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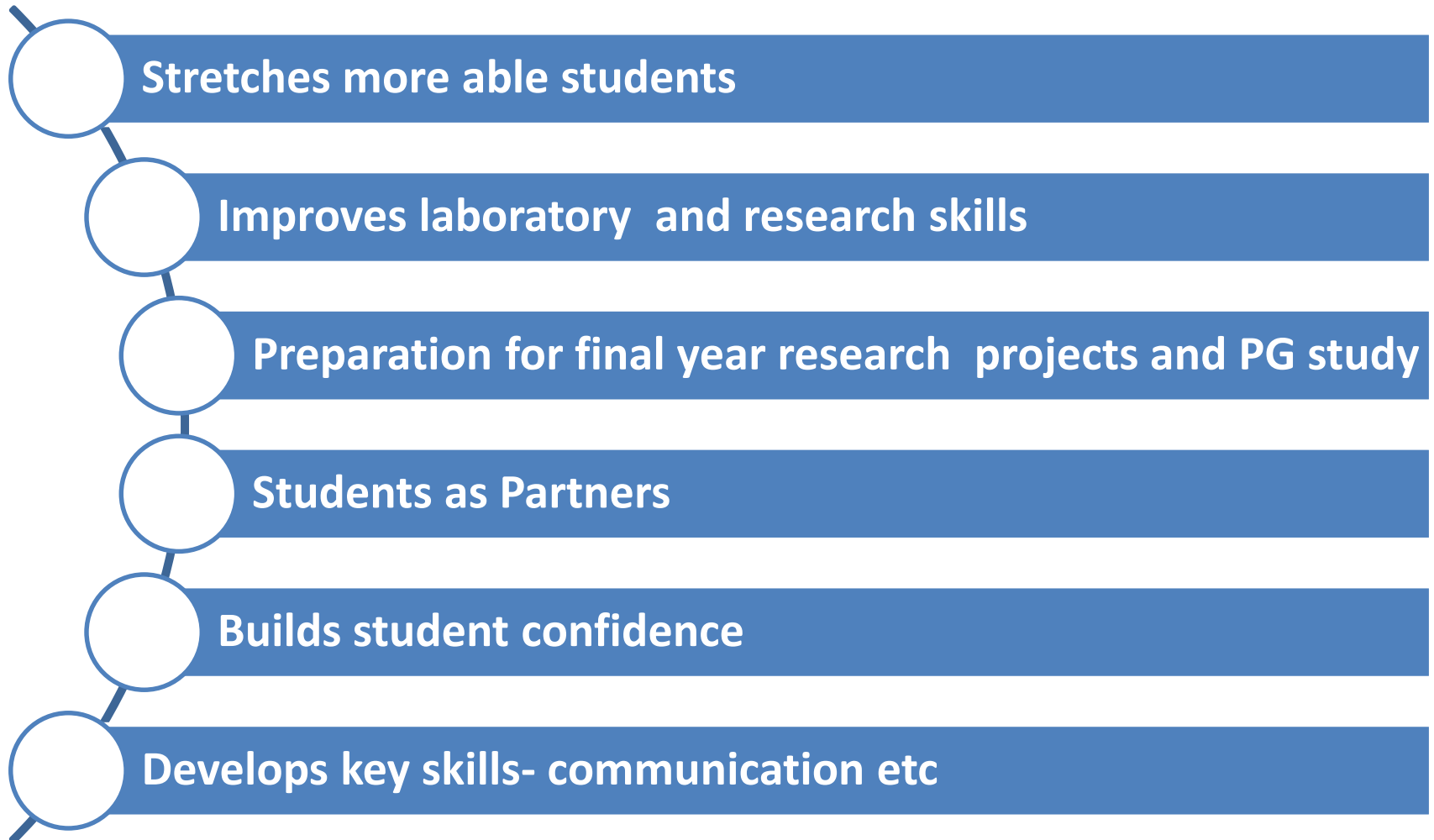
# Engaging students in a Research Internship scheme and its impact on the graduate outcomes of BME Interns

**Dr Neil Williams**

**Faculty of Science, Engineering and Computing, Kingston University**

- **Benefits of paid research internships**
- **Development of Scheme at Kingston University**
- **Evaluation**

