respond considerably differently to this question. 15% of STEM students select 'very much' while 25% of students in other fields of study select this response. 13% of STEM students responded that their coursework emphasised evaluating a point of view, decision, or information source 'very little' compared to 6% of non-STEM students.

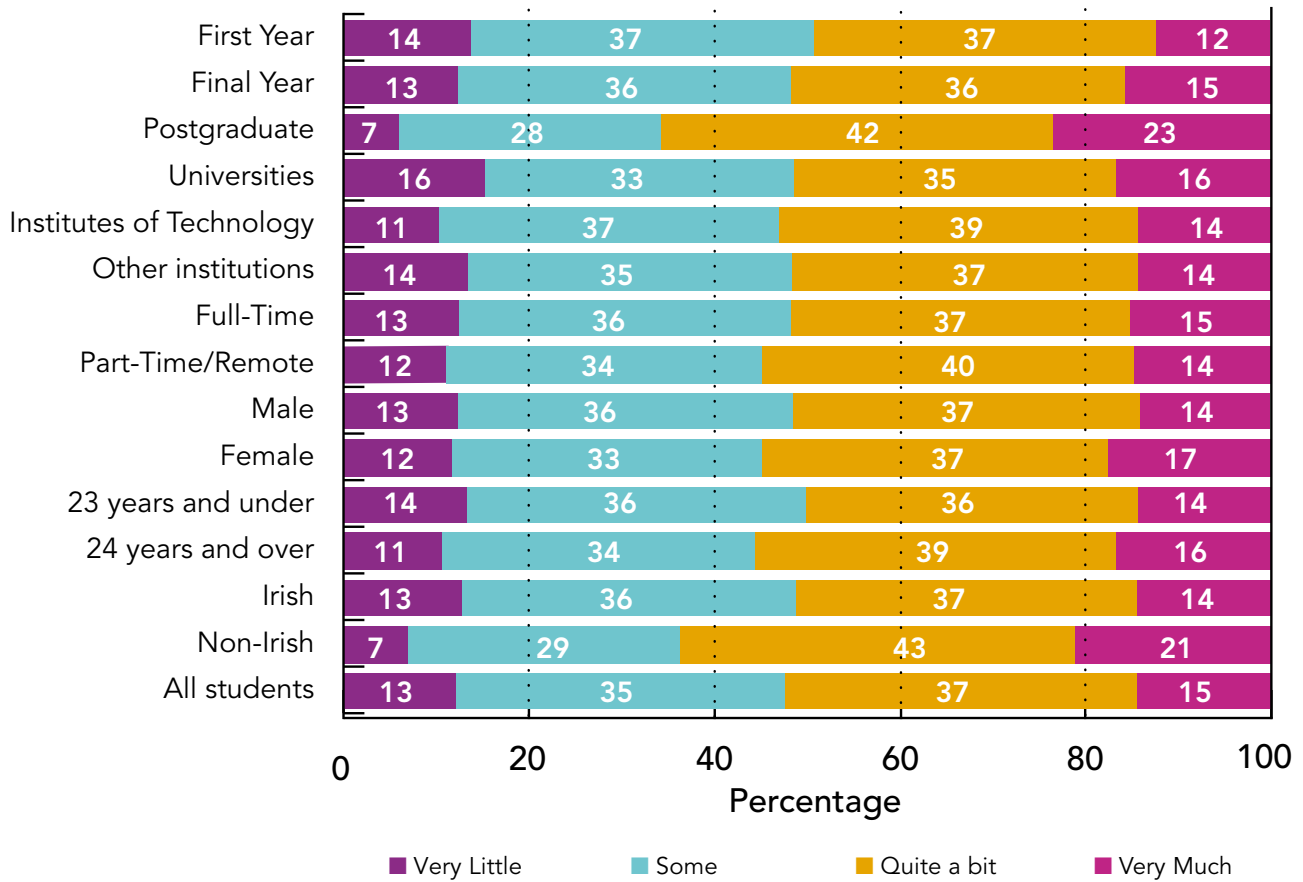## Evaluating a point of view, decision, or information source*
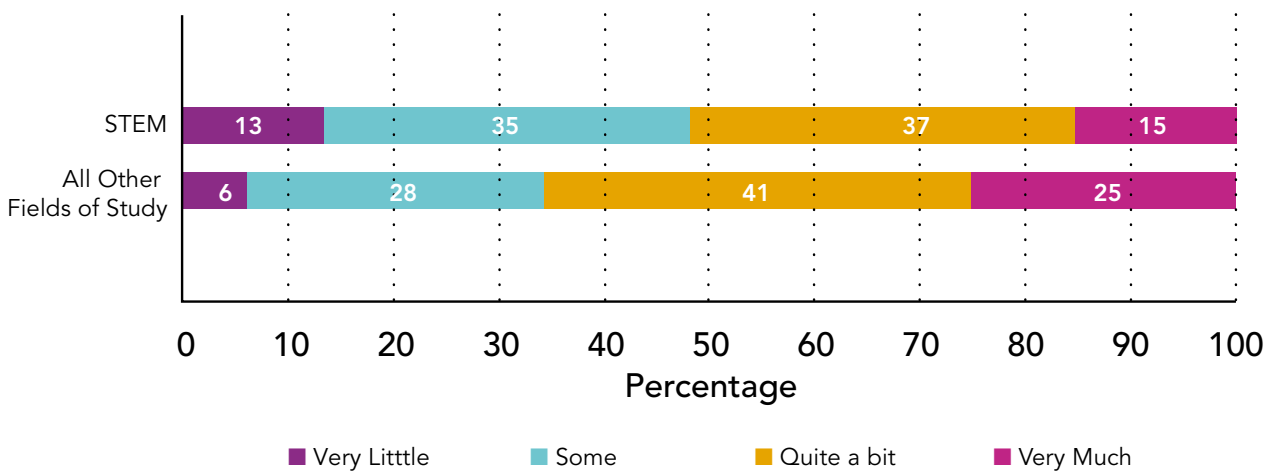

Figure 5.2.6 Responses from STEM students

Figure 5.2.7 Responses from STEM and all other fields of study

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*   There is no statistically significant relationship between responses from STEM students who attend full-time and those who attend part-time/remotely

Q4: During the current academic year, how much has your coursework emphasised forming an understanding or new idea from various pieces of information*?

For the most part, responses to this question showed that STEM students select 'quite a bit' or 'very much' more often than 'very little' or 'some', across all groupings. Within groups of STEM students, postgraduates and students in universities report greater emphasis on forming an understanding or new idea from various pieces of information than other groups.

72% of postgraduate STEM students select 'quite a bit' or 'very much' in response to this question compared with 63% and 64% of first year and final year students respectively. 19% of students studying STEM in institutes of technology or in other institutions select 'very much' here compared to 25% of STEM students in universities. 24% of female STEM students select 'very much' emphasis on forming an understanding or new idea in comparison to 20% of male STEM students.

With the exception of question one (how much has your coursework emphasised applying facts, theories, or methods to practical problems or new situations?), STEM students report less emphasis in coursework on *Higher Order Learning* questions than students in non-STEM fields of study. 36% of STEM students select 'very little' or 'some' emphasis on forming an understanding or new idea from various pieces of information while 31% of students in 'all other fields of study', select this response. 27% of non-STEM students select 'very much' in response to this question compared to 21% of non-STEM students.

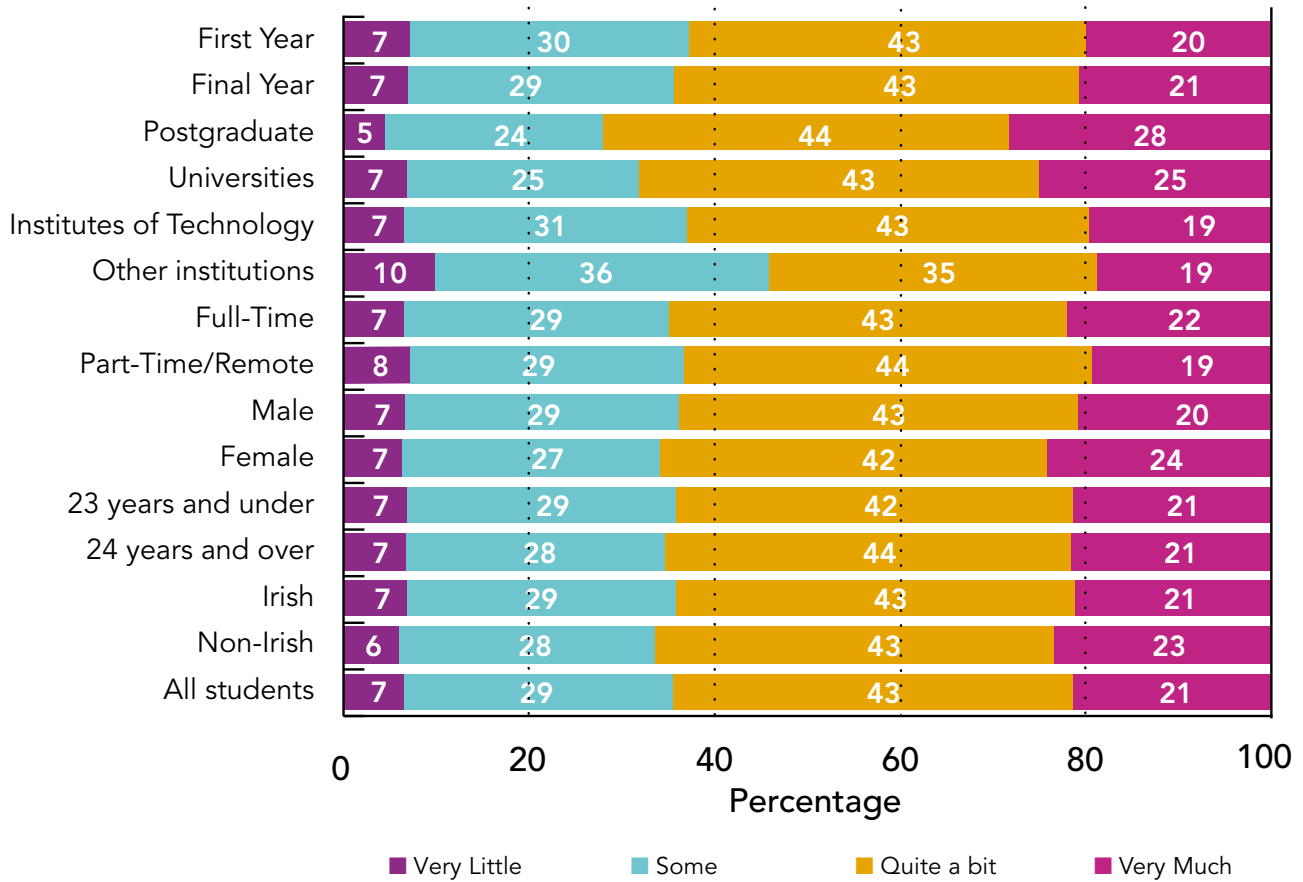## Forming an understanding or new idea from various pieces of information*

