

Attitudes to Computing Courses and Careers among Secondary School Pupils

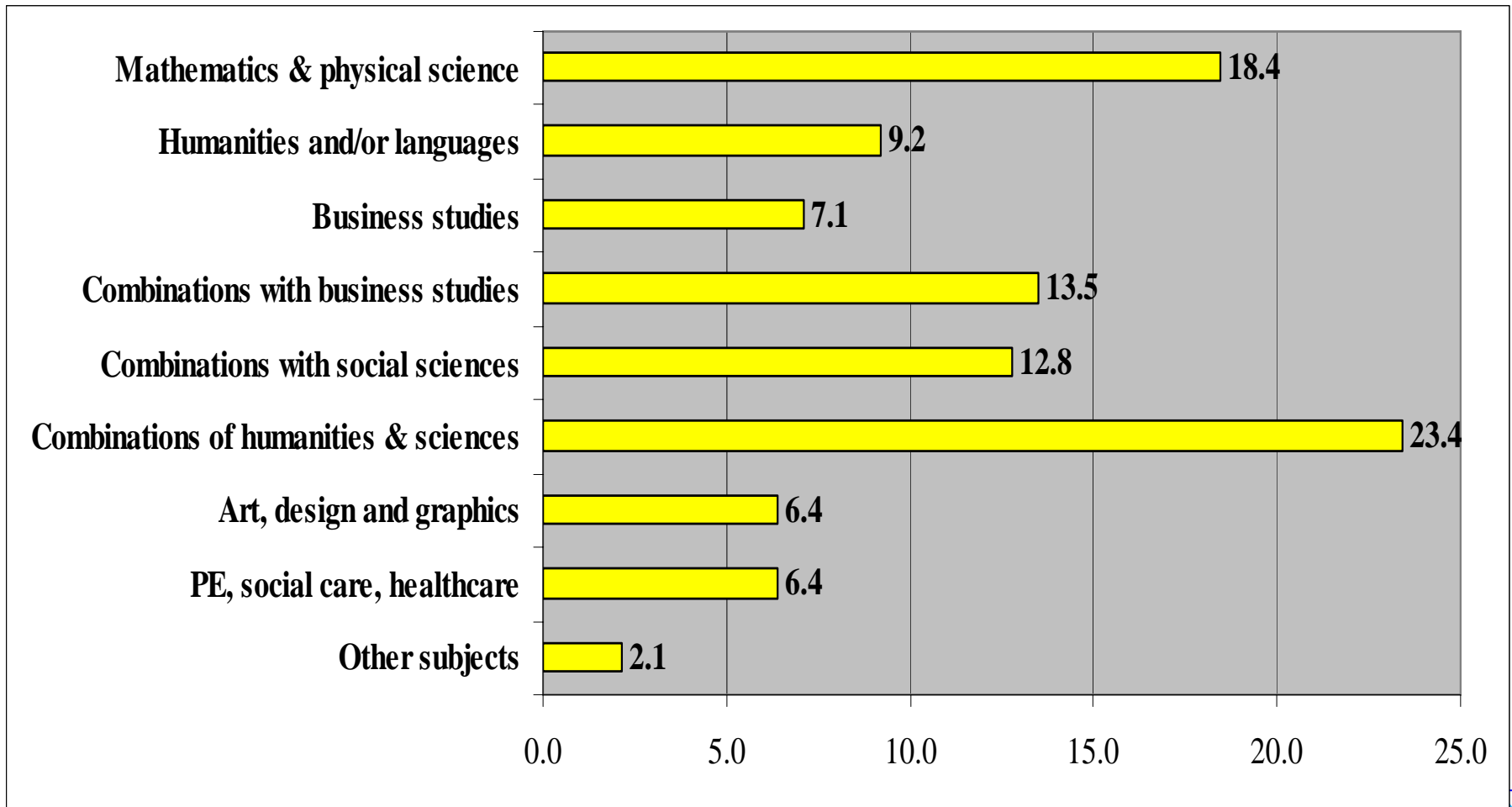
Preliminary research report

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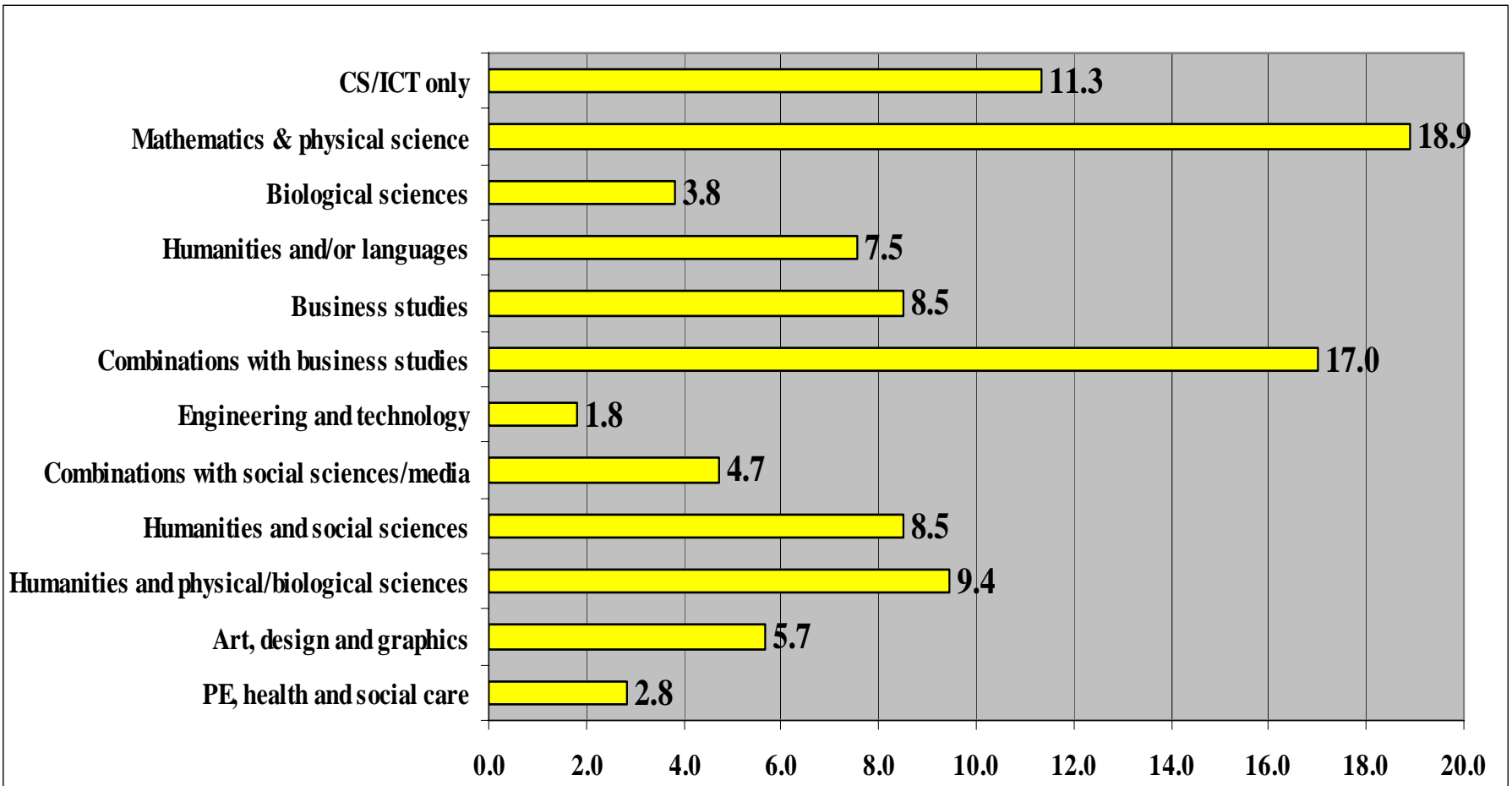
The survey

- ❖ Seven schools in the NE and SE England & Wales
5 comprehensive (3 LPN), 1 independent, 1 voluntary aided
- ❖ 650 students (around 170 more to come)
58.4% male, 41.6% female
61.7% pre-GCSE, 38.3% post-GCSE
- ❖ Among post-GCSE students...
 - 15 are taking Computing but not ICT (13 male, 2 female)
 - 89 (37.3%) are taking ICT but not Computing (57 male, 32 female)
 - 4 are taking both Computing and ICT (1 male, 3 female)
 - 56% are taking neither computing nor ICT