# Benefits of Research Internships



## Benefits of Internship scheme

- **Improves laboratory and research skills**
- **Preparation for final year research projects and PG study**
- **Students as Partners**
- **Builds student confidence**
- **Develops key skills- communication etc.**
- **Embraces Research Informed Teaching**
- **Stretches more able students**

(Seymour *et al.* ,2004, 2007; Lopatto 2004, Russell *et al.* 2007, John and Creighton, 2011 )

## Benefits of Internship schemes

- **Increases the likelihood of minority students pursuing postgraduate study in STEM.**

*(Pender et al. 2010)*

- **Under-represented students rated their learning gains higher in many areas than the comparison group of Caucasian/Asian American students**

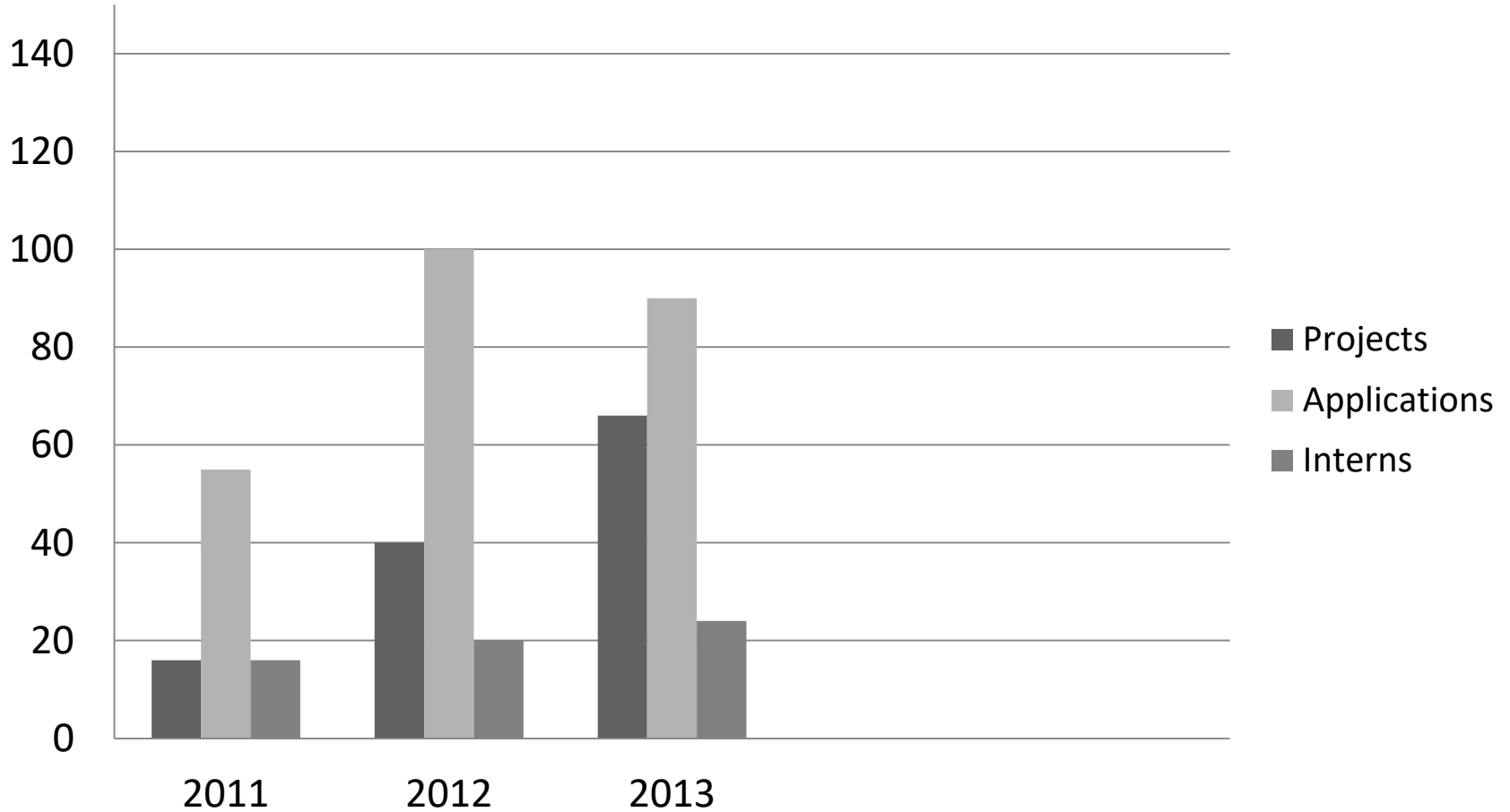
*(Lopatto 2007)*

# Development of KUL Internship Scheme.

## Scheme 2011-2013

- **List of project descriptions distributed to all level 5 students.**
- **Application by CV and covering letter**
- **Selection mainly based on grades**
- **Interns paid £150 per week for 8-week project**

# Applications to internship scheme



## Why don't more students apply?

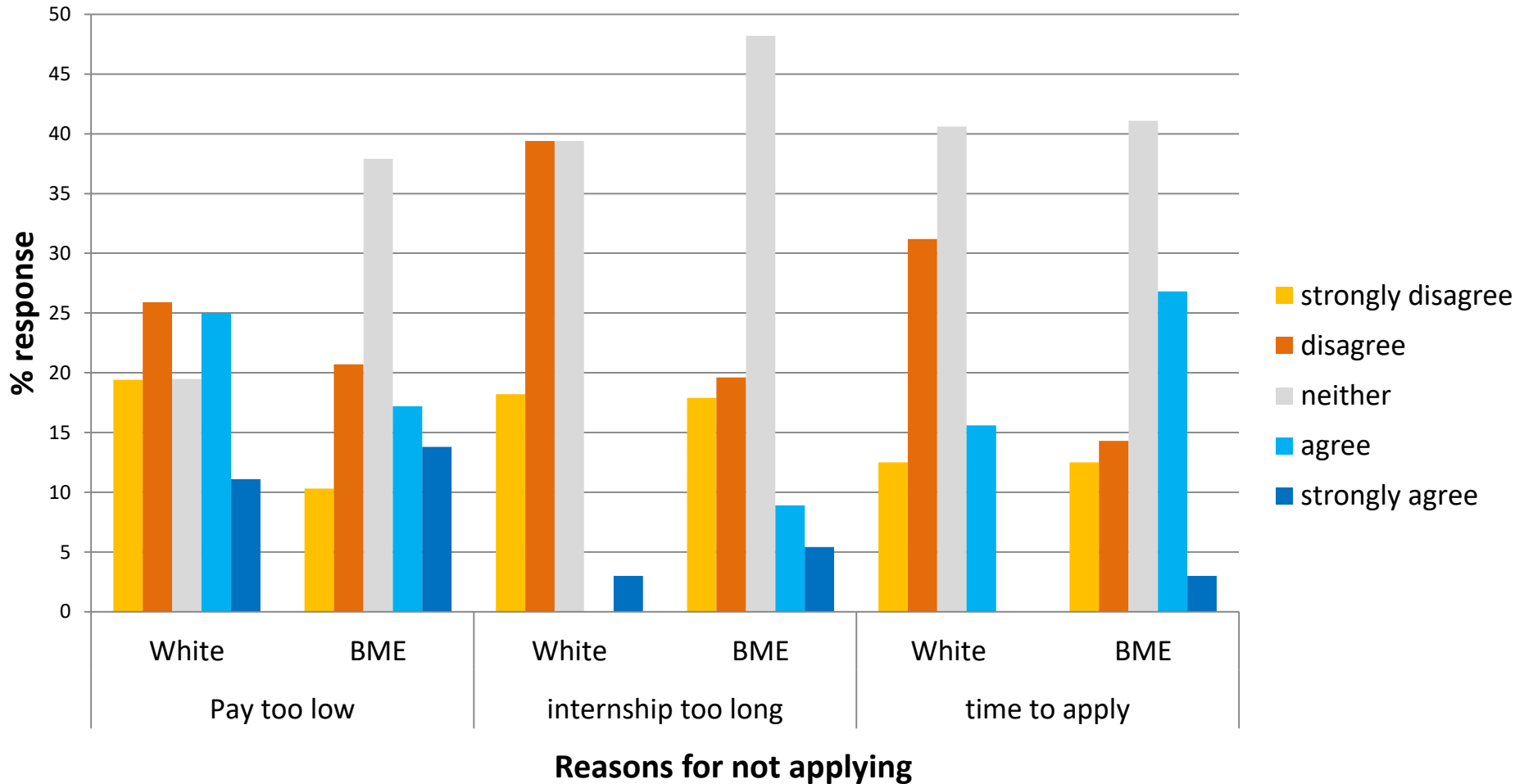
- **Grade requirement – deterrent?**
- **Are projects attractive?**
- **Don't know about scheme?**
- **Lack of confidence?**
- **Research not as popular in some disciplines?**
- **Poor pay?**
- **Length of project?**