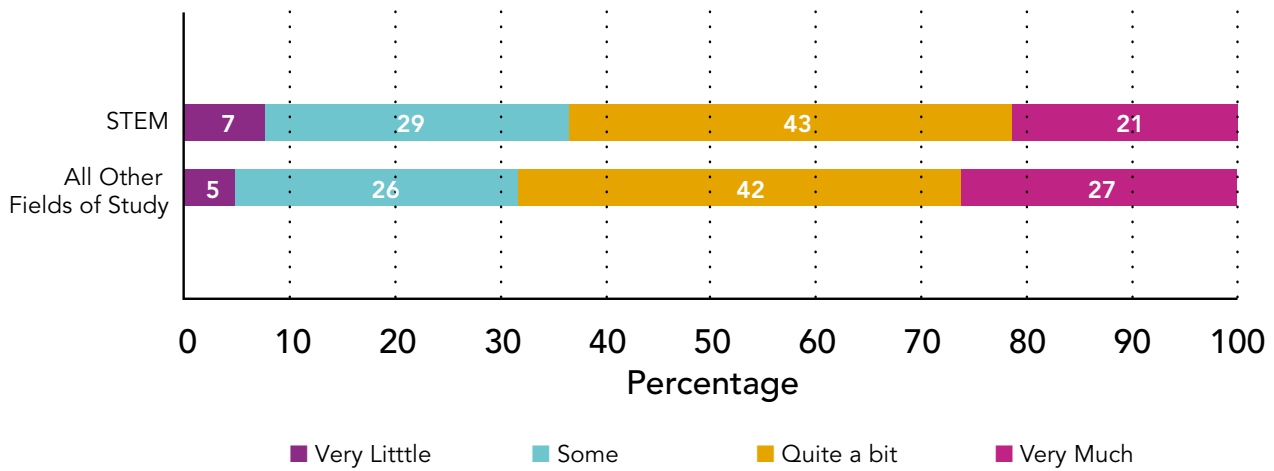*Figure 5.2.8* Responses from STEM students

Figure 5.2.9 Responses from STEM and all other fields of study

*   There are no statistically significant relationships between responses from STEM students' of different domicile (Irish and non-Irish), STEM students' mode of study (full-time and part-time/remote), STEM students' age (23 years and under and 24 years and older)

5.3
OVERVIEW OF QUANTITATIVE REASONING

Quantitative Reasoning is likely to play a significant part in STEM students' education and future careers. As defined by Dwyer, Gallagher, Levin and Morley[7] (2003, p. 2) "quantitative reasoning requires the use of mathematical content for assessment purposes and for problem solving more generally". With the introduction of a revised second-level mathematics syllabus in recent years (Project Maths), students are experiencing new methodologies whereby they are "challenged to engage with an interconnected body of ideas and reasoning processes" (NCCA[8], p.10). Moving beyond the traditional, rote-learning approach to a more connected and applicable approach to learning mathematics is envisaged, according to the revised mathematics syllabus, to support the development of learners with a flexible, disciplined way of thinking and enthusiasm to search for creative solutions.

The impact of Project Maths on the transition to higher education remains to be seen. The Irish Business and Employers Confederation[9] (IBEC) (2017) claim that the Project Maths curriculum will have a profound impact and that the government must continue to invest in curriculum resources and professional development for teachers which will underpin its success on an ongoing basis. IBEC states that "improving maths attainment in our schools is critical to the future success of our economy and society". The analysis that follows will provide insight into the engagement of STEM students in *Quantitative Reasoning* for year group, age, gender, domicile and institution-type.

Three questions contribute to the indicator and students could answer 'never', 'sometimes', 'often' or 'very often'.

- During the current academic year, about how often have you reached conclusions based on your analysis of numerical information (numbers, graphs, statistics, etc.)?

- During the current academic year, about how often have you used numerical information to examine a real-world problem or issue (unemployment, climate change, public health etc.)?

- During the current academic year, about how often have you evaluated what others have concluded from numerical information?

As elsewhere in this report, responses are weighted to take account of the population profile in each institution. The demographic characteristics that are used in the analysis are the same as those used for *Higher Order Learning*: Irish/non-Irish, age cohort, gender, part-time/full-time, institution type, and year/cohort (first, final or postgraduate).

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7   Dwyer, C.A., Gallagher, A., Levin, J. and Morley, M.E. (2003) What is Quantitative Reasoning? Defining the Construct for Assessment Purposes, Educational Testing Service, Princeton, NJ.
8   National Council for Curriculum and Assessment (NCCA) (2014), Maths in Practice Report, Dublin.
9   Irish Business and Employers Confederation (IBEC) (2013) 'Increased uptake in higher level Leaving Certificate maths', [online], available: http://www.ibec.ie/IBEC/DFB.nsf/vPages/Education_and_training~News~increased-uptake-in-higher-level-leaving-certificate-maths-05-09-2013?OpenDocument#.WX7z0GeWzoo?OpenDocument, [accessed 31 July 2017].

The following chart shows the weighted average *Quantitative Reasoning* indicator score for STEM students across various groups.
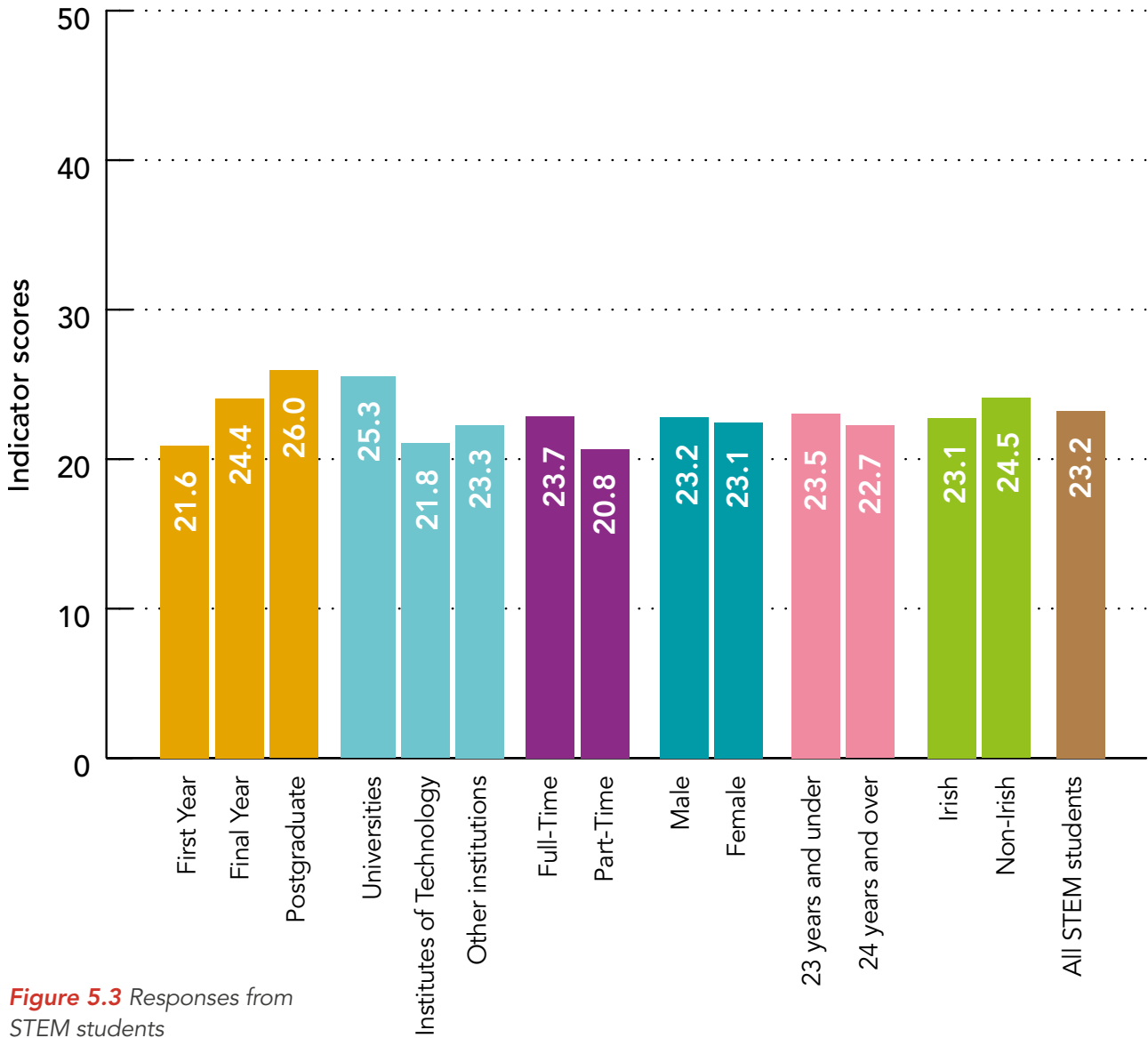
Quantitative Reasoning (STEM) *

Figure 5.3 *Responses from STEM students*

As can be seen in the figure 5.3, postgraduate STEM students generate the highest indicator scores for *Quantitative Reasoning* of any year / cohort; students studying STEM in universities have higher scores than those in other institution-types; and non-Irish students score higher than Irish STEM students. Lower *Quantitative Reasoning* scores are observed for part-time and first year students.

The overall indicator score for all STEM students is 23.2. Postgraduate STEM students report the highest indicator score which is significantly different from first years (21.6) and less so for final year students (24.4). STEM students in universities report higher indicator scores (25.3) than institutes of technology (21.8) and other institutions (23.3). Indicator scores for full-time STEM students (23.7) are higher than that of part-time students (20.8). Similarly, indicator scores for non-Irish STEM students (24.5) are higher compared to Irish STEM students (23.1).

* There is no statistically significant difference between indicator scores for STEM students in institutes of technology and STEM students in other institutions; and for male STEM students and female STEM students

For the remaining groups (gender and age), there is no statistically significant difference in indicator scores.