A/AS subjects – non-CS/ICT students

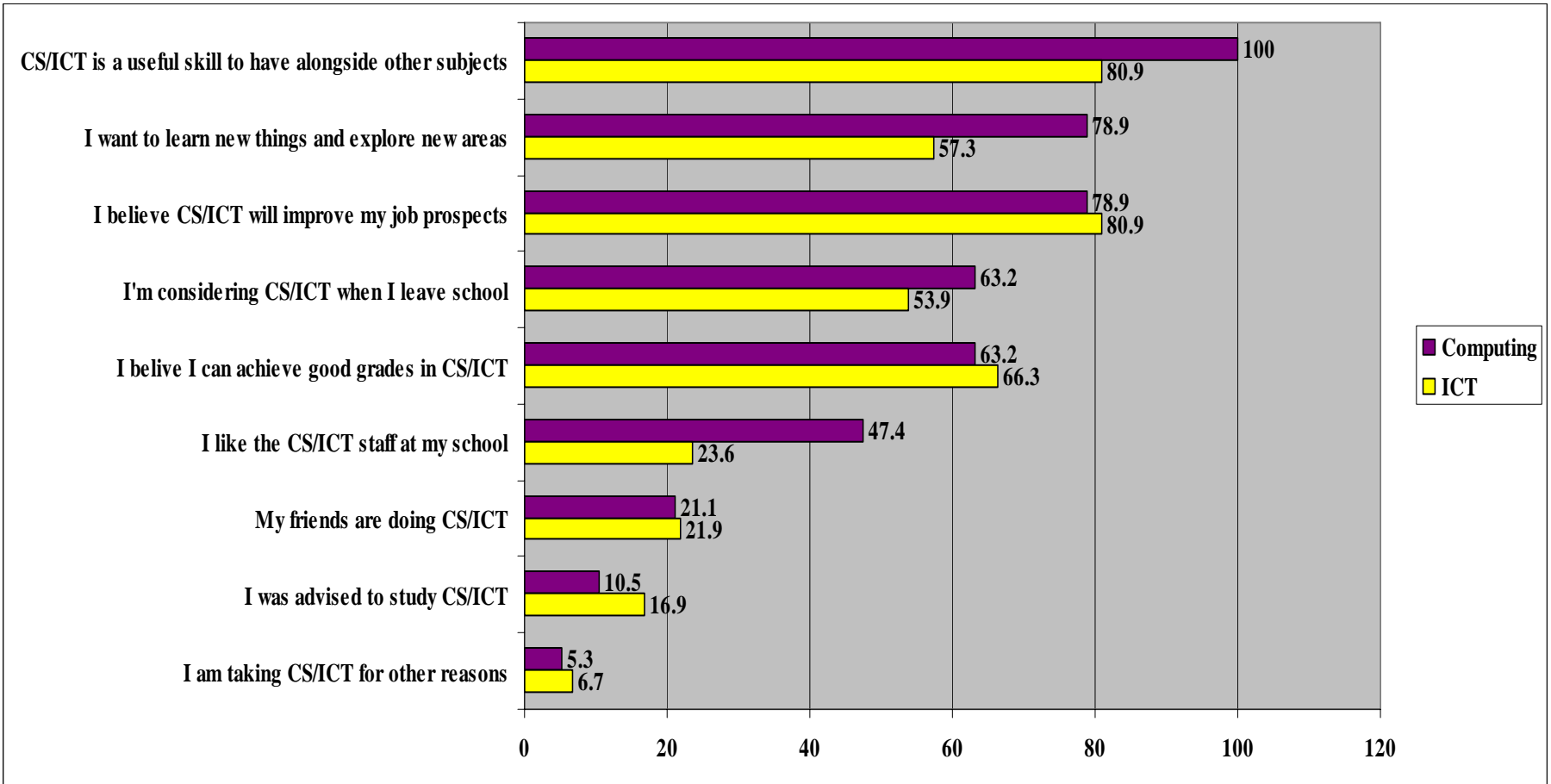


A/AS subjects taken with CS/ICT



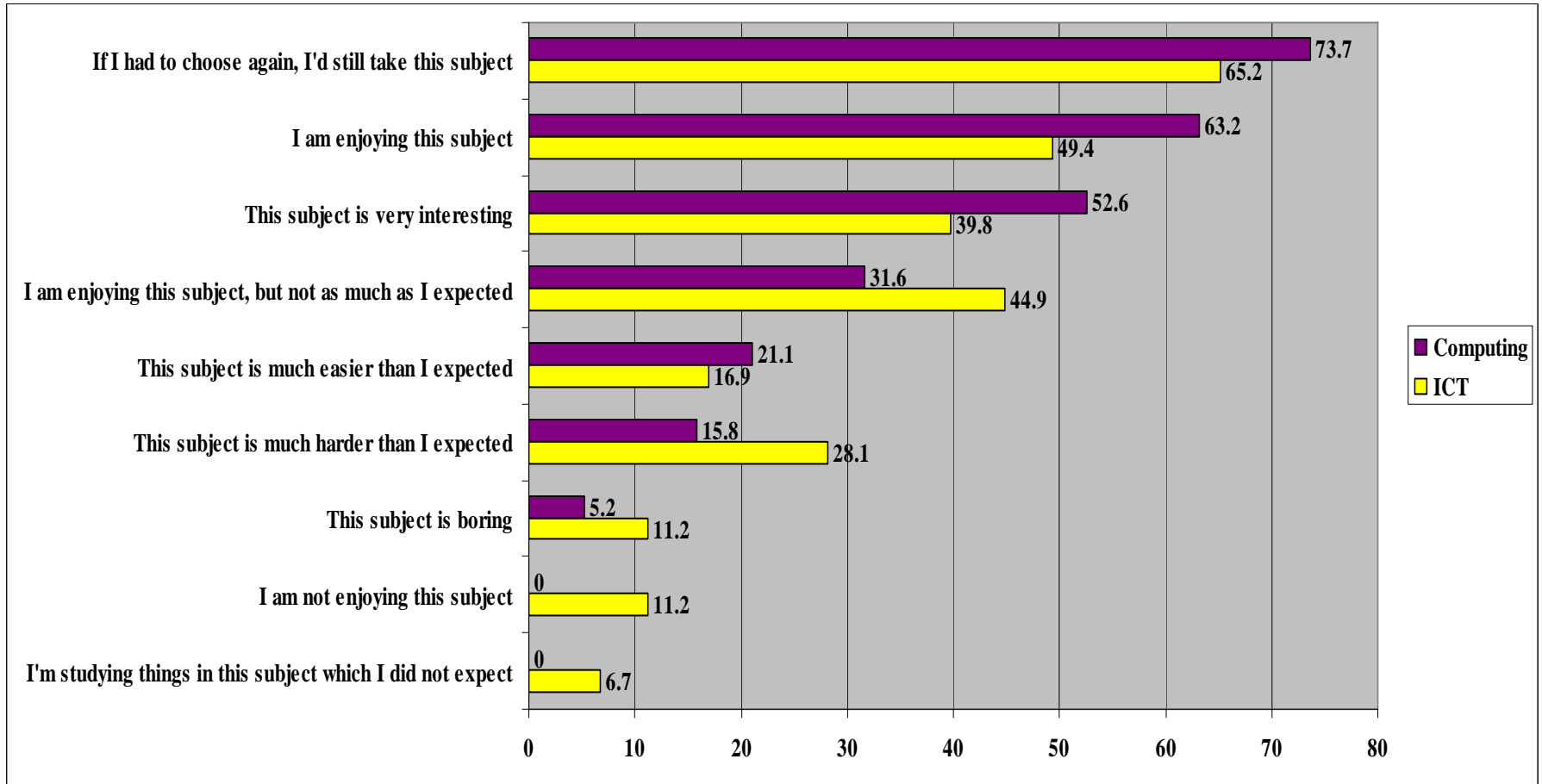
Why did you choose Computing/ICT?

Post-GCSE students only



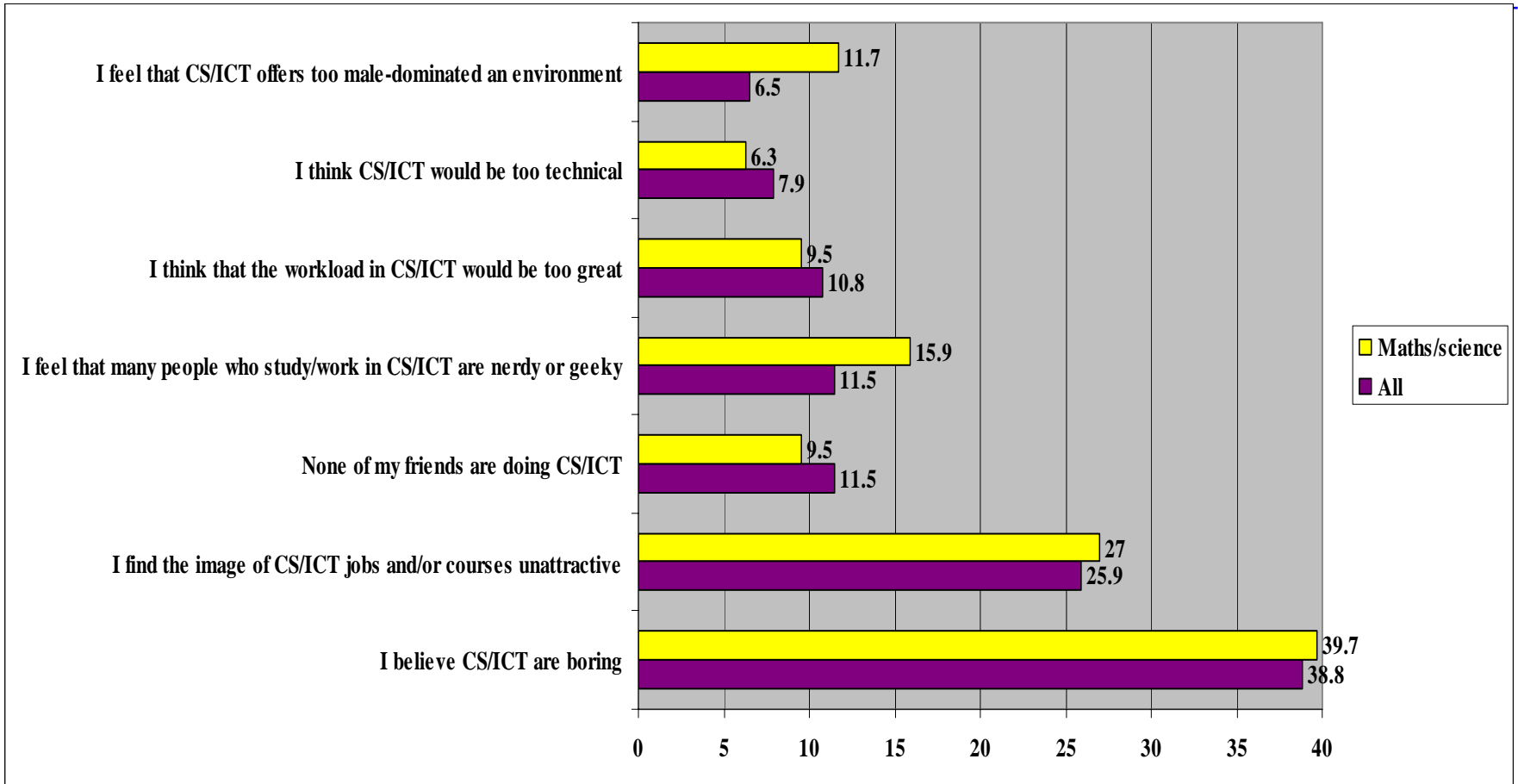
And how is your course going?