# Maximising impact of Internships Scheme 2013 onwards

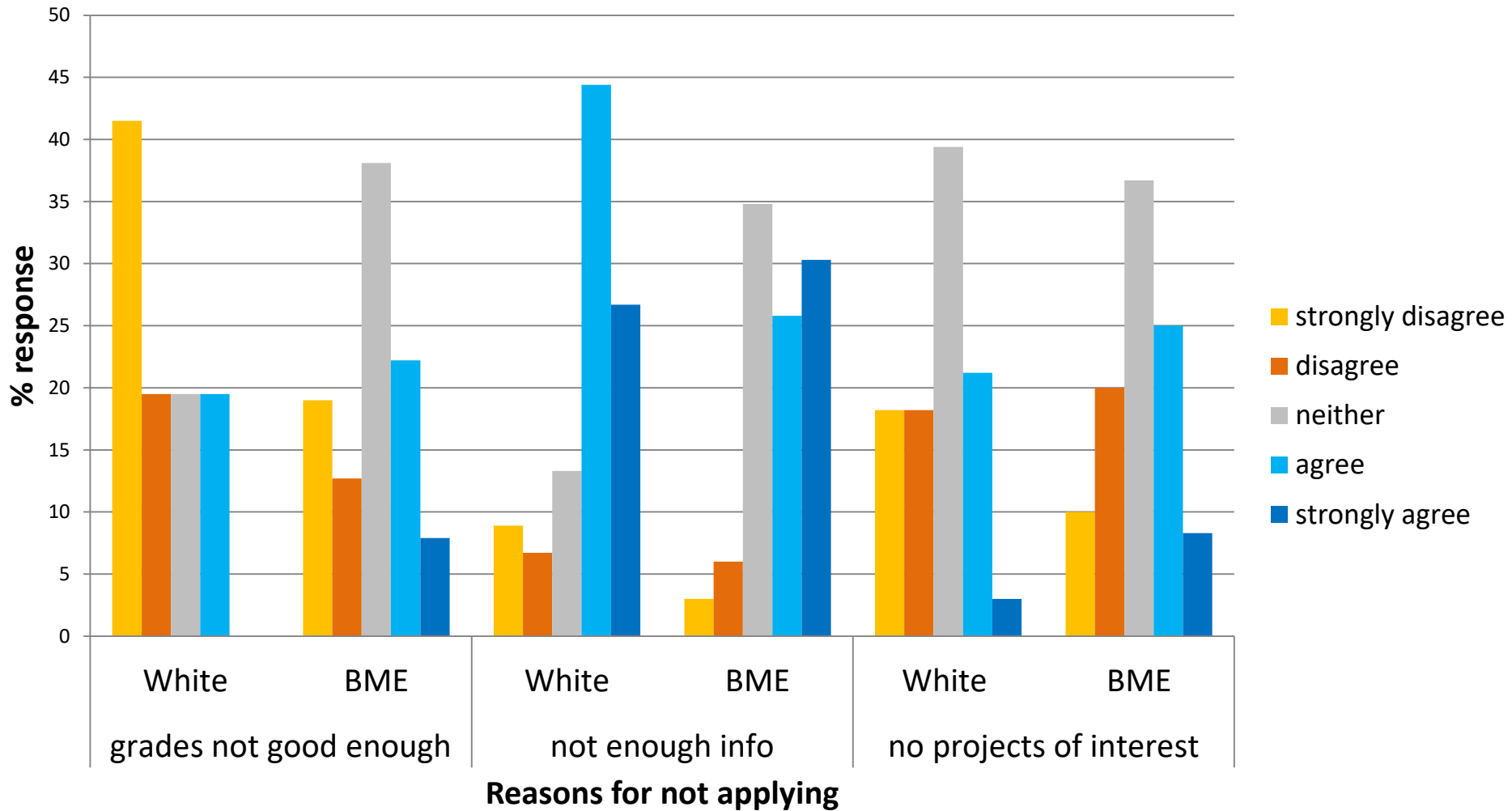
- **In 2014 surveyed final year students about knowledge and experience of scheme**
- **157 respondents roughly 30 for each of five schools**