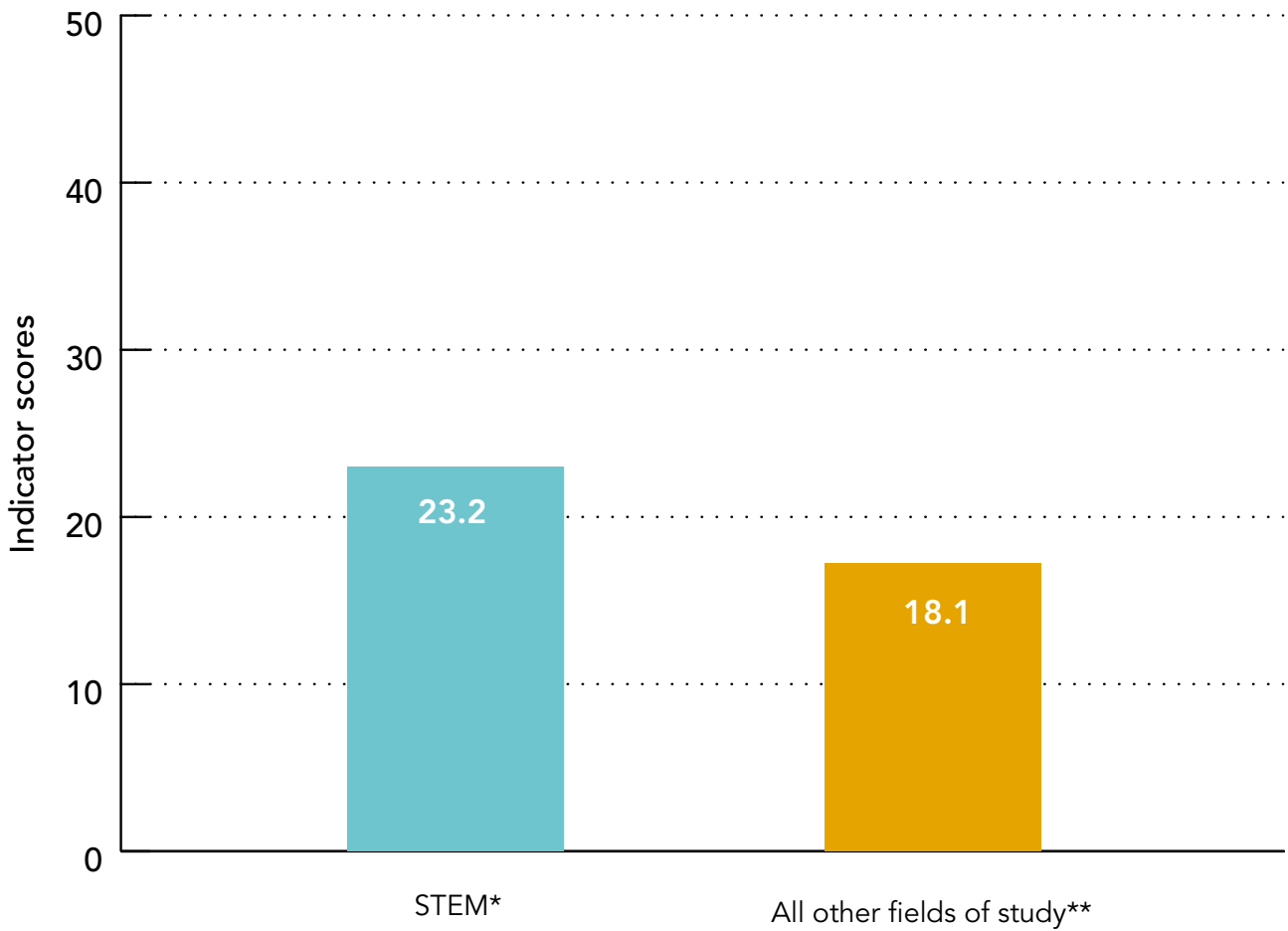## Quantitative Reasoning by Field of Study

Figure 5.3.1 *Indicator scores for STEM and all other fields of study*

In terms of field of study, STEM students' *Quantitative Reasoning* indicator scores versus non-STEM students' indicator scores are presented in Figure 5.3.1.

STEM students report higher indicator scores (23.2) than students in all other fields of study (18.1).

Analyses of responses to each of the questions that make up the *Quantitative Reasoning* indicator are now presented in more detail.

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*   STEM = Natural Sciences, Mathematics & Statistics, Information and Communication Technologies and Engineering, Manufacturing and Construction.

** All Other Fields of Study = Education, Arts & Humanities, Social Sciences, Journalism & Information, Business, Administration & Law, Health & Welfare, Agriculture, Forestry, Fisheries & Veterinary and Services.

5.3.1
DETAILED RESULTS (*QUANTITATIVE REASONING*)

Q1. During the current academic year, about how often have you reached conclusions based on your analysis of numerical information (numbers, graphs, statistics, etc.)?

The most frequently selected response to this question across all groupings was 'sometimes', with part-time/remote (44%), first year (42%) and STEM students in institutes of technology (41%) selecting this option most often. On average, 32% of respondents selected 'often' to reaching conclusions based on analysis of numerical information. 22% of STEM students in universities and 19% of final and postgraduate STEM students selected the greatest frequency of 'very often' in response to this question.

In terms of year group, first year STEM students select 'never' or 'sometimes' in response to this question more often than their final year and postgraduate STEM counterparts. 16% of STEM students in other institutions report that they 'never' reach conclusions based on analysis of numerical information compared to 14% in institutes of technology and 11% in universities. Half of full-time STEM students select 'often' or 'very often' in response to this question in comparison to 43% of part-time/remote STEM students. Overall, and perhaps surprisingly, more than half of all STEM students report 'never' or 'sometimes' reaching conclusions based on their analysis of numerical information.

When responses of STEM students are compared to those from students in all other fields of study, STEM students report much more frequent experiences with 16% selecting 'very often' while 6% of students in non-STEM fields of study report the same. Almost three quarters of students not in STEM fields of study report that they 'never' or only 'sometimes' reach conclusions based on analysis of numerical information.

Reached conclusions based on your analysis of numerical information (numbers, graphs, statistics, etc.)*
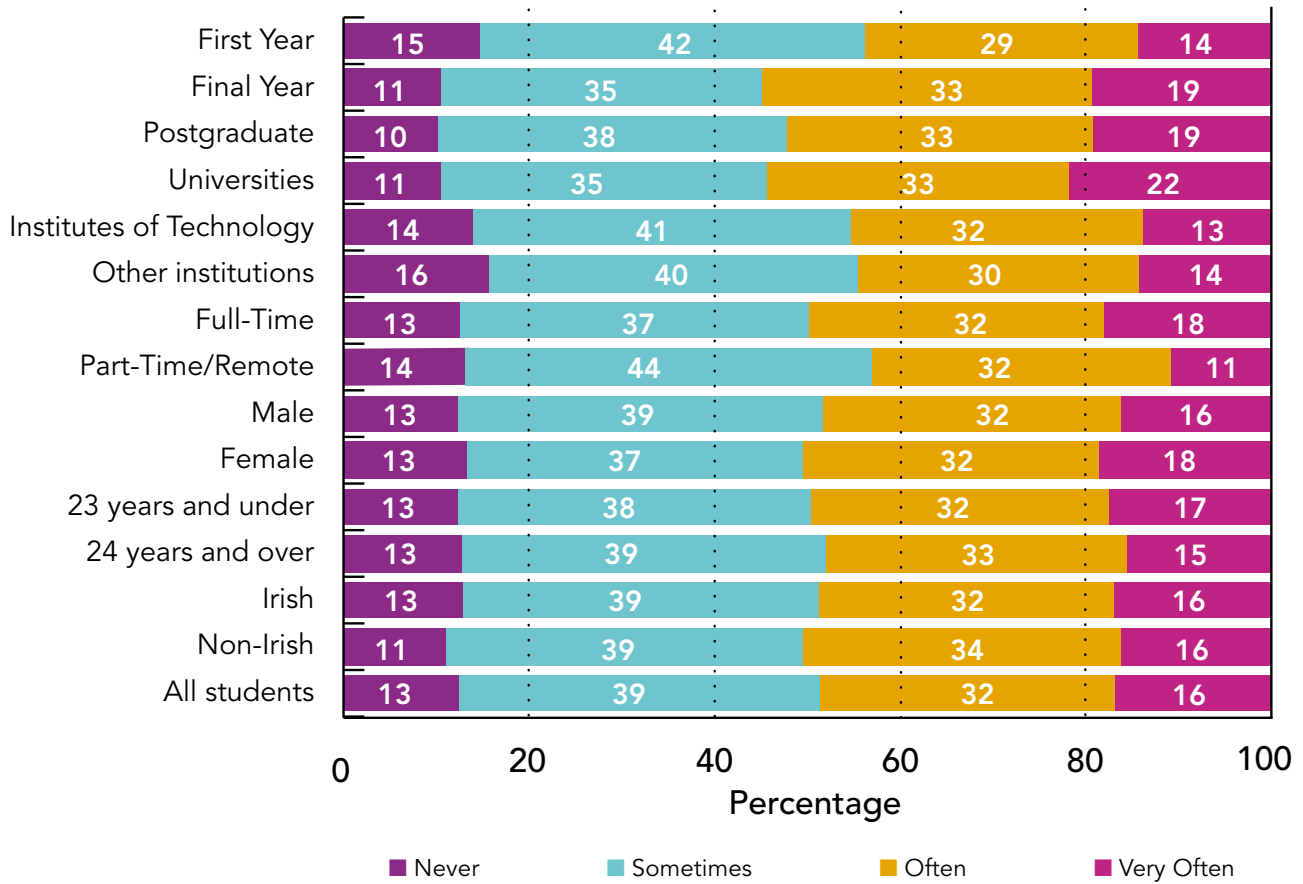
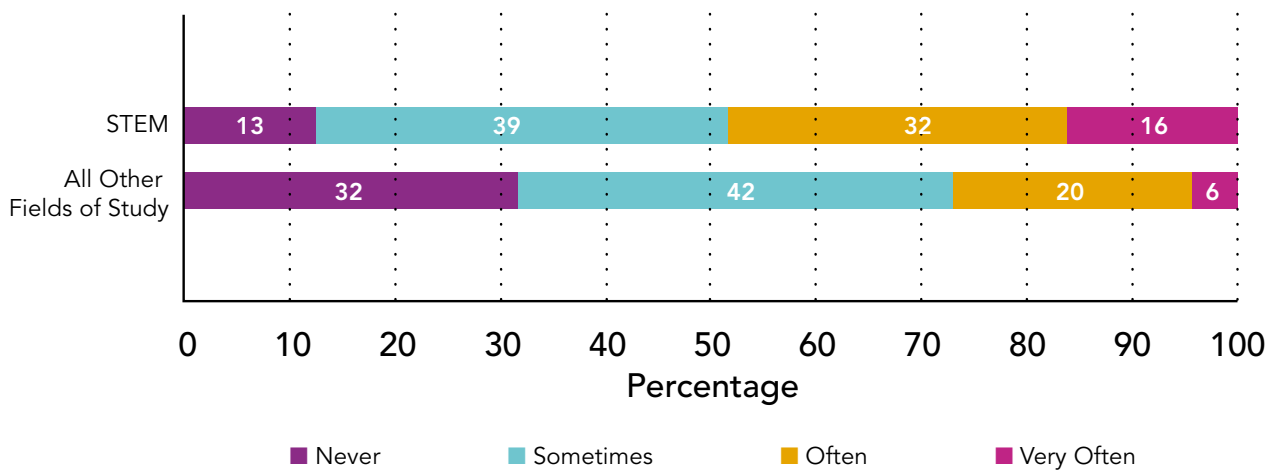

Figure 5.3.2 Responses from STEM students

Figure 5.3.3 Responses from STEM and all other fields of study

*   There is no statistically significant relationship between responses from male and female STEM students

Q2. During the current academic year, about how often have you used numerical information to examine a real-world problem or issue (unemployment, climate change, public health etc.)?