Post-GCSE students only



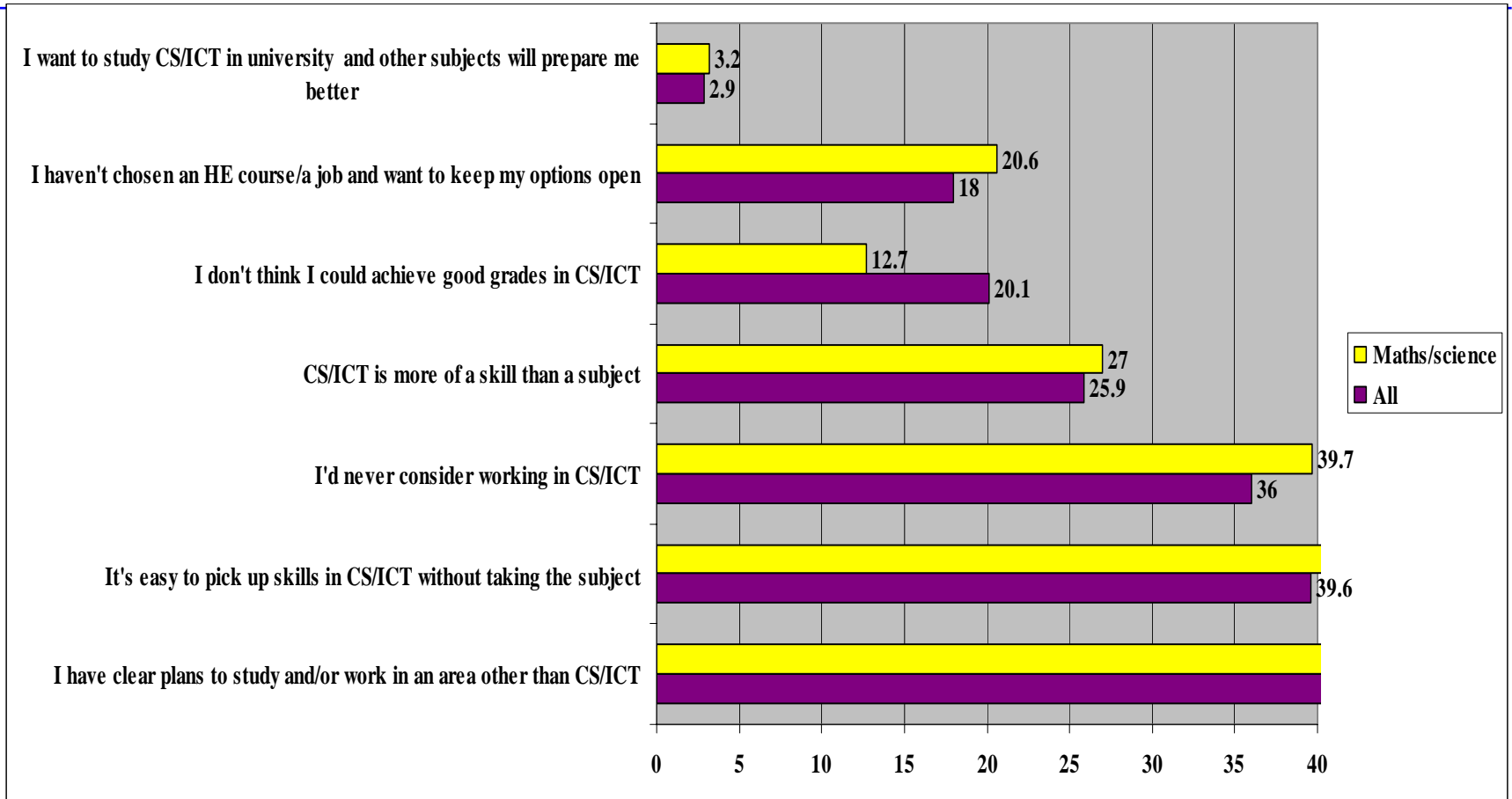
Reasons for *not* taking CS/ICT

Post-GCSE students only



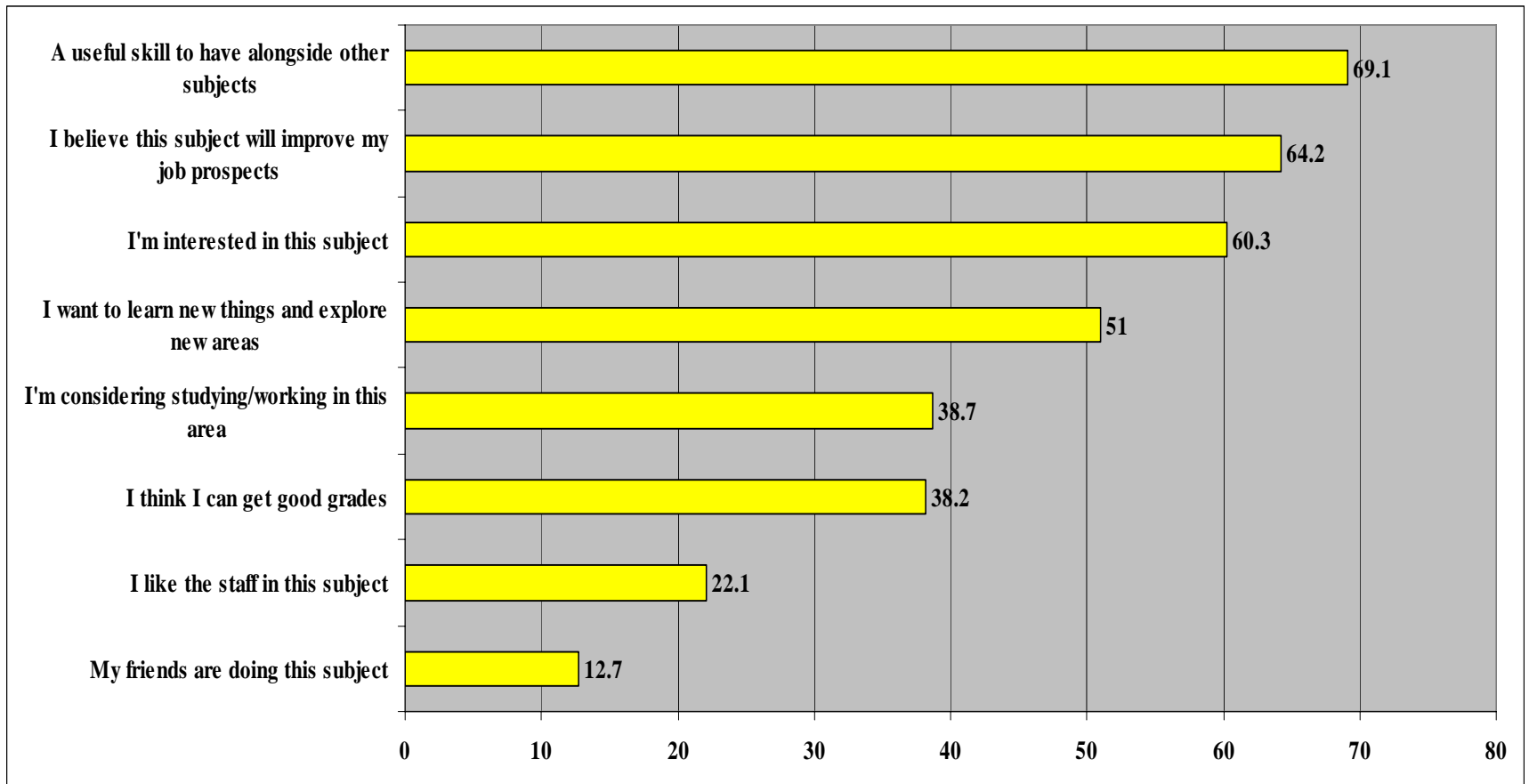
Reasons for *not* taking CS/ICT

Post-GCSE students only



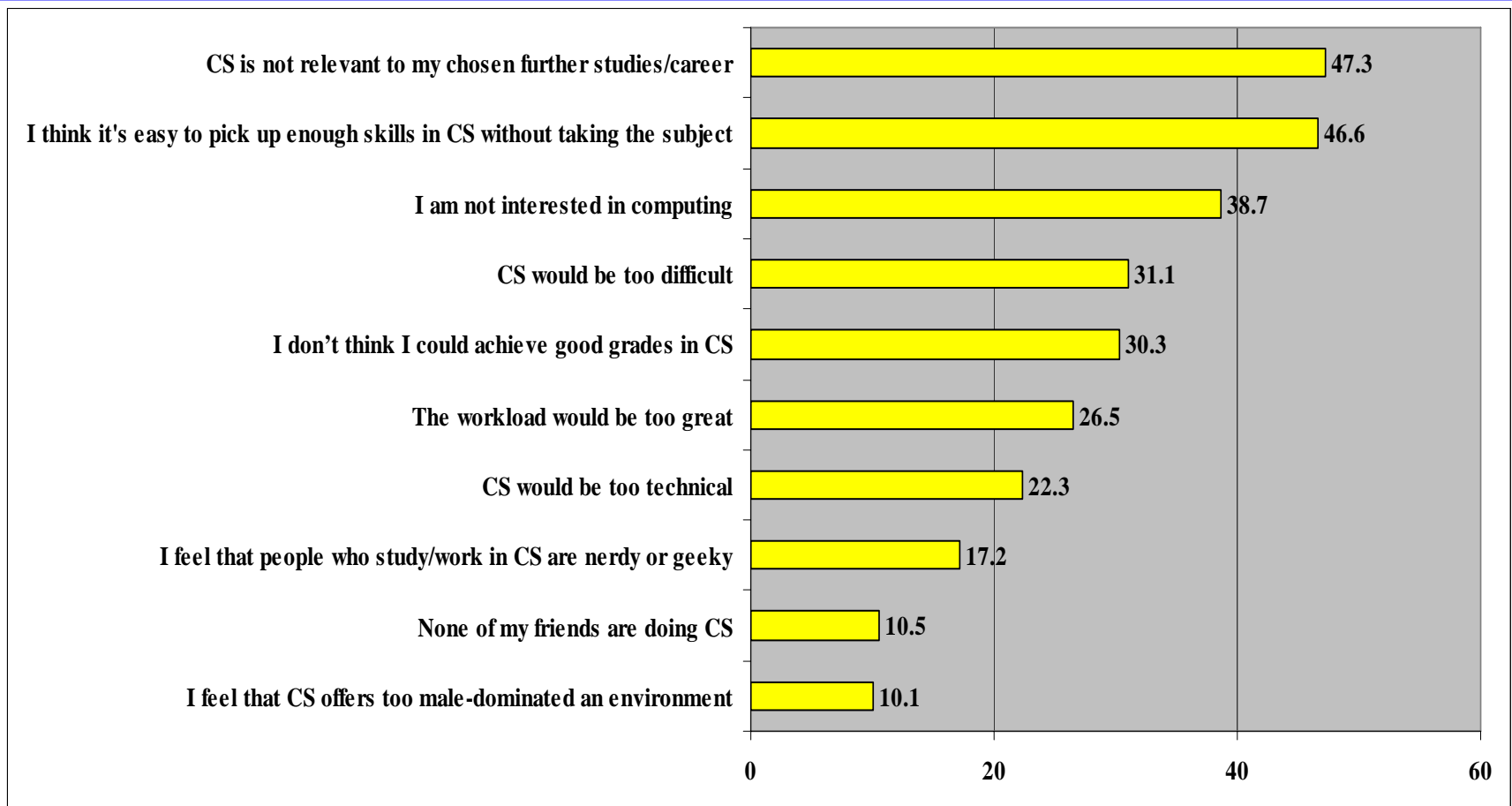
I'm thinking of taking CS/ICT because...

Pre-GCSE students only



Reasons for *not* taking CS/ICT

Pre-GCSE students only



Gender trends in A/AS subject choices

- ❖ Among pre-GCSE students, *female* students are significantly more likely to cite a lack of interest, finding the subject ‘boring’ or ‘too technical’, and anxiety over marks
- ❖ Among post-GCSE students, males and females show similar scores for the above. *Male* students are significantly more likely to state that they fear the workload will be too great
- ❖ At both stages *male* students are more likely to state that they are considering working in CS or ICT, and that their decisions are influenced by those of their friends

Trends by school type

- ❖ Students from the Independent and Voluntary Aided schools are significantly *more* likely to state that it is easy to pick up enough skills in these subjects
- ❖ Students from the Independent and Voluntary Aided schools are significantly more likely to dislike the image of jobs in CS/ICT and to feel that people working or studying in these areas conform to the ‘nerdy’ stereotype
- ❖ Students from the comprehensive schools are significantly more likely to cite anxiety over marks as a reason for not taking these subjects (and students from the LPNs are significantly more likely to cite this than students from the other comprehensive schools)

Quotations from focus groups & questionnaires...

ICT is a lot of work but it's all repetitive... when they took the coursework out of maths loads more people started choosing it

ICT is not at all difficult but it's very time consuming

ICT is a waste of a GCSE

I am not going to study Computing/ICT at university because the subject becomes mundane using standard software

ICT is really repetitive... it's all spreadsheets

ICT is extremely boring and mundane

I did ICT and I never want to annotate another screen shot

Quotations from focus groups & questionnaires...

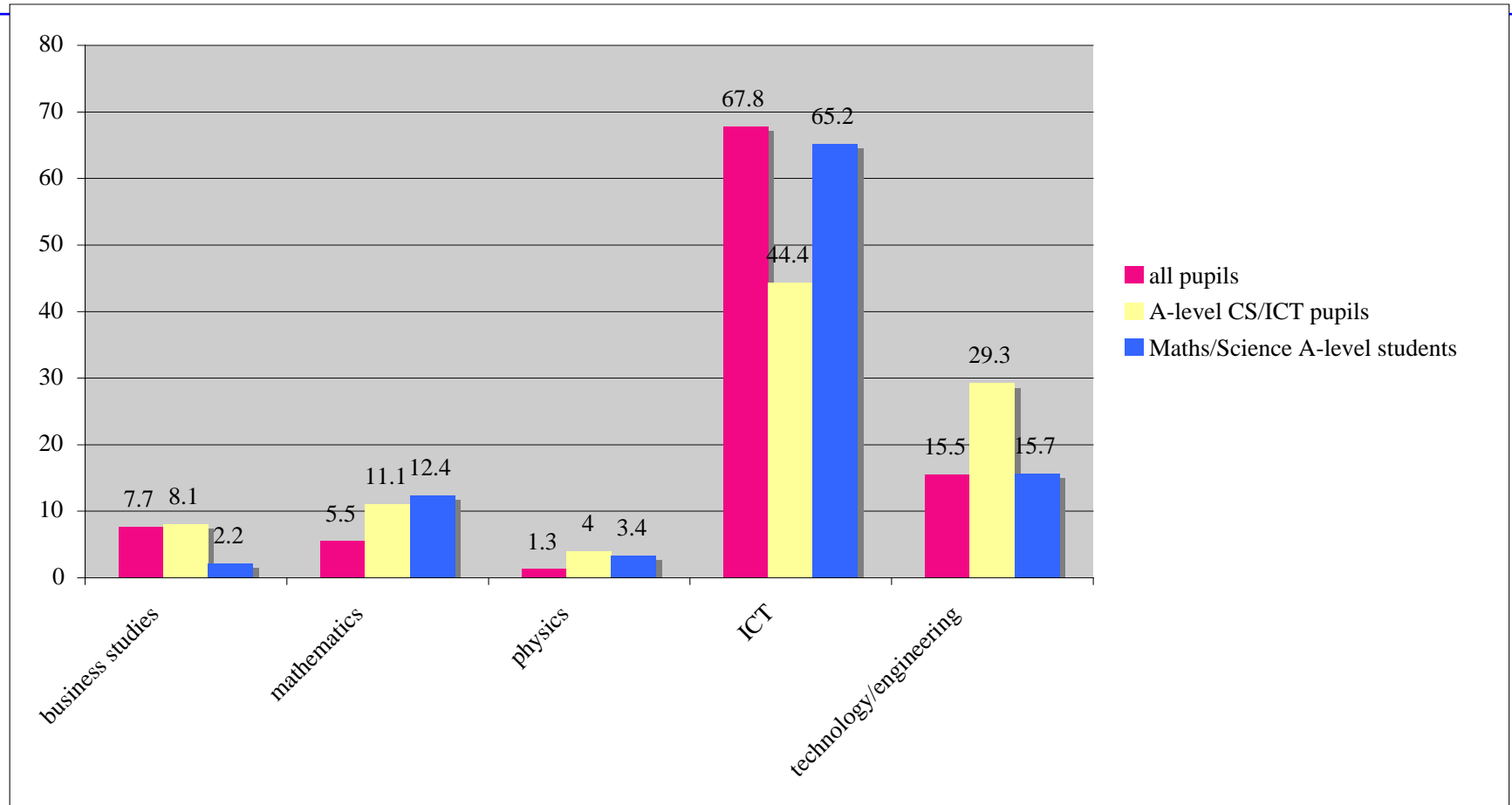
It's too ICT-related. I prefer web designing, development and programming. I know HTML, PHP, CSS, Javascript and plan also to learn ASP and JSP. They don't focus enough on programming at school, college or university. I am more interested in these than in learning Office applications

It sounds like a subject that narrows your choices too much... people want to keep their options open, even after they graduate, and computing sounds like it's going to be too specific if you aren't sure what job you want

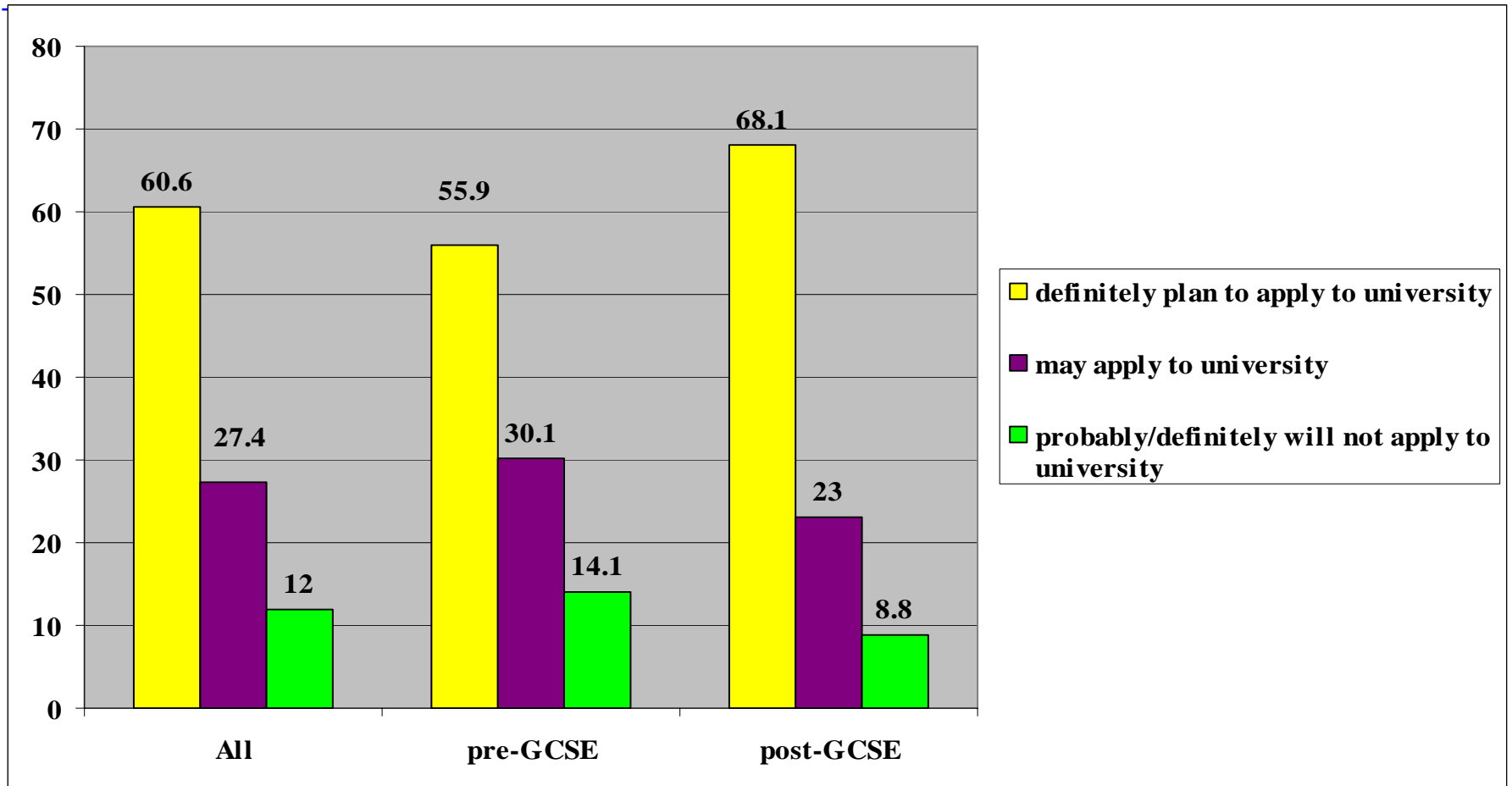
Computing or ICT?