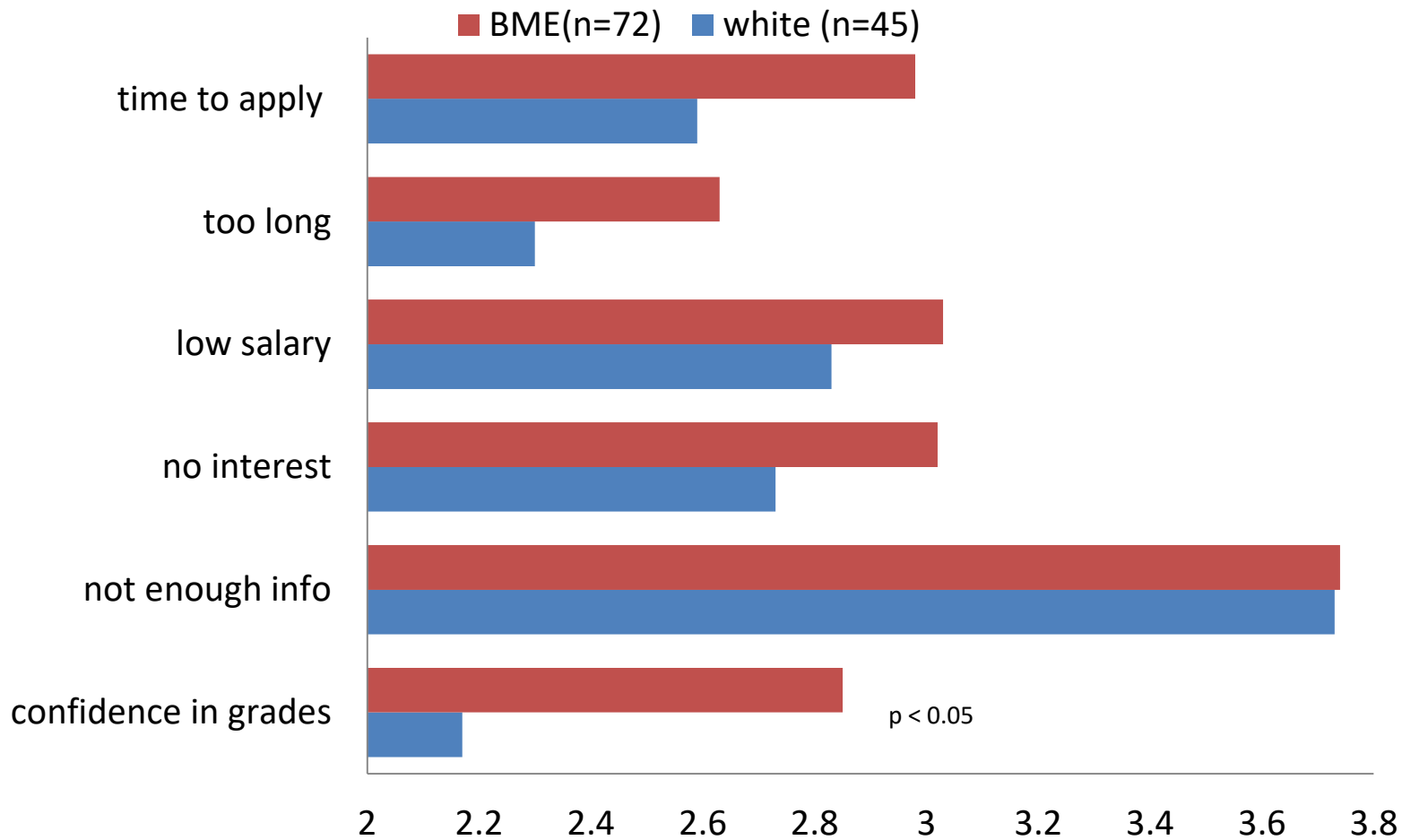


## Likert scale responses to reasons for not applying for an