The most commonly selected response to this question for all STEM students is 'never' (39%) with part-time/remote students, students in institutes of technology and first year STEM students displaying the least frequent experiences across all groupings. Postgraduate STEM students report the greatest incidence of using numerical information to examine a real-world problem or issue with 11% responding with 'very often' and 24% with 'often'.

42% of first year STEM students 'never' examine real-world problems or issues using numerical information compared to 38% of final year STEM students and 30% of postgraduate STEM students. 33% of STEM students in other institutions select 'often' or 'very often' compared to 21% and 29% STEM students in institutes of technology and in universities respectively. Only 8% of full-time and 6% of part-time/remote STEM students 'very often' use numerical information to examine a real-world problem or issue. Looking at gender and age, there does not appear to be much difference between responses. Non-Irish students report slightly more positive responses to this question than Irish students. 28% of non-Irish STEM students select 'often' or 'very much' compared to 24% of Irish STEM students.

Comparing STEM students with non-STEM students, a moderate association between these fields of study groups and using numerical information to examine a real-world problem or issue is observed. 39% of STEM students report 'never' having used numerical information to examine a real-world problem or issue compared to 38% of students in 'All other fields of study'. On the other end of the scale, 7% of STEM students 'very often' use numerical information to examine a real-world problem or issue while 6% of non-STEM students report same.

Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)*
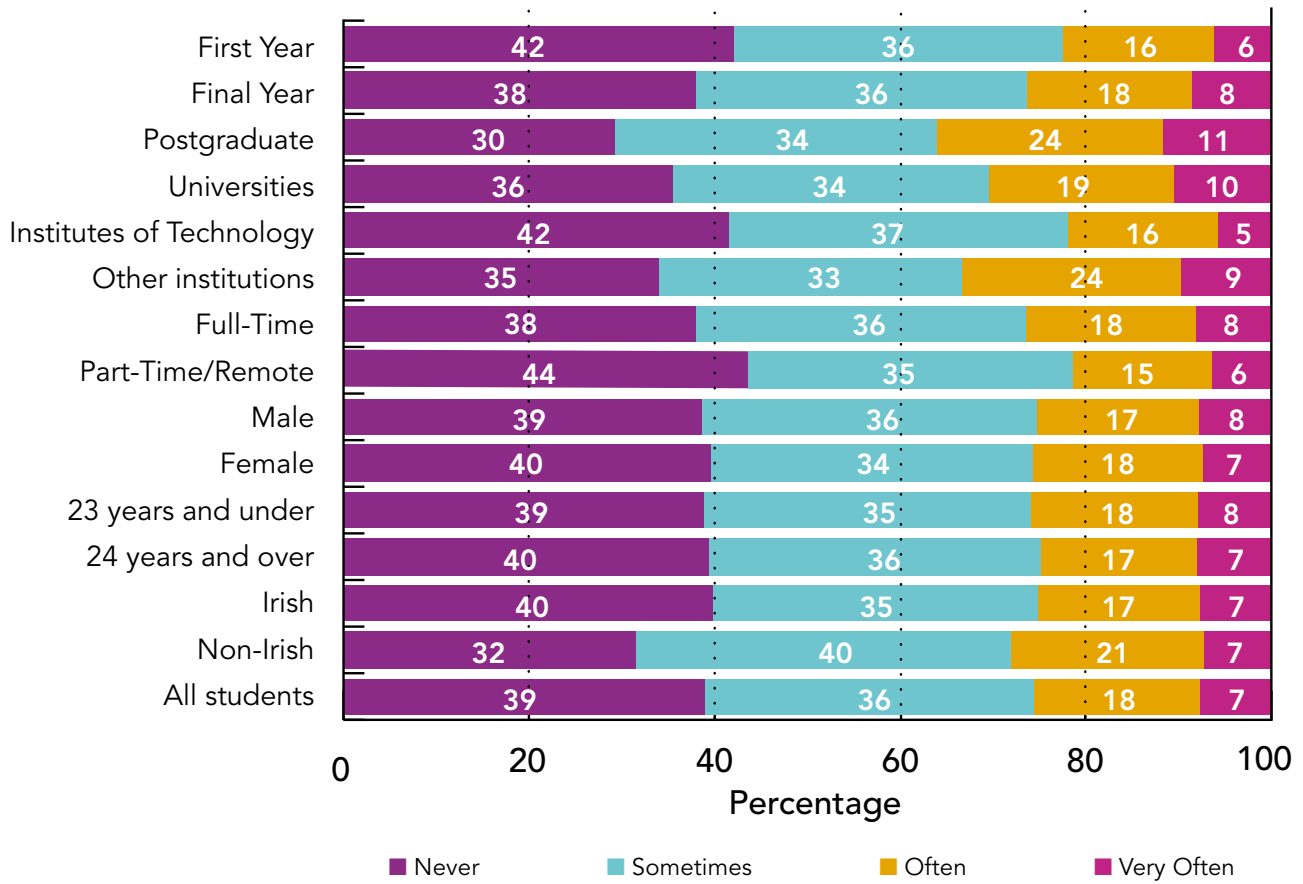

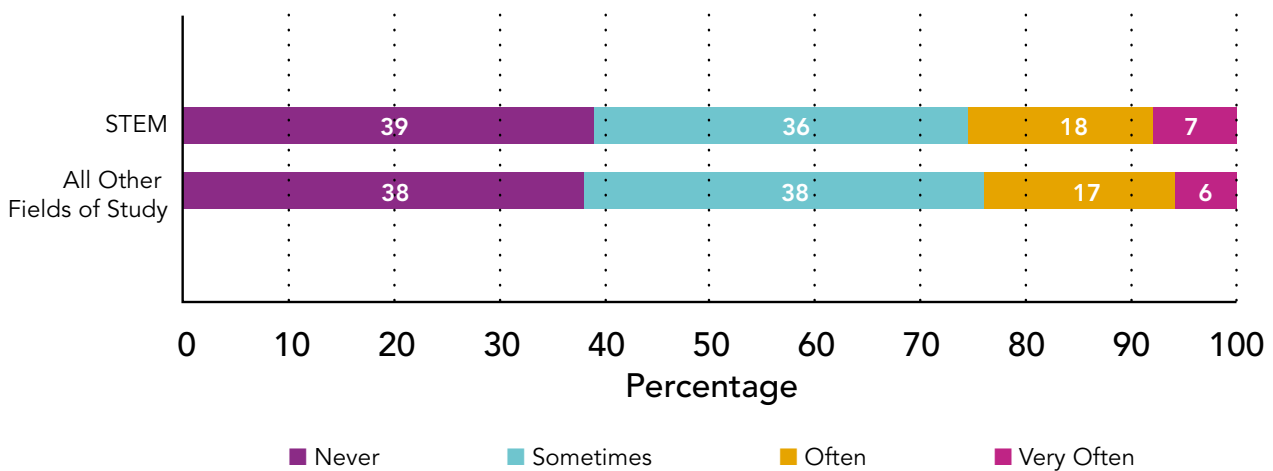*Figure 5.3.4 Responses from STEM students*

Figure 5.3.5 Responses from STEM and all other fields of study

*   There is no statistically significant relationship between responses from male and female STEM students, or between responses from STEM students' aged 23 years and under or 24 years and older

Q3. During the current academic year, about how often have you evaluated what others have concluded from numerical information?

The most commonly reported response to evaluating what others have concluded from numerical information is 'sometimes'. 46% of all students selected this response. Half of STEM students in other institutions, and the same proportion of non-Irish STEM students, selected 'sometimes'. The lowest response to this question was among part-time/remote STEM students with 34% 'never' having evaluated what others have concluded from numerical information. This was followed by 31% of females and 30% of STEM students 24 years and over. The largest percentages of STEM students to select 'very often' in response to this question were postgraduates and students in university at 7%.

Final year and postgraduate STEM students have reported similar experiences while first year STEM students report less frequent evaluation of what others have concluded from numerical information. 29% of STEM students in universities select 'often' or 'very often' compared to 24% of STEM students in institutes of technology and 22% in other institutions. As mentioned, part-time/remote STEM students report some of the lowest occurrences of this experience. 27% of full-time STEM students say that they 'often' or 'very often' evaluated what others have concluded from numerical information in comparison to 21% of part-time/remote STEM students.

Approximately three quarters of both males and females select 'never' or 'sometimes' in response to this question. The same can be said for both age categories. As with the two other *Quantitative Reasoning* questions, non-Irish STEM students report more frequent experiences of 'often' or 'very often' evaluating what others have concluded from numerical information than Irish students.

42% of students in fields of study not related to STEM report 'never' having experienced evaluating what others have concluded from numerical information compared to 28% of those in STEM disciplines. Only 3% and 5% of non-STEM and STEM students respectively, 'very often' form conclusions from numerical information as evaluated by others.