- ❖ Many respondents (in questionnaires and focus groups) stated that they did not know the difference between computing and ICT
- ❖ Students were confused by the distinction between computing and ICT which was made in the questionnaires
- ❖ Negative responses to ICT in schools may ‘colour’ understanding of computing

Which school subject is most like computing at university?

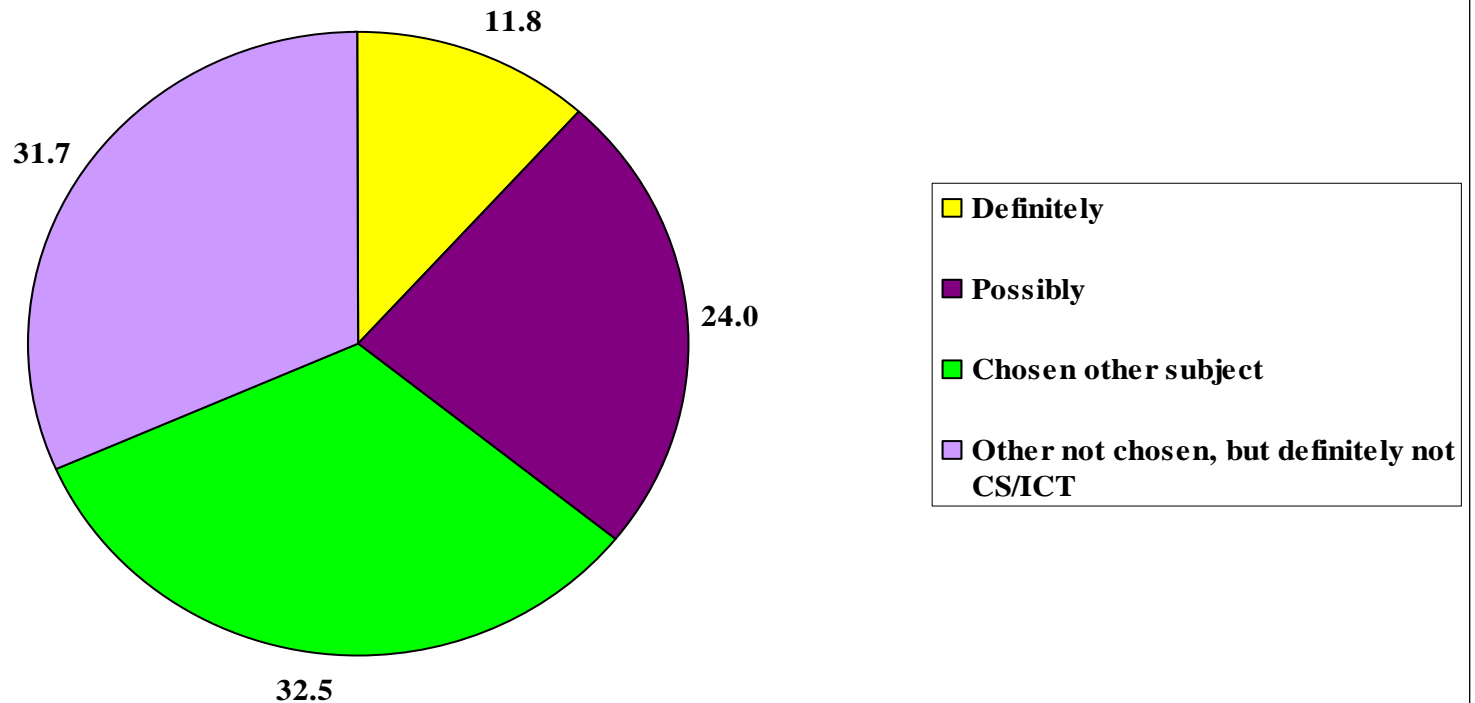


Orientation to higher education?

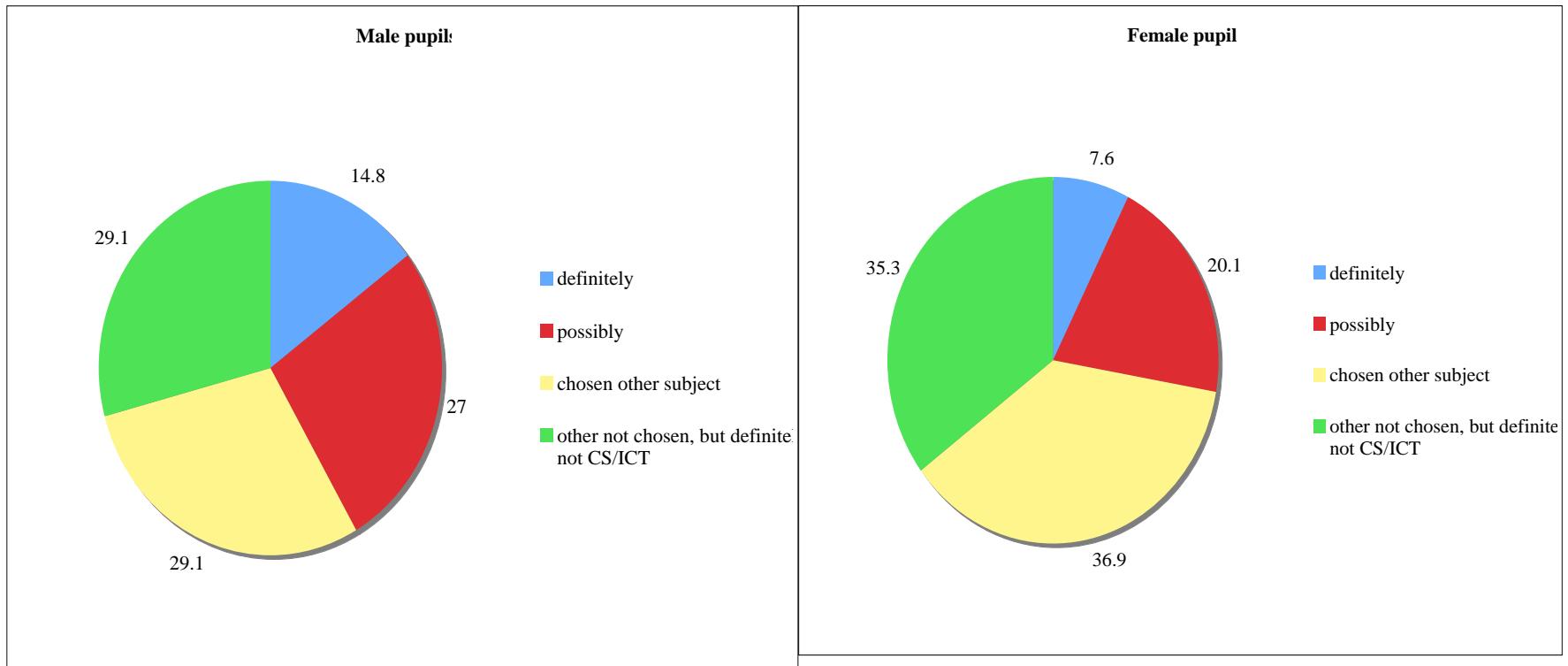


Computing/ICT at university?

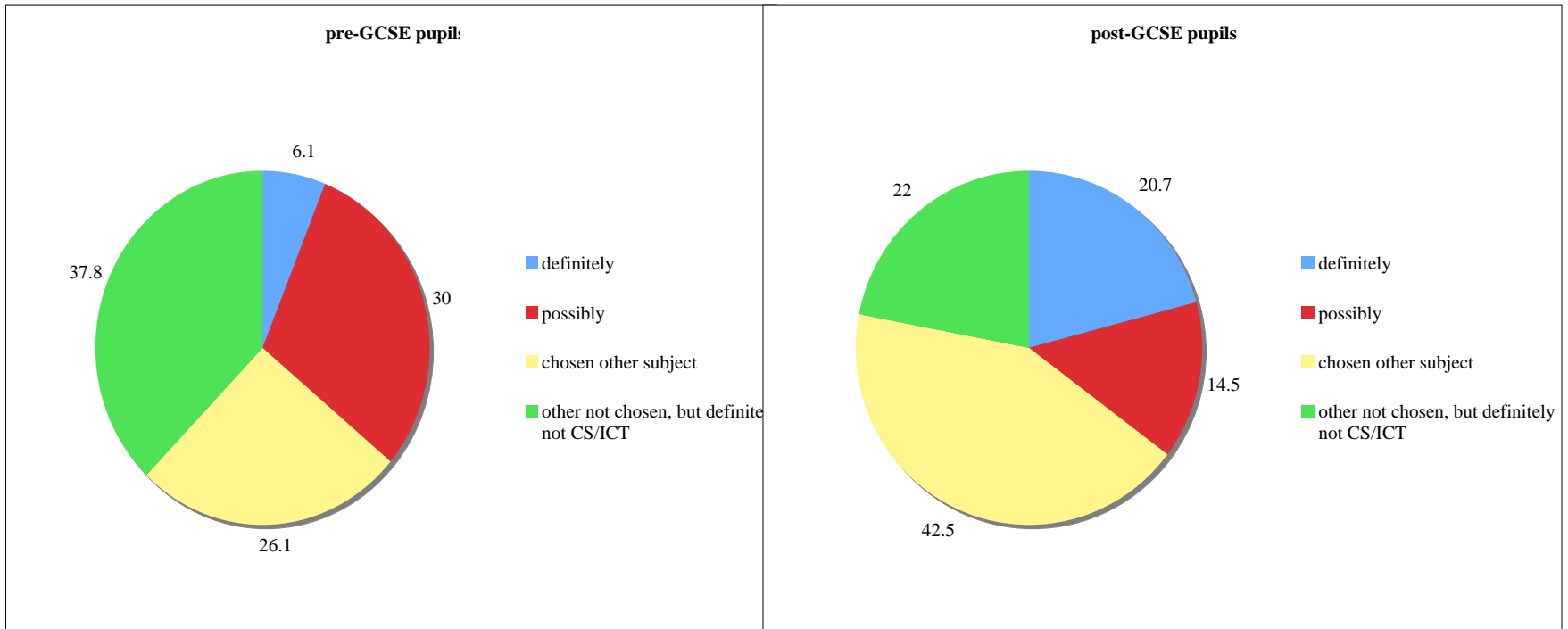
All students



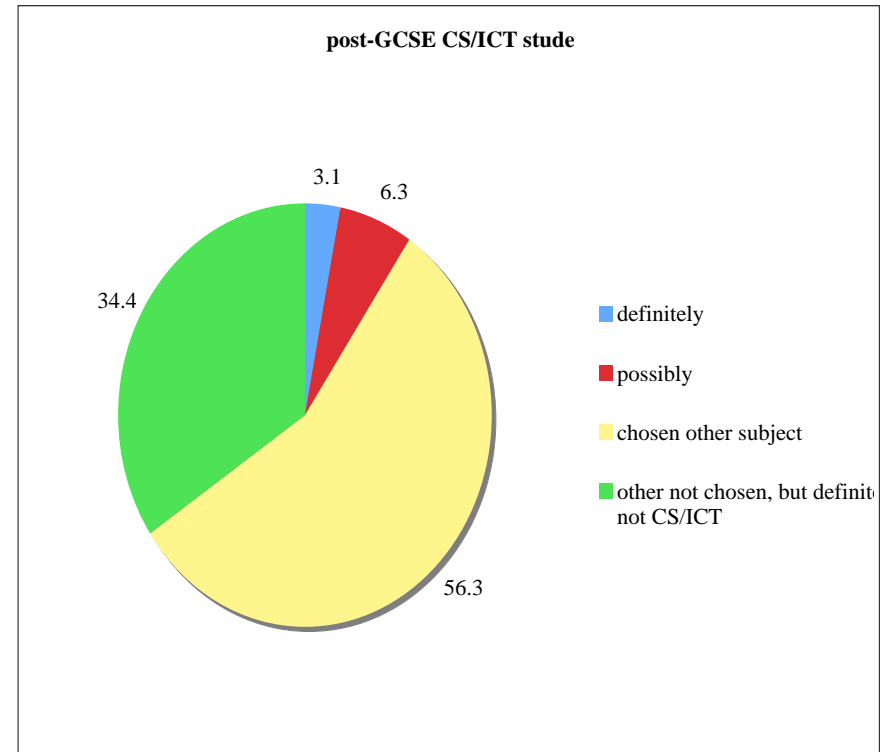
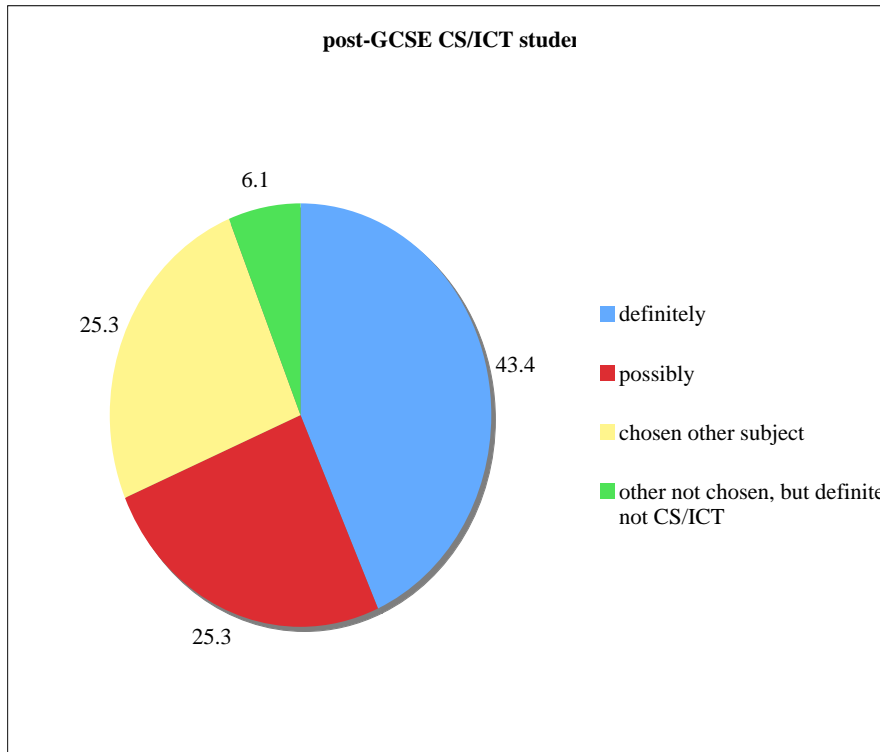
Computing/ICT at university?