internship

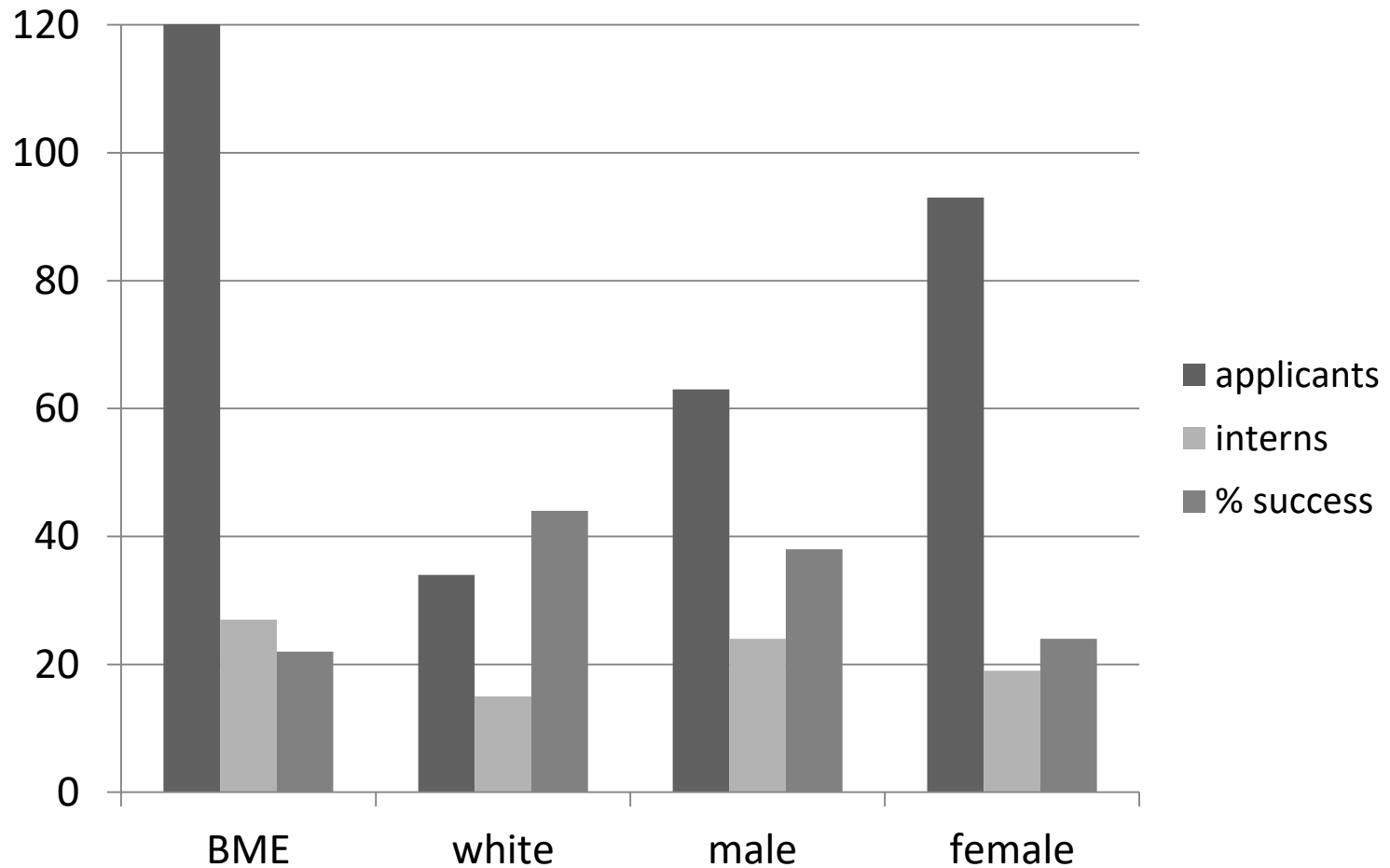


## Likert scale responses to reasons for not applying for an