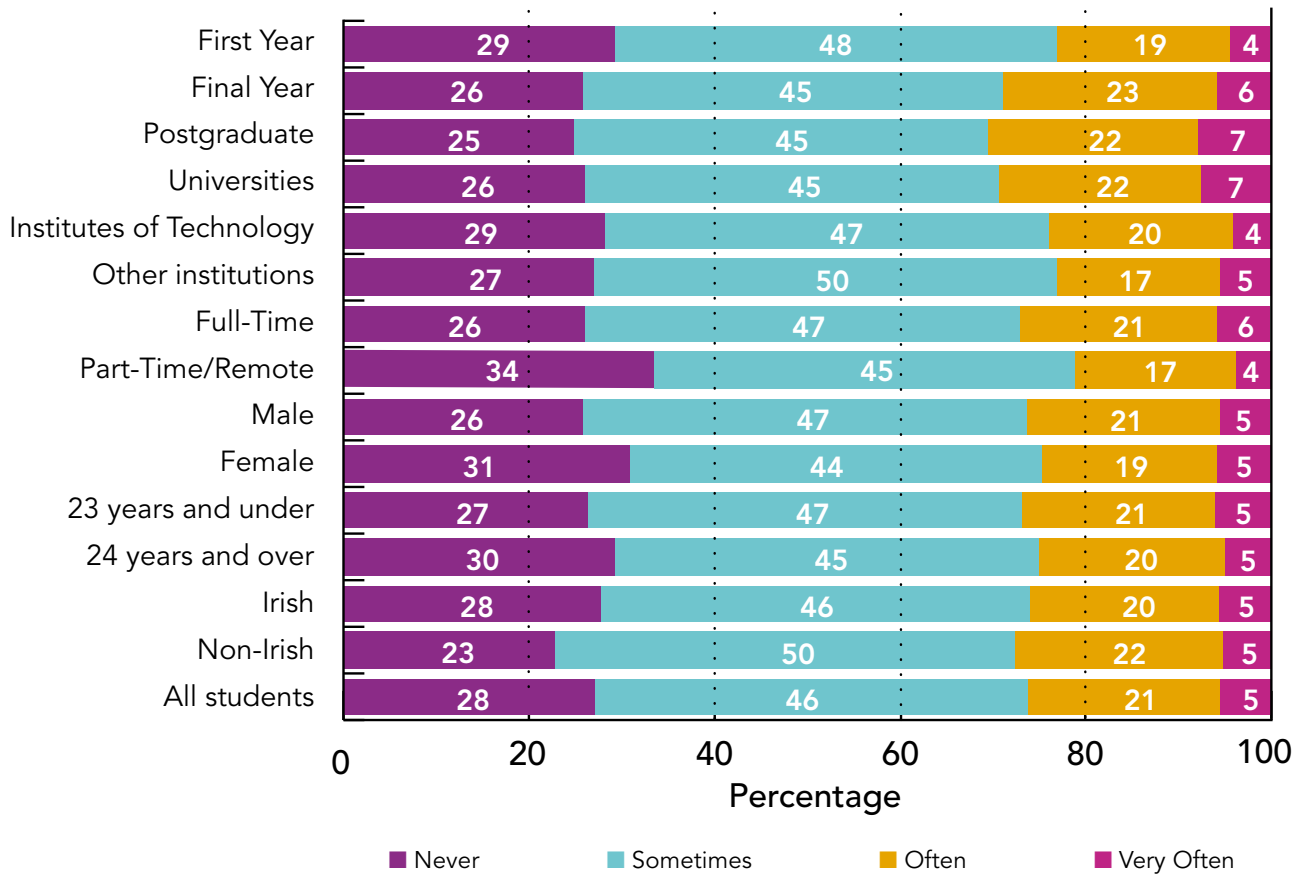## Evaluated what others have concluded from numerical information

	Never	Sometimes	Often	Very Often
First Year	29	48	19	4
Final Year	26	45	23	6
Postgraduate	25	45	22	7
Universities	26	45	22	7
Institutes of Technology	29	47	20	4
Other institutions	27	50	17	5
Full-Time	26	47	21	6
Part-Time/Remote	34	45	17	4
Male	26	47	21	5
Female	31	44	19	5
23 years and under	27	47	21	5
24 years and over	30	45	20	5
Irish	28	46	20	5
Non-Irish	23	50	22	5
All students	28	46	21	5

Figure 5.3.6 Responses from STEM students

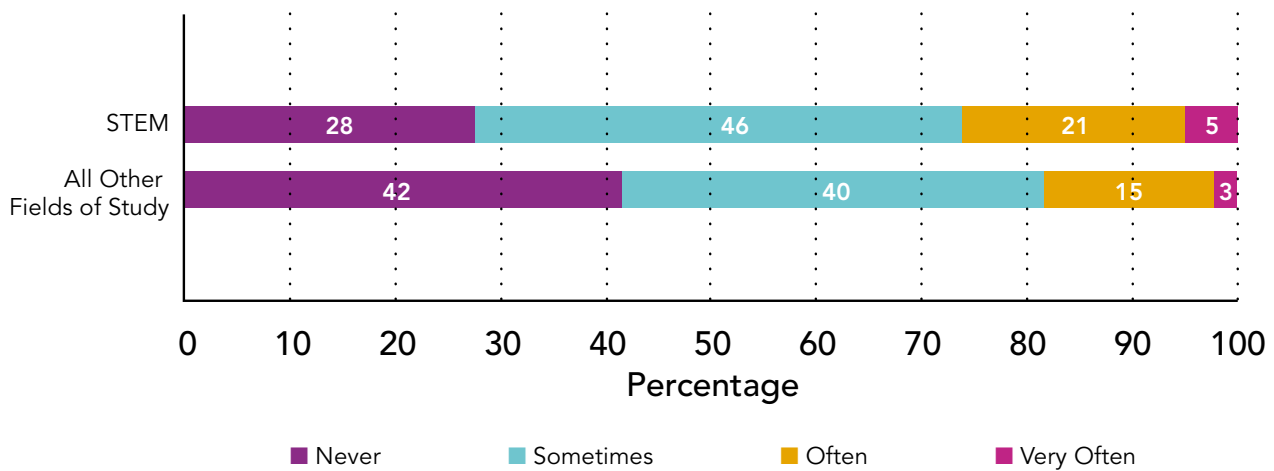|	Never	Sometimes	Often	Very Often
STEM	28	46	21	5
All Other Fields of Study	42	40	15	3

Figure 5.3.7 Responses from STEM and all other fields of study

5.4
GENERAL CONCLUSIONS

Reasonable levels of experience of *Higher Order Learning* are reported by STEM students. Overall, and for most of the individual questions which make up the *Higher Order Learning* indicator, postgraduate STEM students and STEM students in universities report the most frequent experience of learning through methods such as application, analysis, judgement and synthesis. First year STEM students and those from other institutions report less experiences of higher order learning / thinking than their counterparts. For the most part, students in fields of study that are not STEM related report greater *Higher Order Learning* indicator scores than STEM students.

There are a number of areas in relation to *Higher Order Learning* that could be further investigated.

- Across all questions in the *Higher Order Learning* indicator, year group is a category that stands out. Postgraduate STEM students have higher indicator overall mean scores as well as reporting more favourably to individual questions, than first year and final year STEM students. This could suggest that experiences of *Higher Order Learning* increase as students progress in their studies, or, alternatively, that higher order learning or thinking is not sufficiently prioritised in undergraduate higher education. Further investigation is necessary to draw meaningful conclusions

- It appears that STEM students in universities have more positive exposure of application of practical problems, analysis of ideas or experiences, evaluating points of view and forming understandings or new ideas than STEM students in institutes of technology or other institutions

- Overall, female STEM students report greater experiences in coursework of *Higher Order Learning* than male students. Whilst this statistic might be viewed as apparently supporting perceptions of student engagement, further investigation would be required to explore reasons for these results.

Reported experiences of *Quantitative Reasoning* are relatively low, overall. The lowest reported indicator scores are among part-time/remote STEM students and first year STEM students. As with *Higher Order Learning*, indicator scores are highest for postgraduate STEM students and STEM students in universities.

- The lowest indicator score for *Quantitative Reasoning* across all groups was 20.8 for part-time students. A score of 23.7 was generated by full-time students. Whilst these scores are higher than for other fields of study, further exploration may be merited to inform reflection on the experiences of different groups of students

- As with *Higher Order Learning*, first year students report less frequent opportunities to develop their quantitative reasoning skills than final year STEM students and postgraduate STEM students. Institutions may wish to investigate further the different experiences offered to each cohort

- Similarly, as might be implied by overall *Higher Order Learning* scores by institution-type, STEM students in universities report higher levels of quantitative reasoning overall than those in other institutions and institutes of technology.

5.5
CONSIDERATIONS WHEN INTERPRETING INSTITUTIONAL DATA

The purpose of this chapter is repeatedly stated as illustrating the potential of structured interrogation of the data. Each year, the equivalent chapter of the national report explores the national data from a particular perspective. Within institutions, review of the 'Looking Deeper' chapter may prompt exploration of institution-level data from a similar perspective. Alternatively, if a particular interest or issue is topical within an institution, it may prove helpful to turn to the national report to identify if similar results or issues have been explored with national data.

In 2017, analysis of data from students pursuing STEM fields of study may help to contextualise institution-, or faculty–, level data in addition to providing an insight into the experience of these student cohorts for those without ready access to ISSE data whether they are working within institutions as staff or students, or they are interested stakeholders external to participating institutions.

The next section of this chapter explores open text responses from first year students to ISSE 2017. The same concepts apply to open text responses.

5.6
ANALYSIS OF OPEN TEXT RESPONSES TO QUESTIONS

This year, 17902 first year students took part in the survey, representing 32.1% of the total first year cohort invited to participate. Most questions offered predefined response options but two questions presented to respondents sought open text responses. When fieldwork concluded, these open text responses were reviewed by the external survey contractor to remove any names that may have been included. This "data cleaning" was undertaken before any data files were returned to institutions. At institutional level, some care is required when disseminating open text responses. This is particularly the case in smaller institutions or smaller units of institutions as some anonymised open text may enable individuals to be identified if roles are mentioned, for example, "the learning support centre manager" or "the librarian". Taking this care into account, there is great potential value in analysing open text responses as these comments offer a rich context in which to interpret quantitative data.

The following sections describe findings from an initial analysis of open text responses at national level. Due to the complexities of analysing open text and to the large number of responses in the national dataset, this analysis limits itself to an initial high level identification of some of the main issues. The process undertaken for this report can be summarised as coding individual responses; reducing / grouping codes to categories; and then developing themes.

The responses to the open-ended questions were analysed using qualitative content analysis (see Mayring, 2000[10]). The focus of the process was the identification of categories of themes that captured an aspect of the data that related to the question students' responded to. Themes were identified though a process by which responses were reviewed to isolate concrete ideas that reflected patterns in the responses returned by students. The credibility of the process (See Elliott et al., 1999[11])

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10 http://www.qualitative-research.net/index.php/fqs/article/view/1089/2385
11 https://www.researchgate.net/profile/Robert_Elliott/publication/227613552_Evolving_Guidelines_for_publication_of_qualitative_research_studies_in_psychology_and_related_fields/links/54a0a96b0cf256bf8bae1b75/Evolving-Guidelines-for-publication-of-qualitative-research-studies-in-psychology-and-related-fields.pdf.

was ensured in two ways. All of the data were reviewed by one researcher to ensure consistency of interpretation throughout the process. In addition, the researcher ensured that they returned to the data to repeatedly test the interpretations as they developed, ensuring that the themes identified were clearly evident and grounded in the data. As part of this process representative quotes were identified to illustrate the main themes.