Computing/ICT at university?



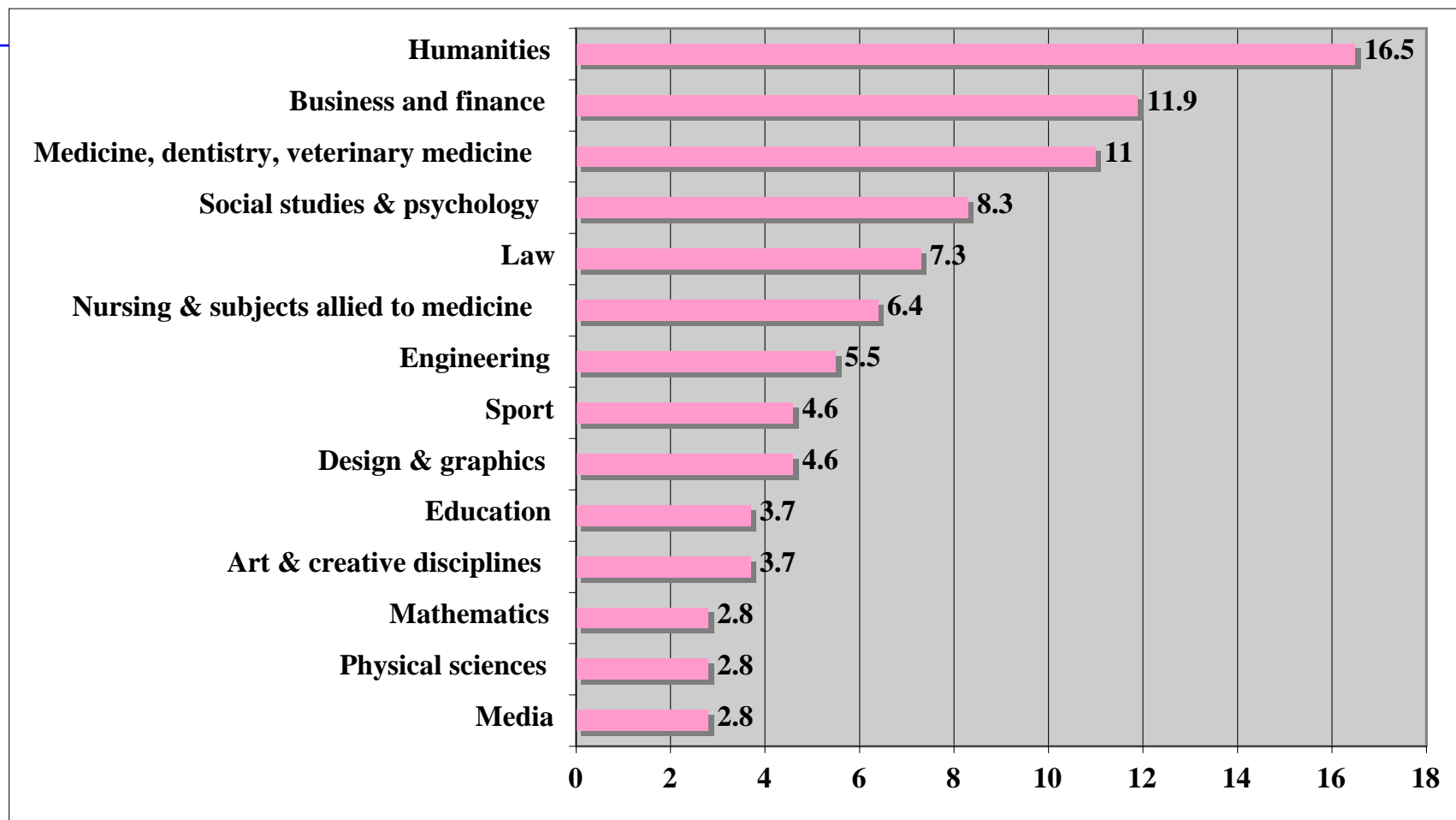
Computing/ICT at university?



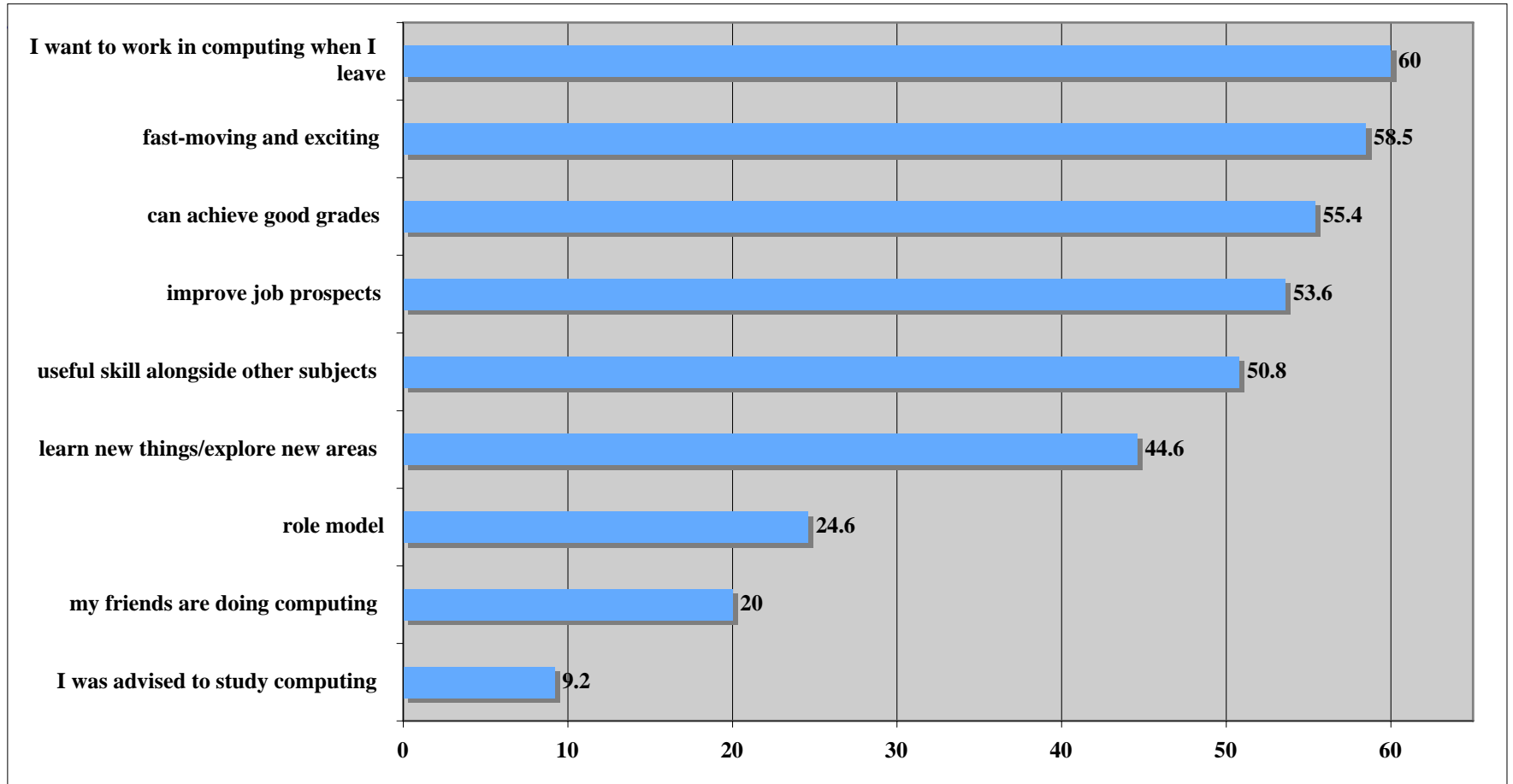
Early decisions...

This questionnaire should be for people who haven't done their GCSEs yet... we have made these decisions

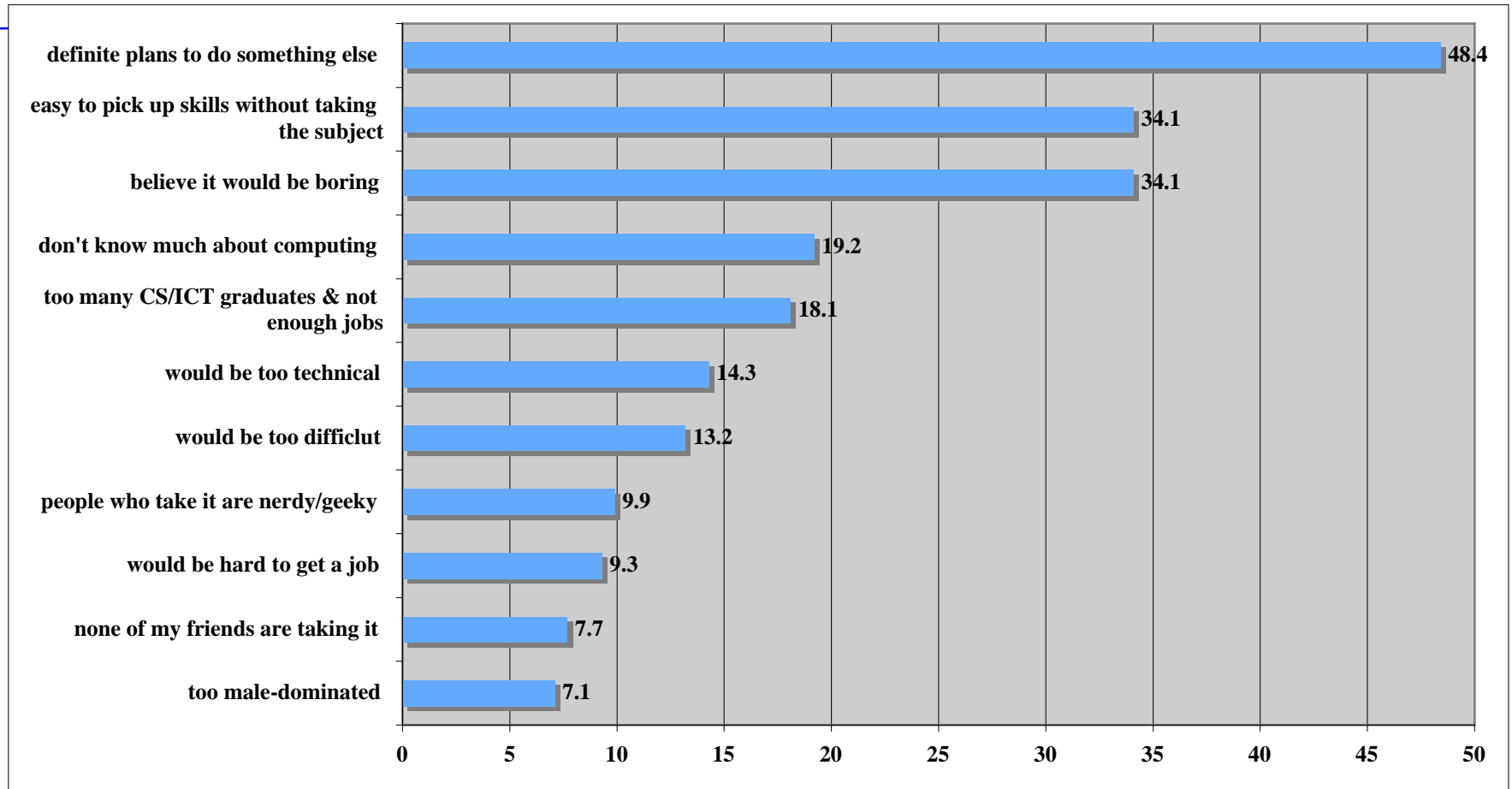
Other subjects chosen...