internship





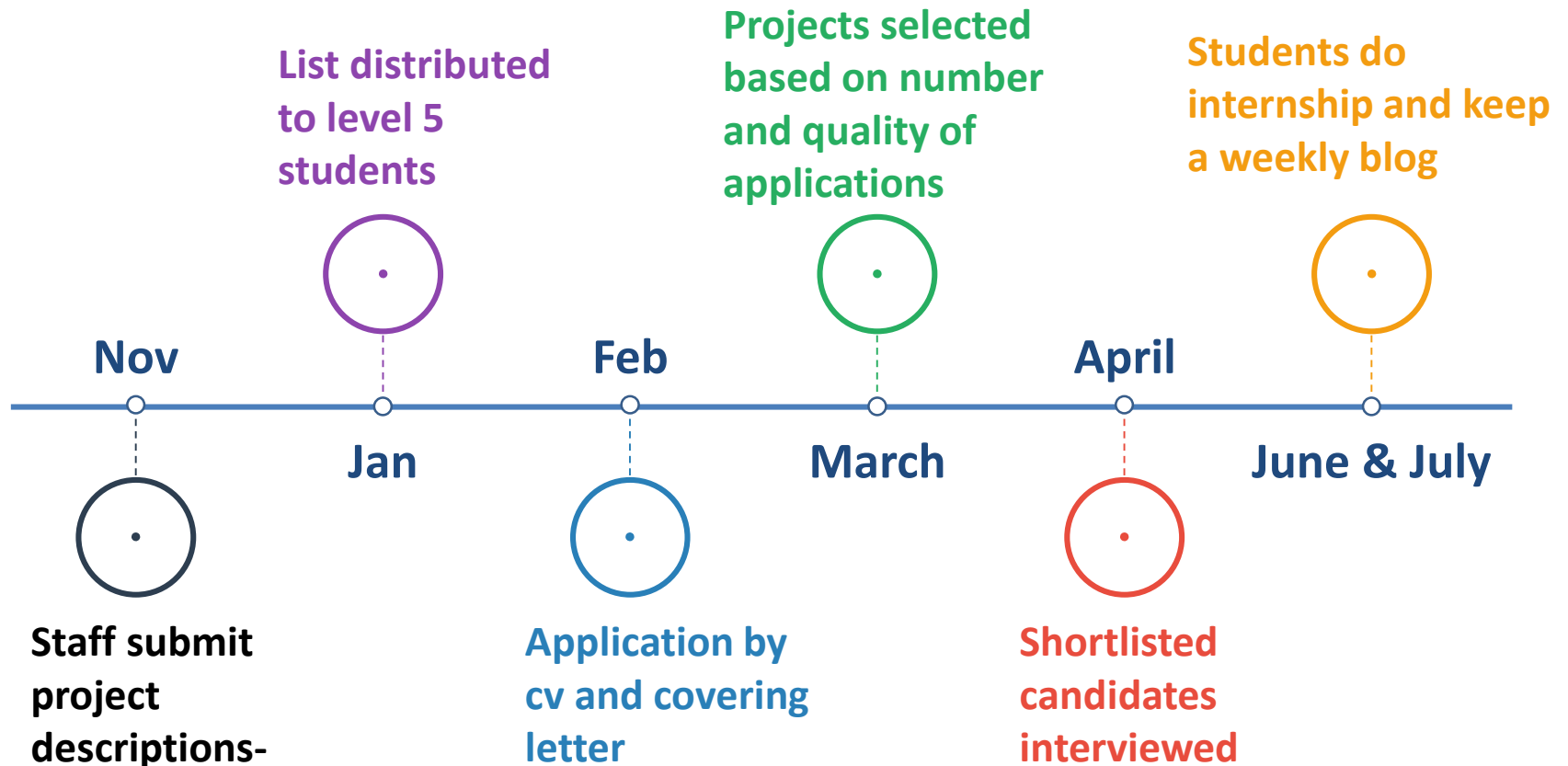
# Summer Undergraduate Research Internships 2014