Further analysis is recommended before firm conclusions can be drawn. Such analysis should be informed by understanding of the local context. In particular, individual institutions (and units within institutions) are best placed to determine which categories and themes are likely to be most appropriate to inform or prompt enhancement activities. As for all ISSE data, it may also prove beneficial to explore further through discussion with students.

5.6.1
WHAT DOES YOUR INSTITUTION DO BEST TO ENGAGE STUDENTS IN LEARNING?

9117 students (51% of first year respondents) provided answers to this question. Open text responses were analysed using a software application, SPSS Text Analytics for Surveys. This provided a textual analysis based on key words. Iterative refinement of frequently cited terms supported incremental grouping of responses into broad themes or categories. 8885 responses were allocated to broad themes. Only 2.5% of those who responded (232) provided answers that were found to be too short or lacking sufficiently specific detail to analyse in a structured manner at this initial stage but these responses included terms such as "encourage", "talk to us", "motivate", "includes everyone" and could be appropriately coded with sufficient time to ensure consistency.

A number of different approaches were explored before determining that the use of ISSE engagement indicators offered an appropriate foundation for categories. The use of these indicators facilitates, to some extent, interpretation of qualitative results and of quantitative results for similar or related topics. Individual responses were initially coded and categorised using the software; these codes and initial categories were reviewed and then assigned to broader categories. These broader categories are based on engagement indicators, where possible, or to other additional themes based on terms that were mentioned frequently. Specific themes were identified about staff relating learning to the "real world", about the positive role of technology (ranging from the use of email to contact staff; the availability of lecture materials online; the use of devices to capture immediate feedback from individuals, such as 'clicker' handsets; and the use of virtual learning environments, predominantly Moodle and Blackboard), alongside comments on general facilities or resources. Individual responses can be placed in multiple categories which means that aggregating the numbers of comments grouped under each theme can lead to a larger cumulative total than the actual number of respondents. In figure 5.6.1, the frequency with which particular themes are identified is indicated by the size of the text.
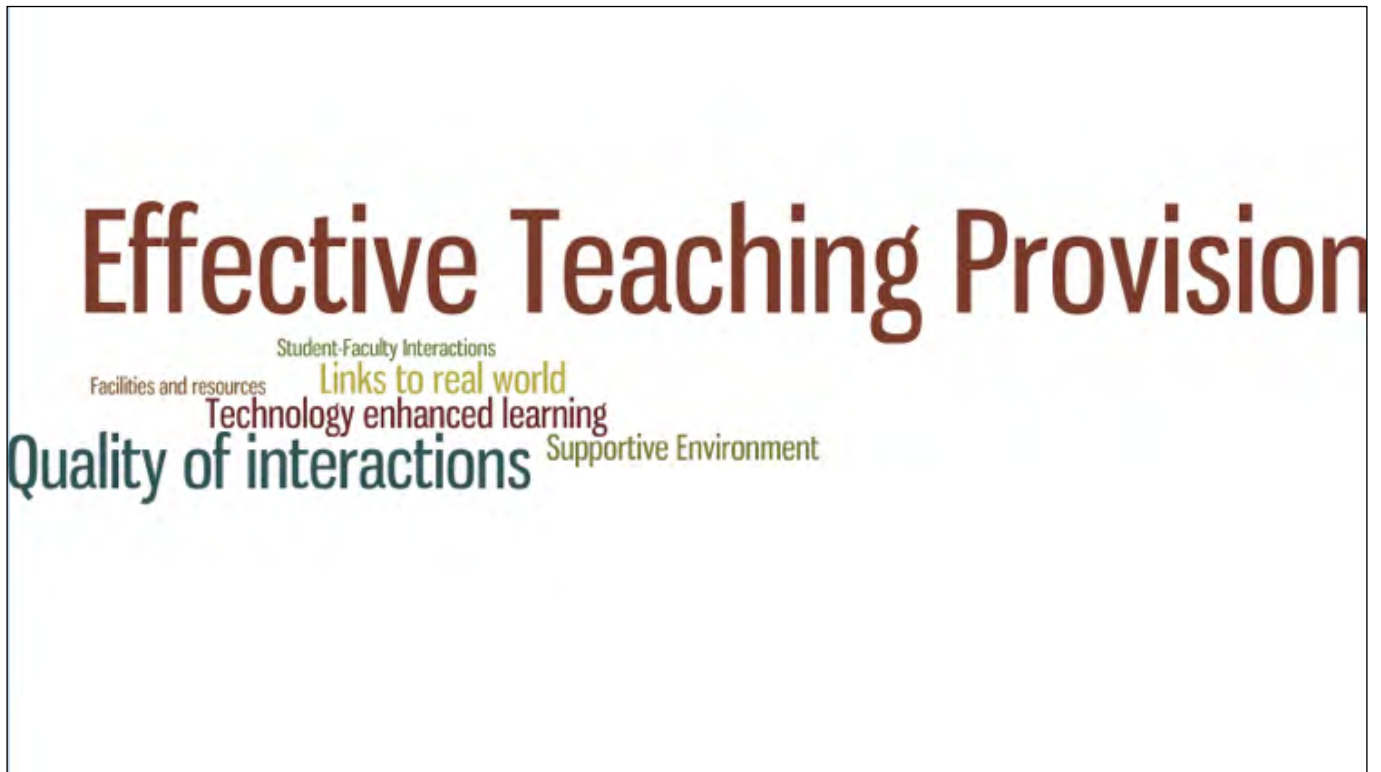
Figure 5.6.1 *What does your institution do best to engage students in learning?*

The majority of responses (almost three quarters of all categorised responses) relate to four main themes of effective teaching provision, quality of interactions, linkages to the "real world", or technology enhanced learning. More than one third of all comments refer to aspects of student experiences that can be grouped under a broad theme relating to what students regard as effective teaching provision, although it is noted that many elements of these open text responses also reflect the quality of interactions with academic staff given that comments can be allocated to more than one category. For analysis of open text responses in this section, effective teaching provision has been interpreted as encompassing specific teaching practices such as those used by the five questions with closed response options contributing to the *Effective Teaching Practices* indicator, but also delivery mechanisms and organizational structures such as group work and tutorial, laboratory time and other practical applications of learning.

Within the theme of effective teaching provision, large numbers of students identify the positive nature of tutorials, seminars and other small group work (almost two fifths of these comments refer to tutorials / group work / or closely related terms). Comments often refer to the greater engagement with course material and increased opportunities to hold discussions and to ask questions that are a common feature of learning in smaller group settings.

Almost a fifth of responses, overall, were categorised as relating to Quality of Interactions. These comments refer to interactions with staff and, to some extent, with other students. More than one in four of these responses identified support, almost one sixth identified interaction (primarily with staff, which may reflect the phrasing of the question), and almost half responses referred to various presentations of "help" such as helping students, helping improve work, helpful staff, provision of 'outside help'.
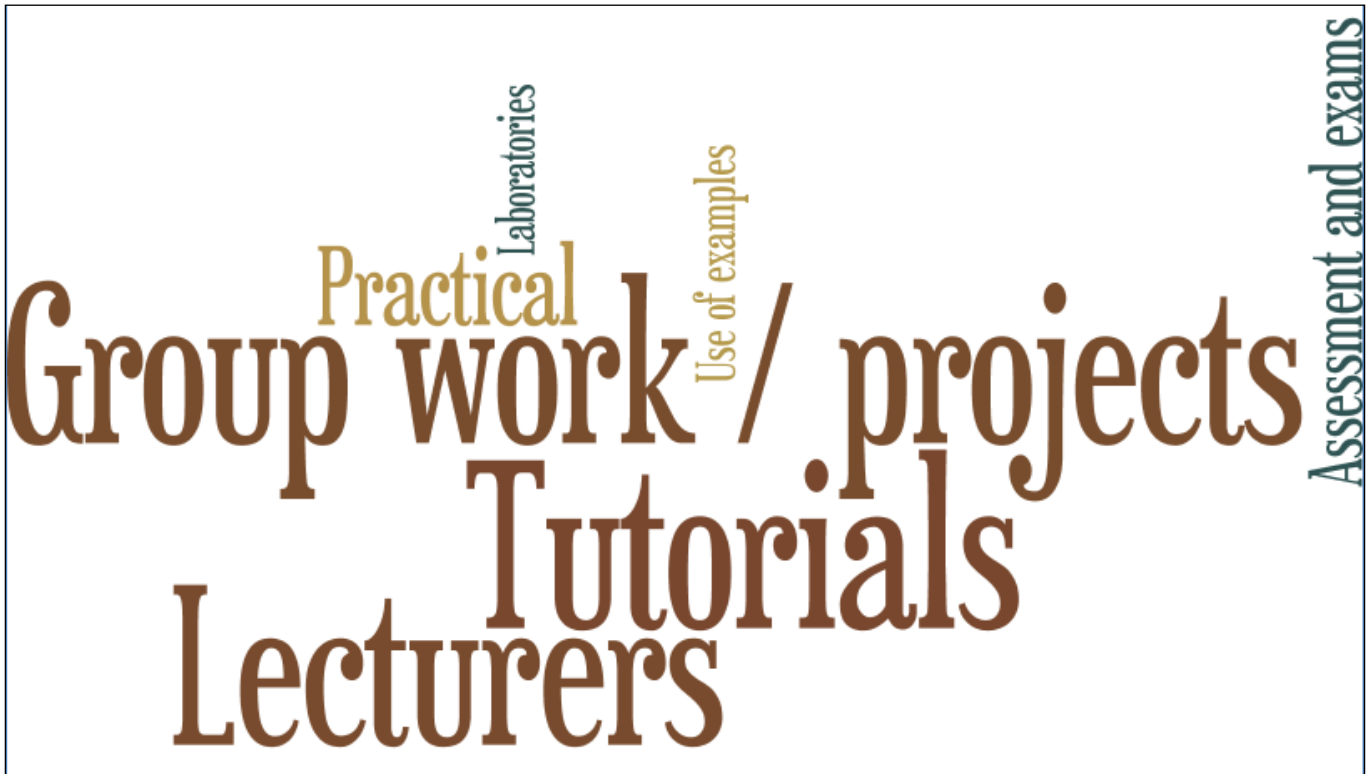
Figure 5.6.2 Themes within Effective Teaching Provision

The following responses have been chosen as being illustrative of the type of responses provided by first year students for the question about best aspects.