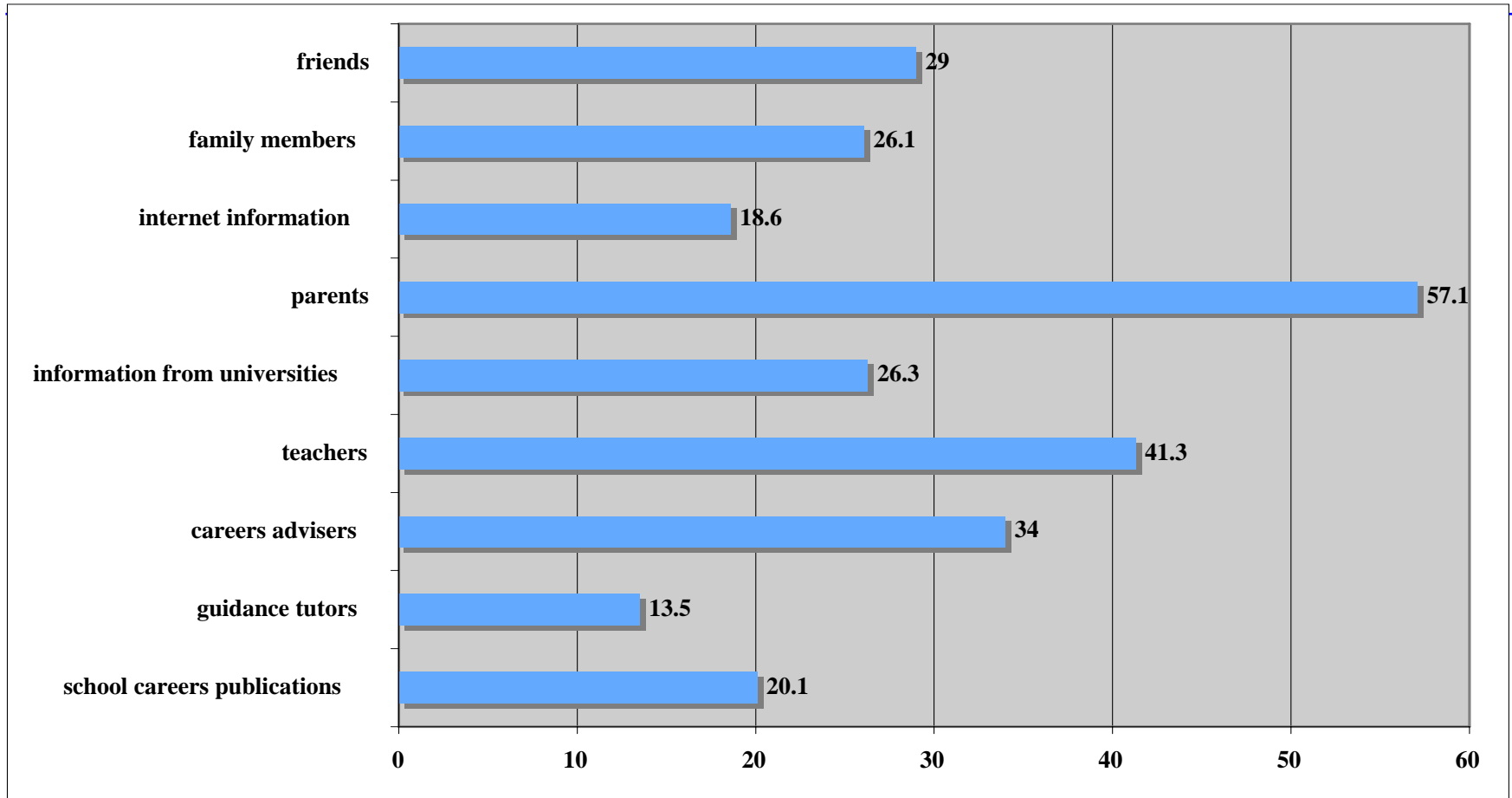
Reasons for taking CS/ICT in HE



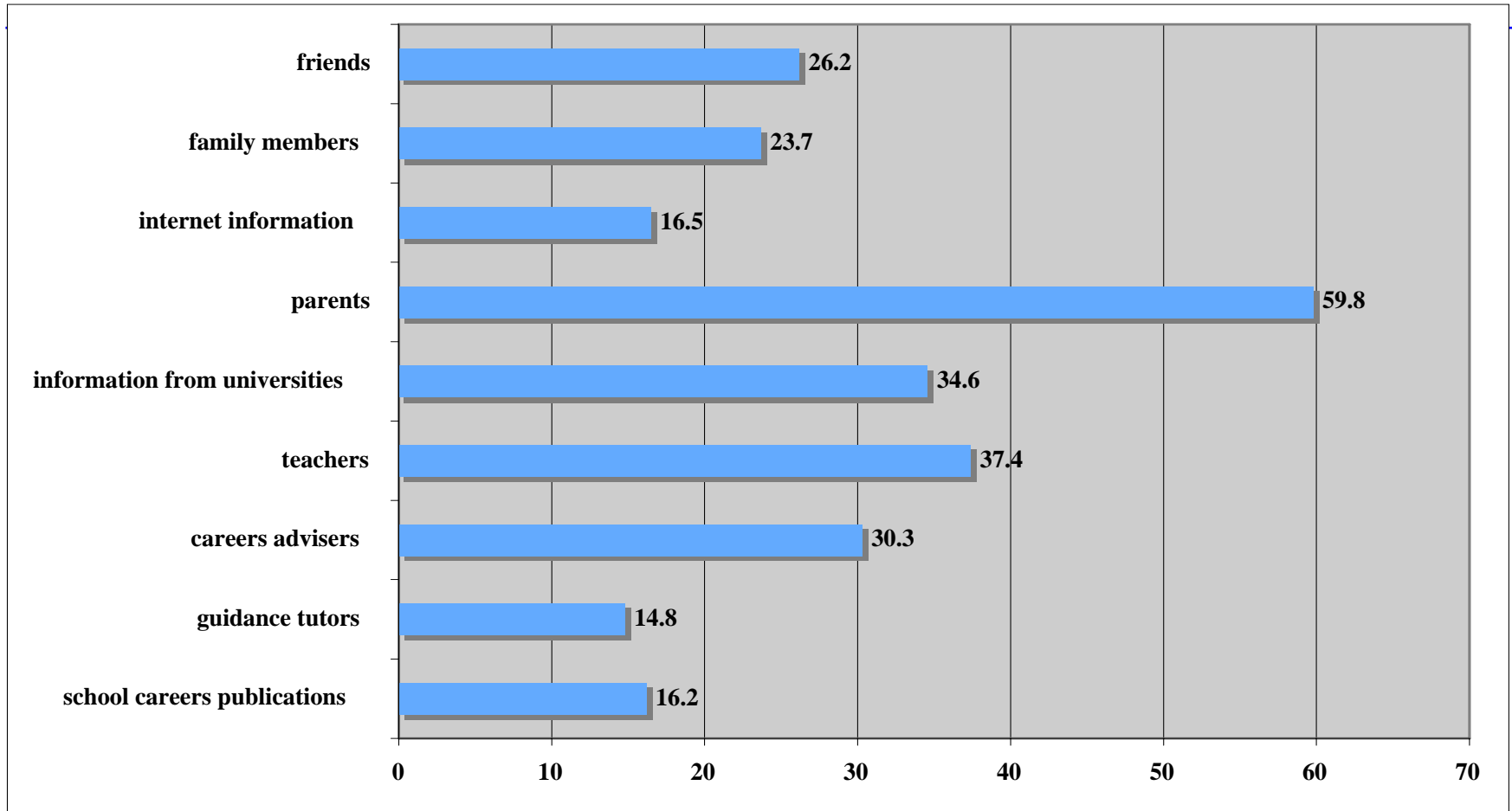
Reasons for *not* taking CS/ICT in HE



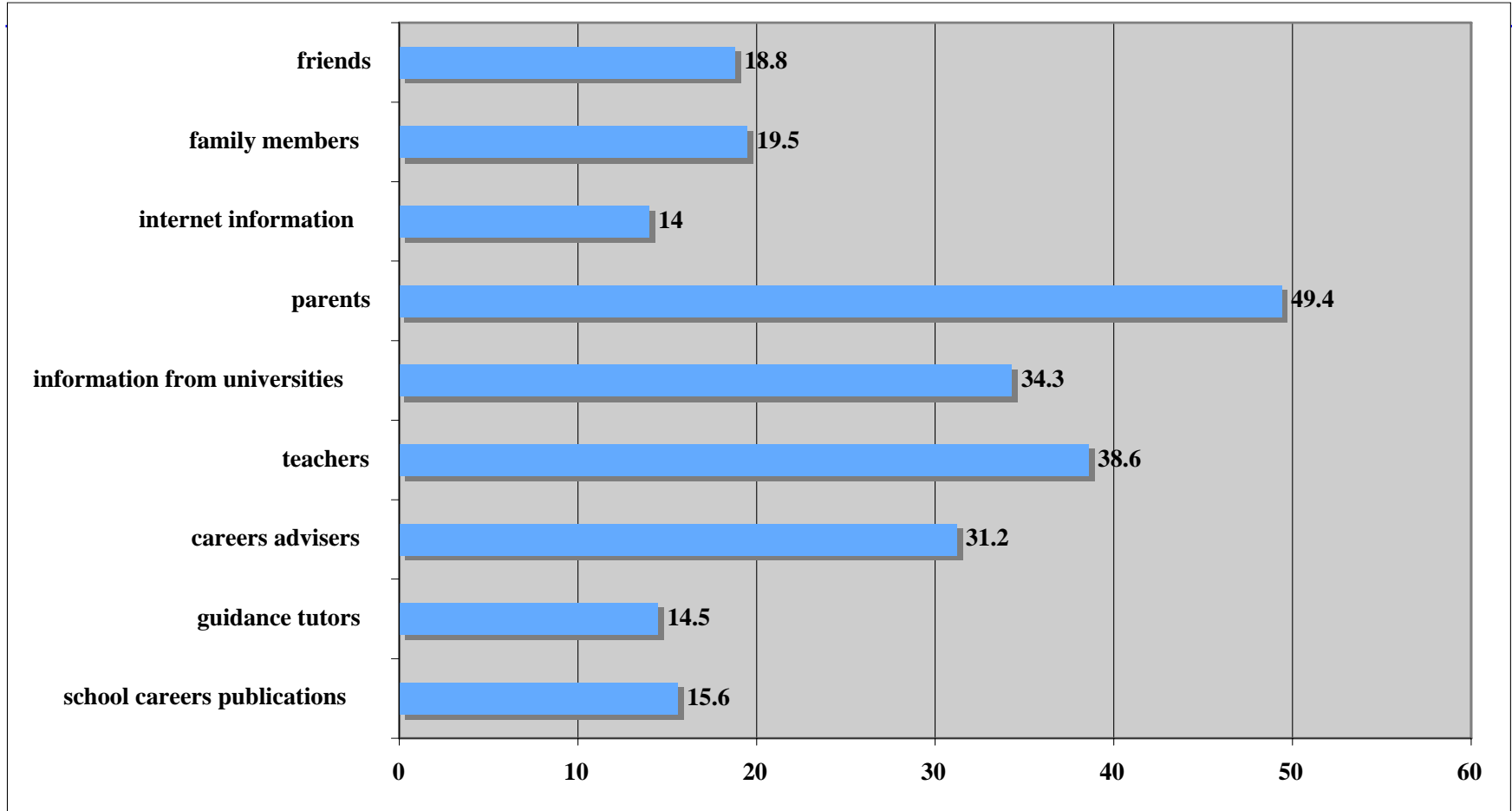
Influences on post-GCSE study



Influences on choosing HE



Influences on HE subject choice



Influences on education choices...

❖ Post-GCSE study

Main influence – ‘own choice’ 73.5%, Parents – 13.2%, Careers advisers – 5.1%

Men are more likely than women to be influenced by school careers publications, careers advisers, guidance tutors, information on the internet and family other than their parents

❖ Go to university?

Main influence – ‘own choice’ 70.5%, Parents – 11.4%, University info – 4.2%

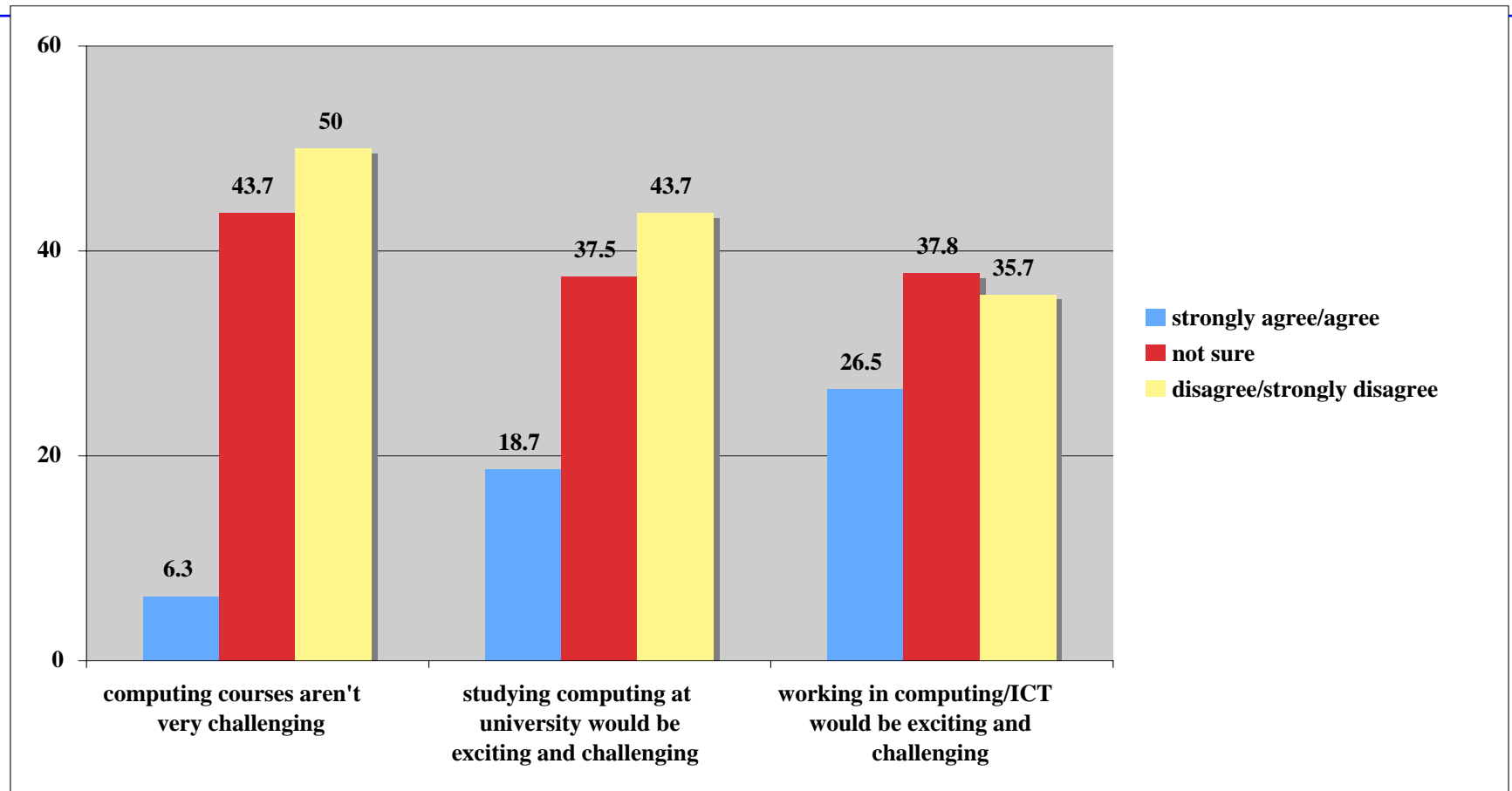
Men are more likely than women to be influenced by school careers publications, careers advisers and guidance tutors. *Women* are more likely to be influenced by their parents

❖ University subject?

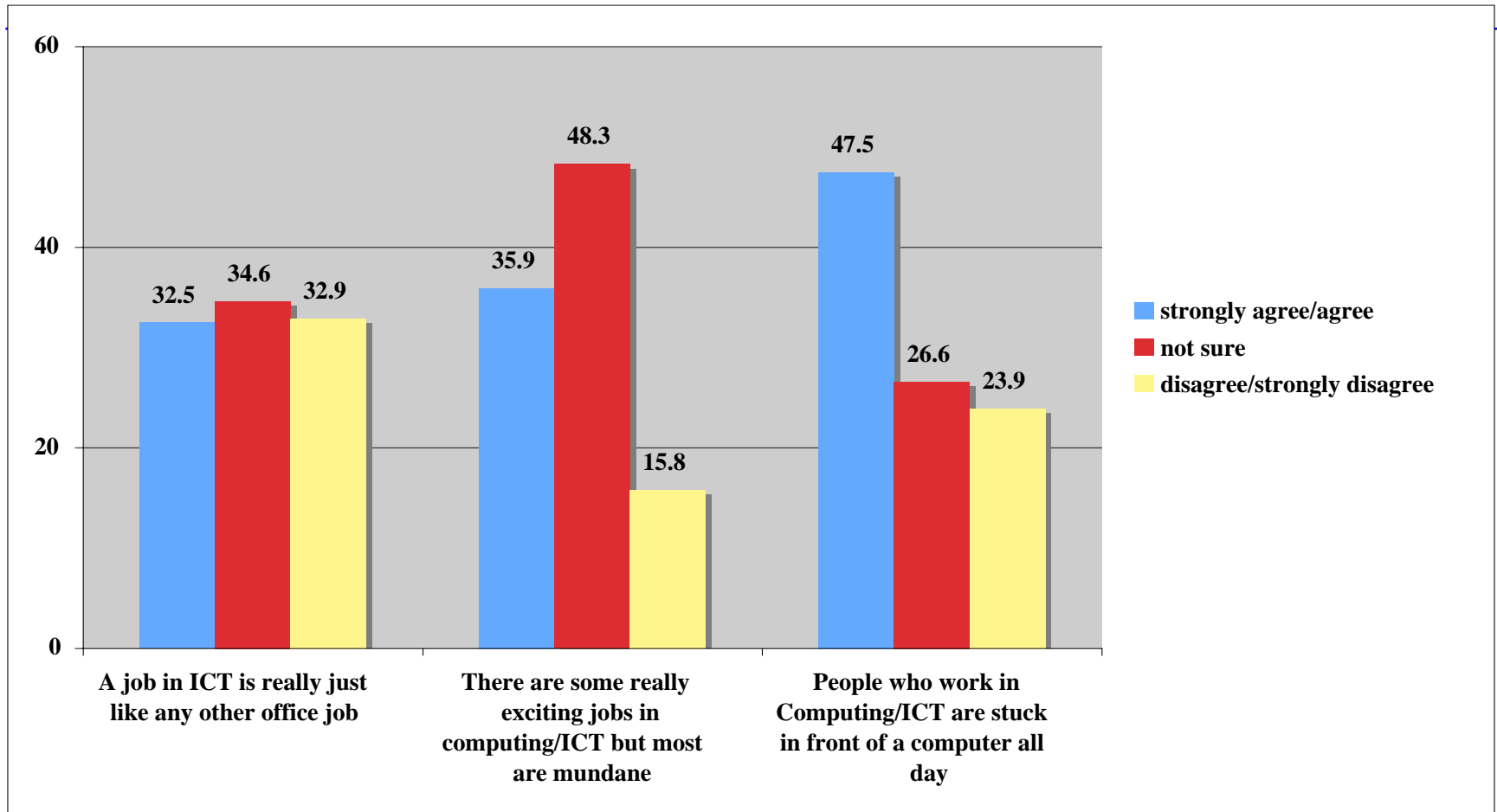
Main influence – ‘own choice’ 77%, University info – 5.4%, Parents – 5.4%

Men are more likely to be influenced by guidance tutors & school publications

The 'thrill factor'? - challenge



The 'thrill factor'? - jobs



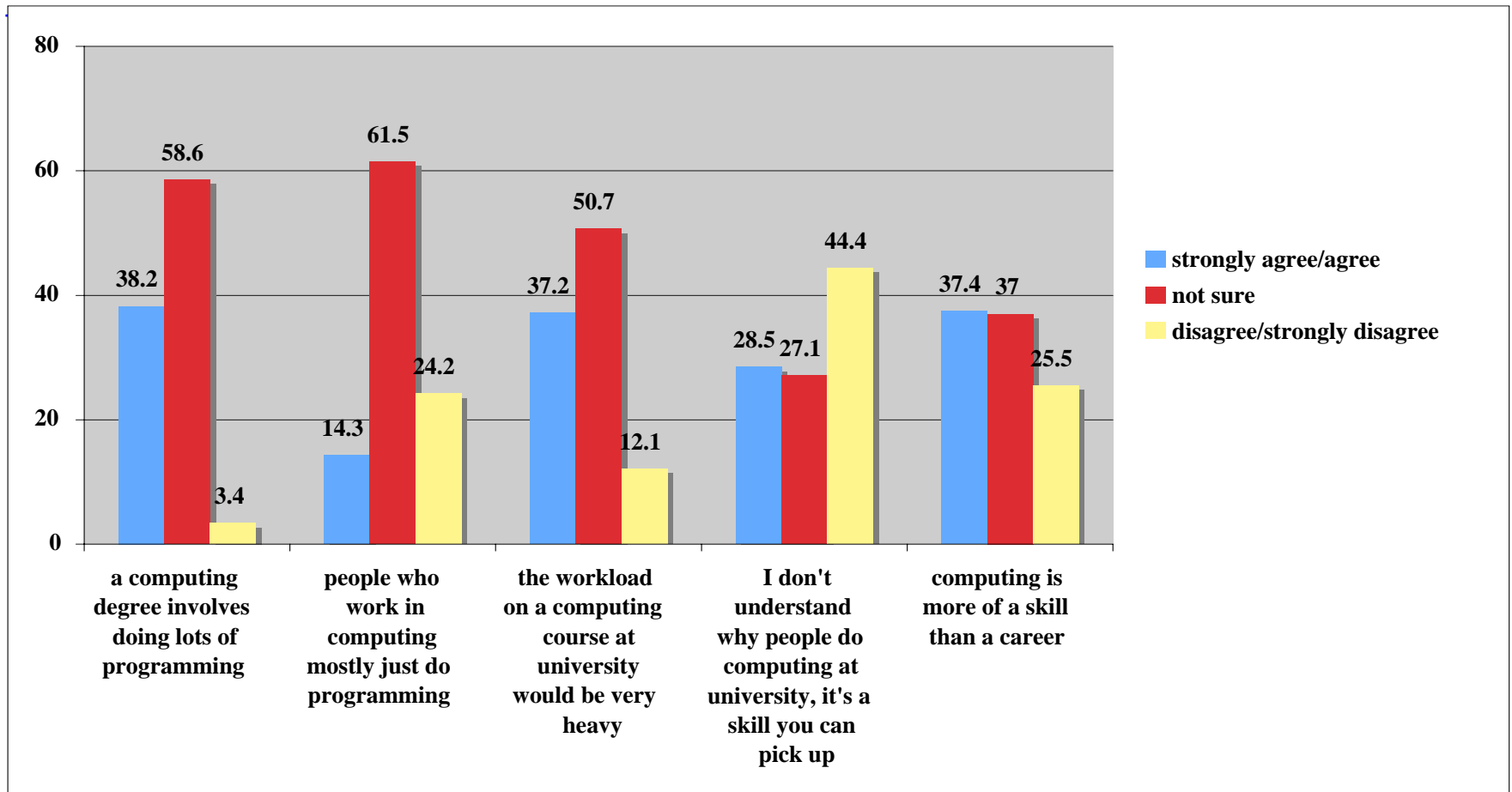
Who is 'thrilled'... and who is not?

- ❖ **Male students** are *more* likely to believe that courses and jobs are exciting and challenging
- ❖ **Female students** are *less* likely than male to believe that a computing/IT job is 'like any other office job'. They are less likely to be unsure about whether IT professionals are 'stuck in front of a computer all day'.
- ❖ **Post-GCSE students** are *less* likely to believe that courses and jobs in Computing/ICT are exciting/challenging

Who is 'thrilled'... and who is not?

- ❖ **Students considering Computing/ICT in HE** are *more* likely to believe courses and jobs are exciting/challenging
- ❖ Among students who state that they *possibly* or *definitely* plan on taking Computing/ICT in HE, *subject interest, learning new things and exploring new areas* and *working in a fast-moving and exciting area* are significantly important to **students also studying maths**
- ❖ **Students taking maths and/or physical sciences** are *more* likely to think that Computing/ICT professionals are 'stuck in front of a computer all day' and that these jobs are like 'any other office job'
- ❖ **Maths/phys sci students** are less likely to agree that CS is challenging

What do computing professionals do?



Views of computing professionals

- ❖ **Students from LPN *disagree*** with the view that ‘Computing/ICT is a skill you can just pick up as you go along’
- ❖ **Male students** agree more strongly than female students that working in Computing/ICT involves a lot of programming and also that workloads on Computing/ICT courses in HE will be very heavy: also agree more that it is a skill which you can ‘just pick up’
- ❖ **Students taking CS/ICT at A-level** disagree more frequently with the idea that this is a skill you can ‘just pick up’

Quotations...

You can just pick up what you need

Everybody does it, you can pick up what you need. There isn't a lot more they can teach you at university

Obviously if you just want to use computers you don't need a degree in it. I suppose you can do a computing degree if you want to go into it in a lot more depth

I can't imagine doing any more of what I've done at school... do you just do more spreadsheets and data entry and so on?

Quotations...

We don't really know anything about computing and ICT jobs

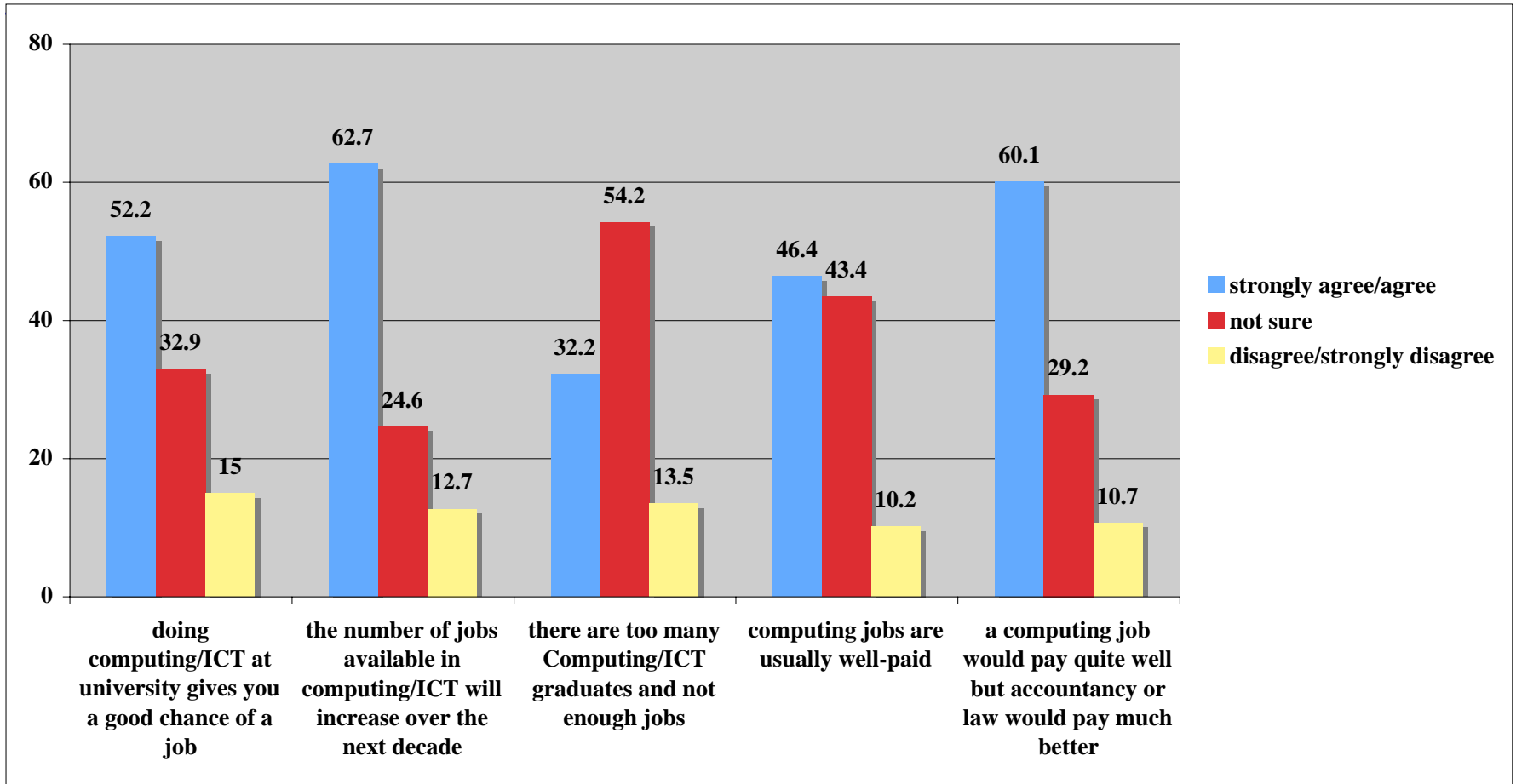
Careers service doesn't tell you enough

Computing and ICT aren't publicised enough at school... that's why people don't want to do them

Computing and ICT are useful skills but they're constantly changing so there's no point studying them

Web designer... programmer... systems administrator... technician... IT consultant [*isn't that just like helpdesk?*]...