There is a big emphasis on making each module fun and interesting, and help is readily given to anyone who is struggling. Also the lecturers are extremely friendly which helps when enjoying the learning process. *[Male student, institute of technology]*

Tutorials are a great way of understanding and practicing questions. I find that being in these smaller groups really help as you are able to ask more questions and get a better quality of learning *[Female student, university]*

Tutors often talk one to one with students about their work and give useful feedback and recommendations to help improve it or help the student to consider different approaches to their work. The tutors are also very approachable; if you have an issue it is quite easy to discuss the issue with them or directly with heads of departments.
[Female student, other institution]

In a lot of the lectures, the lecturers interact with the students and assign groups to work together, which is a good approach to learning. There are also a lot of resources in the university for those who need it, in regards to learning. I always receive e-mails about some type of resource to avail of and it's nice to know its there if I need it. *[Male student, university]*

The continuous assessments allow us to engage in the work throughout the semester. Some lecturers have excellent in class work to help us understand topics. Moodle
[Female student, institute of technology]

Many of us find the lectures and assignments to be engaging, encouraging us to want to get the most we can out of them. This is done by constantly updating what they are teaching; giving us new information based on new research or new findings. Everything is kept relevant and interesting. The lecturers seem to love what they do, and so radiate a sense of enthusiasm, which is easily mirrored by the students. *[Male student, university]*

Group presentations in tutorials and the question sheets given to us for tutorials really help me engage with the coursework and understand it much better. *[Female student, university]*

Continuous Assessment. It really helps to learn as you do. The workload appears to be more even spread throughout the different modules, reducing stress and promoting my retaining skills.
[Male student, institute of technology]

By creating an open community into which anyone and everyone can contribute. It is a complete system of engaging students with their experiences, goals and education. As a student you are constantly surrounded by the community ethos and greater goal of being proud what it is you have, will or are achieving as a direct result of the institution.
[Female student, university]

They try as much as possible to relate our studies to real life situations.
[Male student, institute of technology]

We have group projects to do in our tutorials which force us to research and engage further in the material covered in the lectures. The group presentations help you get a deeper understanding of the material. *[Male student, university]*

The lecturers and the students provide a positive working environment where the student is encouraged to work and achieve the goals and assignments they are set. The lecturers teach in a way where the students are interested and cannot lose focus due to how much passion the lecturers have for the modules they teach.
[Male student, university]

[HEI name] provides many services that engage with its students when it comes to learning. When being in labs we receive support from our demonstrators (especially in Biology). I like the idea that we are not just spoon-fed and instead the demonstrator asks us questions, I can only speak about myself but this method brings pride and joy (when I understand the topic and get the answer correctly less if I don't). If someone doesn't understand the topic it was made clear to us to always ask questions, because there is LOTS of support. When not being in the lab, of course in big (enormous) lecture halls it's harder to engage with the lecturer but I love the idea that we are always encouraged by the lecturer to come up front and ask a question. Most of the modules I am doing provide tutors, that engage with us on a specific topic for an hour - which is great. Outside the lectures, labs or tutorials. There is more support given to us, especially those like me that sometimes (or most of the time) have trouble with Mathematics. Workshops are held during specific times that suit most of people. All of this is so amazing. But [HEI name] ensures that student's get as much support as they need therefore it holds survey like these.
[Male student, university]

Figure 5.6.3 *What could your institution do to improve students' engagement in learning?*

5.6.2
WHAT COULD YOUR INSTITUTION DO TO IMPROVE STUDENTS' ENGAGEMENT IN LEARNING?

8367 students (47% of first year respondents) provided answers to this question regarding suggested improvements. The process outlined for in the previous section was followed to code and categorise responses. It is immediately apparent that there is greater variety in responses to this question. Whilst it is possible to introduce categories (and, indeed, to align broadly with many of those used for the first open text question), individual responses within these broad themes (at national level) tend to refer to a much wider range of issues and suggestions than responses identifying what institutions do best. In figure 5.6.3, the frequency with which particular themes are identified is indicated by the size of the text.

Almost two thirds of all responses to this question refer to issues that have been broadly categorised as effective teaching provision. Almost a fifth of the total have been categorised as quality of interactions with staff. A wide range of sub-categories exist within these relatively large categories, making it difficult to provide a consistent and concise overview in this report. Students' views on how institutions could improve can reflect individual experiences and perceptions to a greater extent than their views of what is most effective. Nevertheless, a number of practical issues emerge such as timetabling leading to large gaps between formal lectures; clashes between lectures and tutorials or scheduled times for use of support centres; uneven spread of workload across the year; and the feeling that some staff do not know students individually;

A separate additional category was generated for responses to this question and is titled 'independent learner'. 264 individual responses were assigned to this category and relate to perceptions which may be particularly relevant to first year students, many of whom have recently left secondary education - with quite a common theme of institutions providing more "direction" by, for example, incentivising or "making attendance compulsory" , "more compulsory group projects", "compulsory meetings with tutors".

The following responses have been chosen as being broadly representative of the type of comments provided by first year respondents, acknowledging the wide variety of issues identified.

Lecturers replying in a timely manner to issues or questions (within a week MAX). Some lecturers don't reply at all. Also the emails should answer the question or issue addressed rather than brushing over it and giving a generic answer. More lectures on research and assignment writing. Having a lecturer that engages with students and is passionate about their module makes all the difference. Too many lectures just stand and read off the slides. I can do that at home tbh and this effects attendance without a doubt. Why would I spend €12 travelling each day to sit and watch someone read off the slides I have? *[Female student, university]*

1. give appropriate time in class to discuss assignments. 2. provide information of any supports available to non-national, non-native English speakers. 3. ensure ALL powerpoint presentations are available on-line at least 24 hours prior to lectures - that way the whole class has an opportunity to read through the material before class. At times it has taken a number of days before the material is even put on Blackboard. 4. Remove all material from blackboard from previous years. Some modules have a mixture of last years assignments, and last years presentations, which is confusing, in particular for first years who have never used Blackboard previously. *[Male student, institute of technology]*

Put in place classes for each subject to discuss the topics among the lecturer and students. Incentivise people to come to these classes by making attendance to them worth a small % of your overall grade. *[Male student, university]*

Lecturers knowing students by name
[Female student, institute of technology]

The lecturers and students don't know each other
[Male student, university]

Improve the time table of classes so that there aren't as many inconveniently long breaks so that people lose interest and won't attend some lectures. Having a lecture from 9am-10am and nothing until 4/5pm doesn't engage students in being consist and interested in their daily lectures because they end up going home or dreading the lecture by the time it comes around. Or for example having one lecture from 9am-9.50am on a Monday morning with no other lectures that day when students have to travel long distances to get to the college or come down the night before for a 50 minute lecture it quickly becomes irritating and they will sometimes skip it and not engage with that topic as well as others. *[Female student, university]*

Start with replying to the queries received through mail and not making them wait for over two weeks and still no reply. *[Male student, institute of technology]*

Divide the exams over two periods - Christmas and Summer, so there is an incentive to begin studying at the start of the year. Many students require pressure to start studying which means cramming at the end of the second semester. *[Female student, university]*

Have a break between double or triple lectures Encourage questions from students
[Male student, institute of technology]

Having less lectures with hundreds of people and having more smaller lectures.
[Female student, university]

By making more time for academic staff and students to engage and talk privately about their academic performance and how they can improve this performance, more feedback on exams and assignments and more information on further study and add on courses.
[Female student, institute of technology]

(Referring specifically to my course) The college could provide students with more electives in year 1, this would both entice more students to apply for the course and would improve retention of students already in the course. (Institution in general) Make students more aware of the presence of awards for high grades in exams such as the presidents award. This would encourage students to work harder. The college should provide new accolades and promote them as something that would look impressive on a CV. In doing this students would likely stride to improve their grades and engagement in learning.
[Male student, institute of technology]

Clearly identify assignments when we are first given them *[Female student, other institution]*

Shorten some of the readings, can be very difficult to get them all done! *[Male student, university]*

Spread out assignments instead of having none for ages and then loads at once *[Female student, other institution]*

I think that is very much up to the individual, the supports are there, if the individual is interested and willing enough to ask, or to take the time to educate themselves, not only in terms of coursework, but valuable life lessons.
[Male student, institute of technology]

CHAPTER 6
NEXT STEPS

It is useful to reflect on what messages can be taken from implementation of a national survey of higher education students, which began as a national pilot in 2013. Notwithstanding revision of the questionnaire in 2016 to reflect experiences to data and to increase comparability with student engagement surveys internationally, results have proven to be largely stable from year to year at national level. This contributes to the view that the survey is reliable, given the limited change at system level over this time period. The data also indicate patterns of interest that may merit further investigation within institutions, within clusters or partnerships of institutions, or at national level. The explorations, in the previous chapter, of results for students studying STEM subjects and of open text responses from first year students, illustrate the potential of focussed analysis and interpretation of the rich data source generated by the ISSE. The high level of responses to the open text questions, and the very low proportion of short or limited answers, demonstrates that students will engage when provided with opportunities to do so.

In this context, the national collaborative partnership continues to seek to realise the benefits of embedding the ISSE into institutional life for students and for staff.

6.1
CONTINUING TO PROMOTE THE POTENTIAL OF ISSE DATA

The considerable data set generated by the ISSE can be used to identify and / or inform a range of enhancement activities. The comprehensive nature of the data gathered leads to variation between institutions in terms of which office or unit takes the lead in analysing the data or promoting its use. This variation reflects institutional structures, contexts and known priorities. As increasing numbers of staff and students become aware of the potential of ISSE data, there has been a change of focus in ISSE-led workshops towards bespoke consideration of institution-specific data and related activities. Participating institutions have been invited to arrange such workshops on-site for whichever staff and student participants they deem most appropriate. Some institutions have also chosen to host regional workshops where other institutions are invited to participate.

In addition to consideration of institution-level data, the annual series of workshops to explore national data by broad discipline continues to operate in partnership with the National Forum for the Enhancement of Teaching and Learning. These workshops are aimed at heads of faculty / department, or their nominees, in order to provide an additional context within which results from their students can be examined. Data used in these workshops are published on the website of the National Forum, www.teachingandlearning.ie

Institutions have become very familiar and effective in promoting participation in the ISSE to students during fieldwork each year. However, as outlined in section 1.2,

increased consideration should be given to engagement with ISSE data as an intrinsic element of enhancement processes and discussions. Annual data from ISSE provides institutions with another significant evidence base on which to consider the impact of any changes or interventions in the learning environment.

The facilitation of workshops is a valuable opportunity to consider the positive impact that survey results can have in quality assurance and enhancement, but also as a mechanism to engage students directly - both formally and informally. Institutions will find significant benefits in utilising the data to create ongoing dialogue between the student body, academic staff, and within the institution itself. Creating welcoming and participatory spaces for discussions around quality are integral to growing the student voice and to developing a collaborative relationship with staff. It is in this space that discrete but related national initiatives such as the National Student Engagement Programme (NStEP) can make a valuable contribution.

6.2
CONTINUED DEVELOPMENT

Whilst acknowledging that it takes some time for institutions and other project partners to fully explore and analyse student engagement data in order to inform decision-making (as outlined in section 1.3), there is a determination to maintain continued development. This year, two additional fields were added to the demographic data collected from institutions. These fields allow institutions to include internal organisational structures, such as faculty / school / department / campus, prior to the survey taking place. This means that anonymised response rates for these structures can be monitored during fieldwork, and that results from the survey can readily be presented to match those organisational structures. Development of optional additional question banks continues to attract interest from institutions. As a pilot in 2017, one university deployed a bespoke survey which used ISSE question items in conjunction with many items from a long-established internal survey in order to test the impact on response rates and to facilitate comparison of the relative merits of each question set. In 2018, some institutes of technology plan to pilot a set of questions that relate to annual quality assurance processes.

Perhaps most significantly, a specific working group has begun to explore development of a separate survey for research postgraduate students. It is planned to run a national pilot during the 2017-2018 academic year with the aim of implementing a full survey of research students in the following year. It has been agreed that development of the survey for research students will focus on student engagement and experiences i.e. with a perspective that reflects the broad approach taken by ISSE to date.

APPENDIX 1
PROJECT RATIONALE AND GOVERNANCE

The *National Strategy for Higher Education to 2030*[12], published in 2011, recommended that higher education institutions should put in place systems to capture feedback from students to inform institutional and programme management, as well as national policy. It also recommended that every higher education institution should put in place a comprehensive anonymous student feedback system, coupled with structures to ensure that action is taken promptly in relation to student concerns. This recommendation was informed by legislation (namely, reference to the involvement of students in evaluating the quality of their educational experience in the *Universities Act, 1997*, and the *Qualifications (Education and Training) Act, 1999)* and other key policy drivers such as *Standards and Guidance for Quality Assurance in the European Higher Education Area, (ENQA 2005 and 2009), and Common Principles for Student Involvement in Quality Assurance/Quality Enhancement* (IHEQN 2009). The National Strategy report noted in 2011 that "substantial progress (in this area) has been made" but also stated that "students still lack confidence in the effectiveness of current mechanisms and there remains considerable room for improvement in developing student feedback mechanisms and in closing feedback loops."

In 2012, a national project structure was established which was representative of all institutions, relevant agencies and the Union of Students in Ireland. This project team implemented a pilot national student survey in 2013 involving all Universities, Institutes of Technology and most colleges of education. The national pilot was regarded as successful, with 12,732 students from twenty six institutions responding to the survey. It was agreed to proceed to first full implementation in 2014 and future years. A full report on implementation of the 2013 national pilot, and other resources and results from subsequent years' implementation, are published at **www.studentsurvey.ie**.

Implementation of the Irish Survey of Student Engagement is funded by the Higher Education Authority as a shared service for participating institutions. The project is co-sponsored by the Higher Education Authority (HEA), the Irish Universities Association (IUA), the Technological Higher Education Association (THEA) and the Union of Students in Ireland (USI).

The governance and management structures for the Irish Survey of Student Engagement (ISSE) were designed to ensure wide representation of partner higher education institutions and sponsoring organisations. A Project Plenary Advisory Group was established with representatives from Universities, Institutes of Technology, Quality and Qualifications Ireland[13], and the project co-sponsors (HEA, IUA, THEA and USI). This Plenary Group is responsible for the overall management of the project. There are a number of working groups addressing specific aspects of the project. These include survey design / review, technical, communications and reporting. Each of the sub groups is chaired by a member of the Plenary Group and members are nominated by participating organisations. A full-time project manager was appointed to lead developments and to ensure coherence and consistency between the various elements of the project.

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12. http://www.hea.ie/sites/default/files/national_strategy_for_higher_education_2030.pdf
13. The statutory quality assurance agency, www.QQI.ie

Figure A.1 Project working group structures
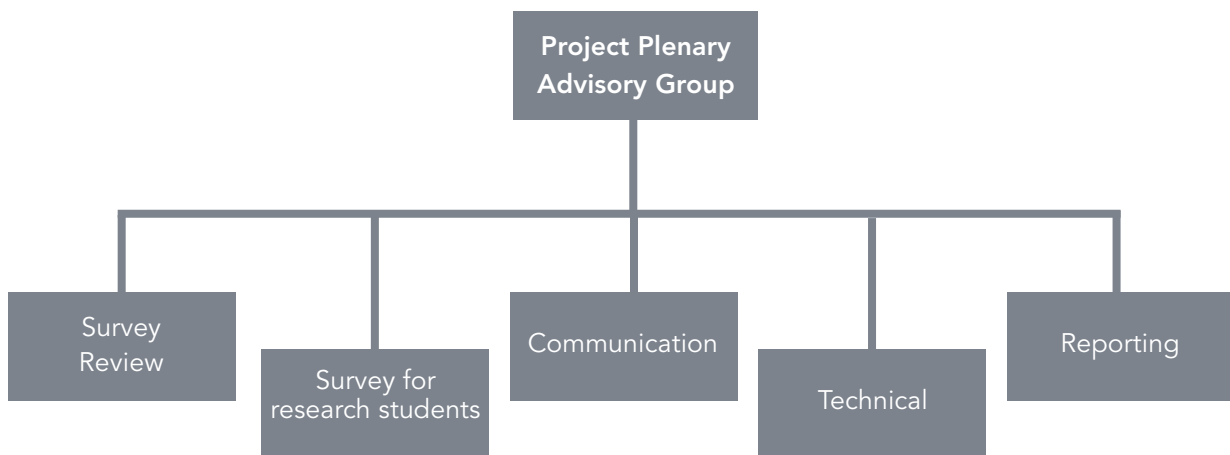
APPENDIX 2
QUESTIONS RELATING TO SPECIFIC ENGAGEMENT INDICATORS

HIGHER-ORDER LEARNING

During the current academic year, how much has your coursework emphasised... [very little, some, quite a bit, very much]

- Applying facts, theories, or methods to practical problems or new situations
- Analysing an idea, experience, or line of reasoning in depth by examining its parts
- Evaluating a point of view, decision, or information source
- Forming an understanding or new idea from various pieces of information

REFLECTIVE AND INTEGRATIVE LEARNING

During the current academic year, about how often have you... [never, sometimes, often, very often]

- Combined ideas from different subjects / modules when completing assignments
- Connected your learning to problems or issues in society
- Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in discussions or assignments
- Examined the strengths and weaknesses of your own views on a topic or issue
- Tried to better understand someone else's views by imagining how an issue looks from their perspective

- Learned something that changed the way you understand an issue or concept
- Connected ideas from your subjects / modules to your prior experiences and knowledge

QUANTITATIVE REASONING

During the current academic year, about how often have you... [never, sometimes, often, very often]

- Reached conclusions based on your analysis of numerical information (numbers, graphs, statistics, etc.)
- Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)
- Evaluated what others have concluded from numerical information

LEARNING STRATEGIES

During the current academic year, about how often have you... [never, sometimes, often, very often]

- Identified key information from recommended reading materials
- Reviewed your notes after class
- Summarised what you learned in class or from course materials

COLLABORATIVE LEARNING

During the current academic year, about how often have you... [never, sometimes, often, very often]

- Asked another student to help you understand course material
- Explained course material to one or more students
- Prepared for exams by discussing or working through course material with other students
- Worked with other students on projects or assignments

STUDENT-FACULTY INTERACTION

During the current academic year, about how often have you... [never, sometimes, often, very often]

- Talked about career plans with academic staff
- Worked with academic staff on activities other than coursework (committees, student groups, etc.)
- Discussed course topics, ideas, or concepts with academic staff outside of class
- Discussed your performance with academic staff

EFFECTIVE TEACHING PRACTICES

During the current academic year, to what extent have lecturers / teaching staff... [very little, some, quite a bit, very much]]

- Clearly explained course goals and requirements
- Taught in an organised way
- Used examples or illustrations to explain difficult points
- Provided feedback on a draft or work in progress
- Provided prompt and detailed feedback on tests or completed assignments

QUALITY OF INTERACTIONS

At your institution, please indicate the quality of interactions with... [Poor, 2, 3, 4, 5, 6, Excellent, N/A]

- Students
- Academic advisors
- Academic staff
- Support services staff (career services, student activities, accommodation, etc.)
- Other administrative staff and offices (registry, finance, etc.)

SUPPORTIVE ENVIRONMENT

How much does your institution emphasise... [very little, some, quite a bit, very much]

- Providing support to help students succeed academically
- Using learning support services (learning centre, computer centre, maths support, writing support etc.)
- Contact among students from different backgrounds (social, racial/ethnic, religious, etc.)
- Providing opportunities to be involved socially
- Providing support for your overall well-being (recreation, health care, counselling, etc.)
- Helping you manage your non-academic responsibilities (work, family, etc.)
- Attending campus activities and events (special speakers, cultural performances, sporting events, etc.)
- Attending events that address important social, economic, or political issues

QUESTIONS NOT RELATING DIRECTLY TO INDICATORS

In addition, 22 other question items are included because of their intrinsic value. These questions do not contribute directly to indicators bit are listed in section 2.3.10 alongside 2017 responses.

APPENDIX 3
PARTICIPATION IN ISSE 2017

The following institutions participated in ISSE 2017. Percentage figures represent the proportion of target student cohorts that responded to at least some survey questions.

UNIVERSITIES

Dublin City University	26.3%
Maynooth University	27.8%
National University of Ireland Galway	30.9%
Trinity College Dublin	24.6%
University College Cork	19.5%
University College Dublin	23.8%
University of Limerick	14.3%

INSTITUTES OF TECHNOLOGY

Athlone Institute of Technology	60.5%
Cork Institute of Technology	32.7%
Dublin Institute of Technology	28.5%
Dundalk Institute of Technology	38.1%
Galway-Mayo Institute of Technology	30.4%
Institute of Art, Design and Technology	35.1%
Institute of Technology Blanchardstown	45.2%
Institute of Technology Carlow	24.1%
Institute of Technology Sligo	22.8%
Institute of Technology Tallaght	26.8%
Institute of Technology Tralee	29.5%
Letterkenny Institute of Technology	33.8%
Limerick Institute of Technology	34.4%
Waterford Institute of Technology	18.4%

OTHER INSTITUTIONS*

Marino Institute of Education	30.8%
Mary Immaculate College, Limerick	53.7%
National College of Art and Design	31.5%
National College of Ireland	23.4%
Royal College of Surgeons in Ireland	21.7%
St. Angela's College, Sligo	14.0%

* The reduced number of other institutions in 2017 reflects the fact that three colleges of education were incorporated into Dublin City University in September 2016.

NOTES

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