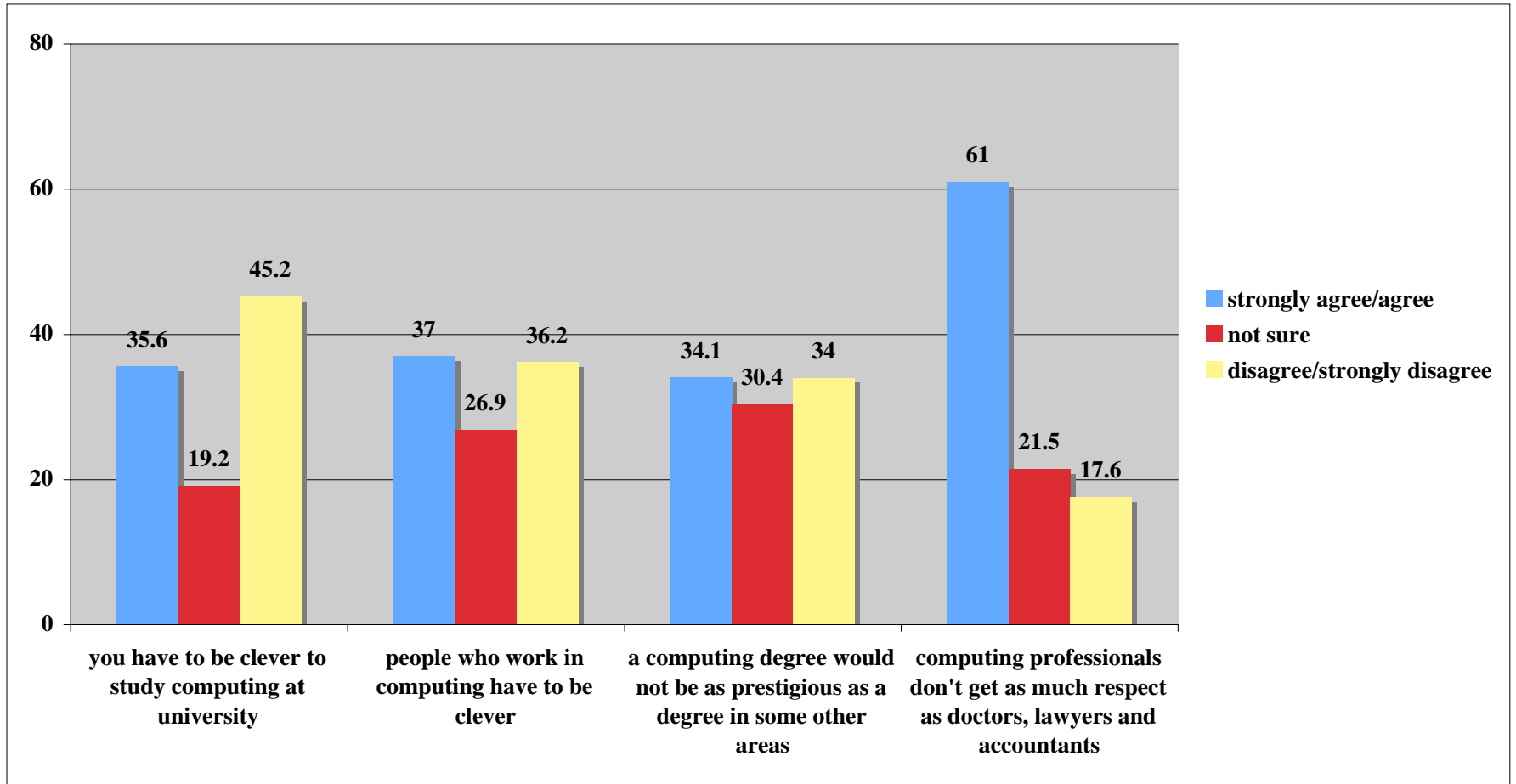
Getting a job...



Views of the job market

- ❖ **Students from LPN** are *less* likely to plan on taking Computing/ICT in HE because they plan to work in the area and *more* likely to do so because they believe it improves general job prospects. They are *more uncertain* about the graduate job market overall.
- ❖ **Male students** are more likely to plan to work in Computing/ICT and **female students** to regard Computing/ICT as a useful skill. Women are more pessimistic about career advancement but more likely to *agree* that Computing/ICT job numbers will increase in the next decade (**males** seem generally more uncertain about jobs market)
- ❖ **Post-GCSE students** are more pessimistic about job prospects
- ❖ **Computing/ICT students** are more confident about their own knowledge of the jobs market
- ❖ **Students taking maths/physical science** believe pay will be lower

Status



Quotations

You don't have to be that clever to do computing, you just need application

If you look at the people at our school who are doing computing, it's not like the clever ones

People who work in IT aren't clever like doctors... they wouldn't get that sort of respect, there's no reason to

I think people who work with computers don't get so much respect because people don't know about their job and what it does

Views of status

- ❖ **Male students** *agree* more frequently with the statement that Computing/ICT professionals (and students) need to be ‘clever’
- ❖ **Female students** *agree* that Computing/ICT professionals will get ‘less respect’ than people in other professions
- ❖ **Pre-GCSE students** are *less* likely to believe that Computing/ICT jobs will be regarded as ‘low status’
- ❖ **Students not taking Computing/ICT** are *more* likely to disagree that Computing/ICT students and professionals need to be clever, *more* likely to view Computing/ICT as a low status profession and *more* likely to believe this subject will be chosen by those who can’t get in elsewhere
- ❖ **Students from LPN** are more likely to disagree or be uncertain over the statement that Computing/ICT degrees are ‘less prestigious’ than others

Views of status

- ❖ **Students taking maths/physical science** believe that computing/IT professionals are respected *less* than other professionals. However, their estimation of the respect given to Computing degrees is similar to other students
- ❖ This effect is particularly strong among students who **plan to take medical subjects or physical sciences at university.**
- ❖ These students are also more likely to believe that working in Computing will be anti-social

Image: gender and the 'geek' factor

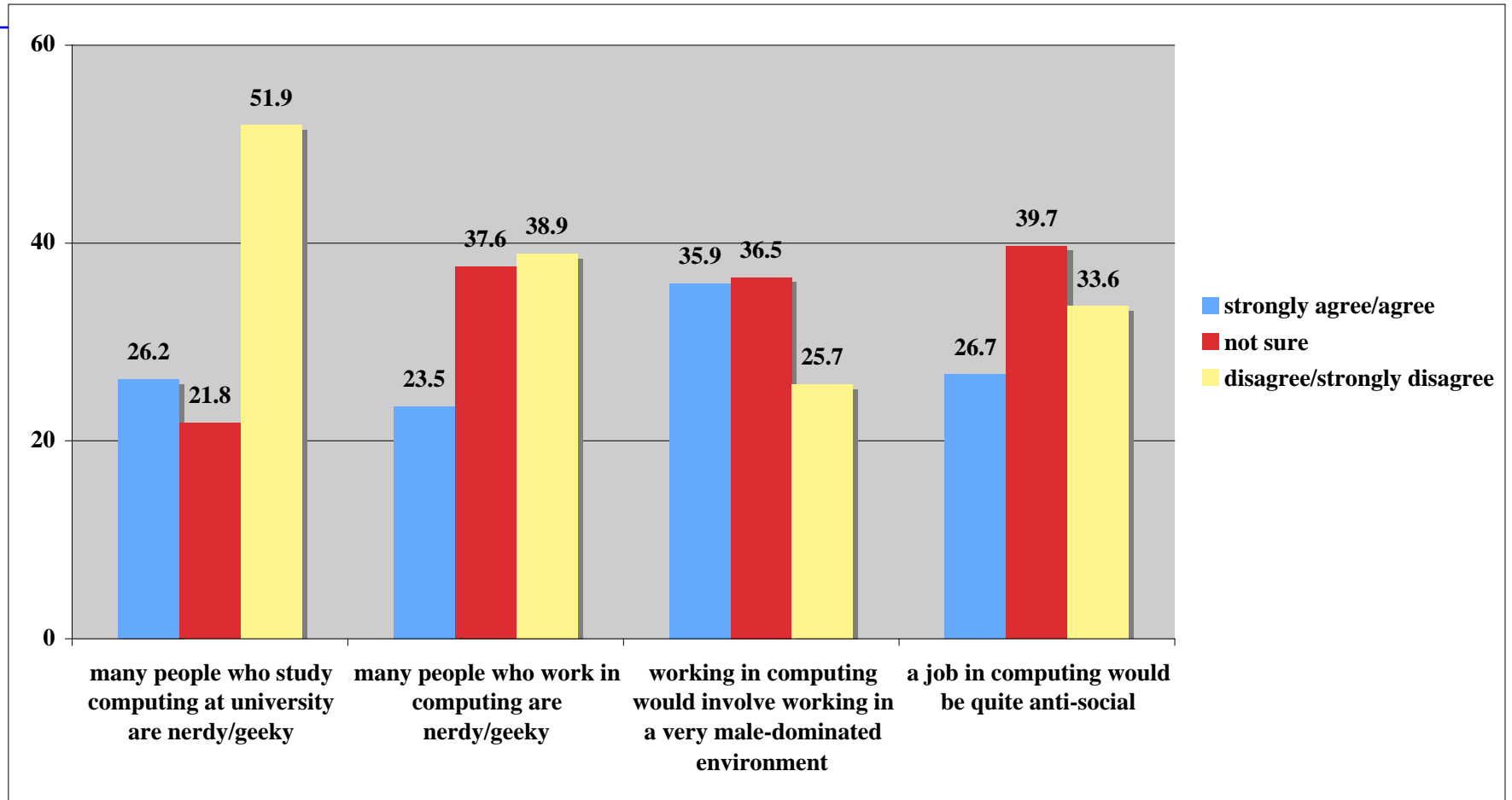


Image... some caveats

- ❖ Students know that *'stereotyping is bad'*
- ❖ Focus group participants were clear that the *nerd* and *geek* images were 'just stereotypes' ... although they later described 'real' people in precisely these terms!
- ❖ 'Model' Computing/ICT professionals include film characters, *some* TV characters, and school ICT technicians
- ❖ Students who had done *work experience* in Computing/ICT had been pleasantly surprised... although one had not told anyone about it because it would make him look 'geeky'.
- ❖ Some students had strong 'personal' role models in Computing/ICT employment or study

Gender & image of Computing/ICT

- ❖ **Male** students are more likely to be influenced than females in their choice of university subject by what their friends are doing
- ❖ **Male** students are significantly more likely than females to say they believe Computing/ICT professionals are ‘geeky’
- ❖ **Female** students are significantly more likely than males to believe that Computing/ICT jobs will offer a male-dominated environment and *less* likely to believe that it will be ‘glamorous’.
- ❖ **Female** students are significantly more likely than males to either agree or disagree with the statement that the Computing/ICT workplace may be ‘anti-social’ (males are more likely to say they are unsure).

Image - science students

- ❖ Students who are taking **maths/physical science at A-level** are more likely to *agree* and less likely to *disagree* that Computing students/professionals are ‘nerds’/ ‘geeks’

▪ Some quotations...

You shouldn't say things like 'nerd' and 'geek' because these are stereotypes

[In response to the question on gender balance] ... No bad thing, don't be politically correct

I don't think that people who work in ICT are nerdy or geeky but I would not want to work in it

Most people in ICT are geeks [and variations on a theme]

Comments on the media image

- ❖ Very few documentaries or news stories
- ❖ ‘Good’ computing stories are *missed*
- ❖ Concentrates on failures or on crime (hacking, fraud and viruses)
- ❖ Feeds ‘computer phobia’ or ‘computer shyness’ [‘computers will control *us!*’]
- ❖ Stories presented by non-experts
- ❖ Computing is shown as ‘secondary’ to other sciences or ‘missed out’ when it plays a vital role

Comments on the media image 2

The glamorous scientist gets a bit of data from the computer nerd...

The computer people are always working for somebody else

You never see what they actually do in the computer department

Fat men with bad glasses, greasy hair and beards

Hackers are the ones who have sex and get drunk - the cool ones

Portrayed as with no social skills at all

When a really cool character is a computer scientist they don't focus on that at all. Like Tom Cruise in *Minority Report*, nobody thinks he's a computer scientist but he is, really.