## Enhancing impact of Internship Scheme

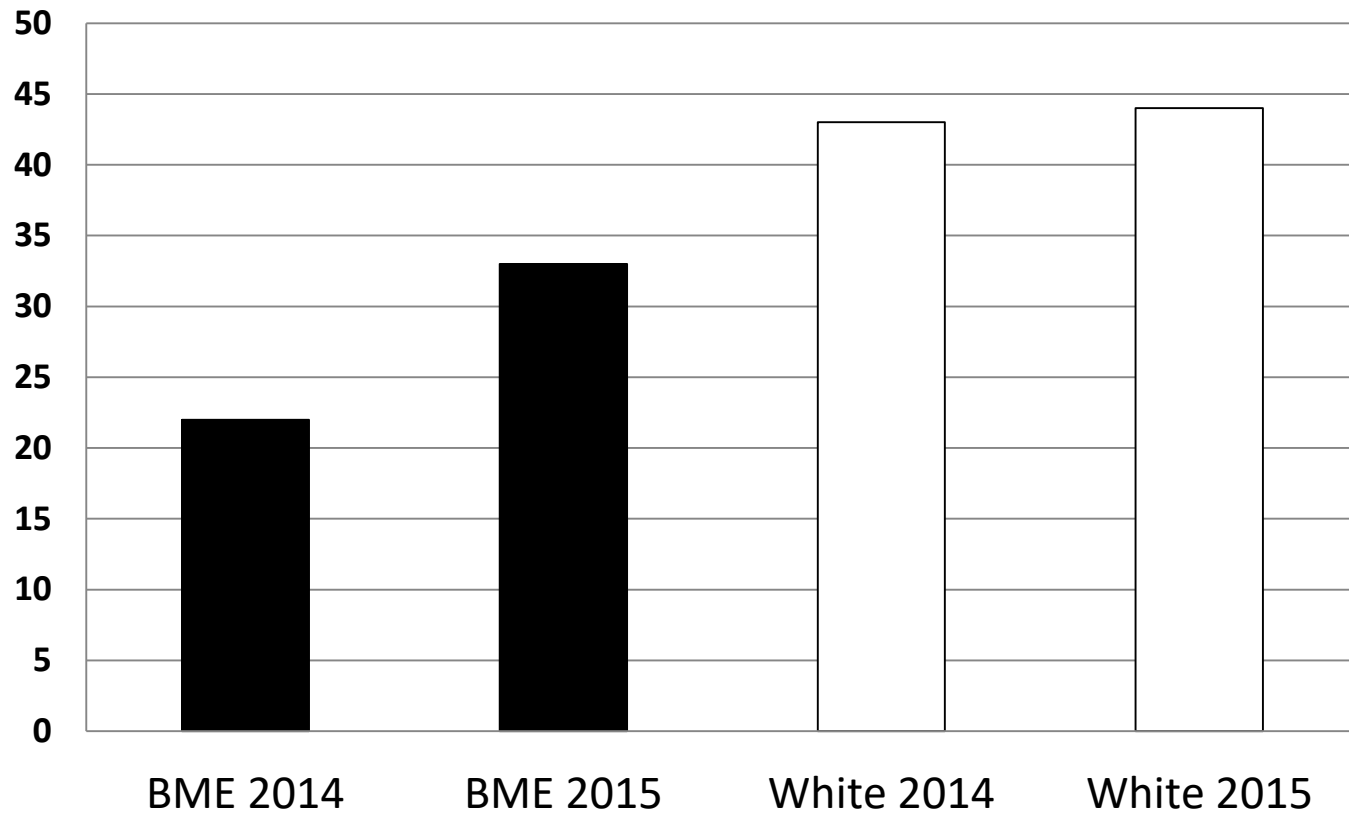
- **Wider range of projects-involve more staff**
- **Use previous blogs to illustrate nature of projects**
- **Offer more internships**
- **Better marketing- use of KUTalent**
- **Earlier promotion**
- **Encourage great involvement from some schools**
  
- **Each project interviews up to 6 students and provide feedback-**

# KUL STEM Faculty Research Internship Scheme

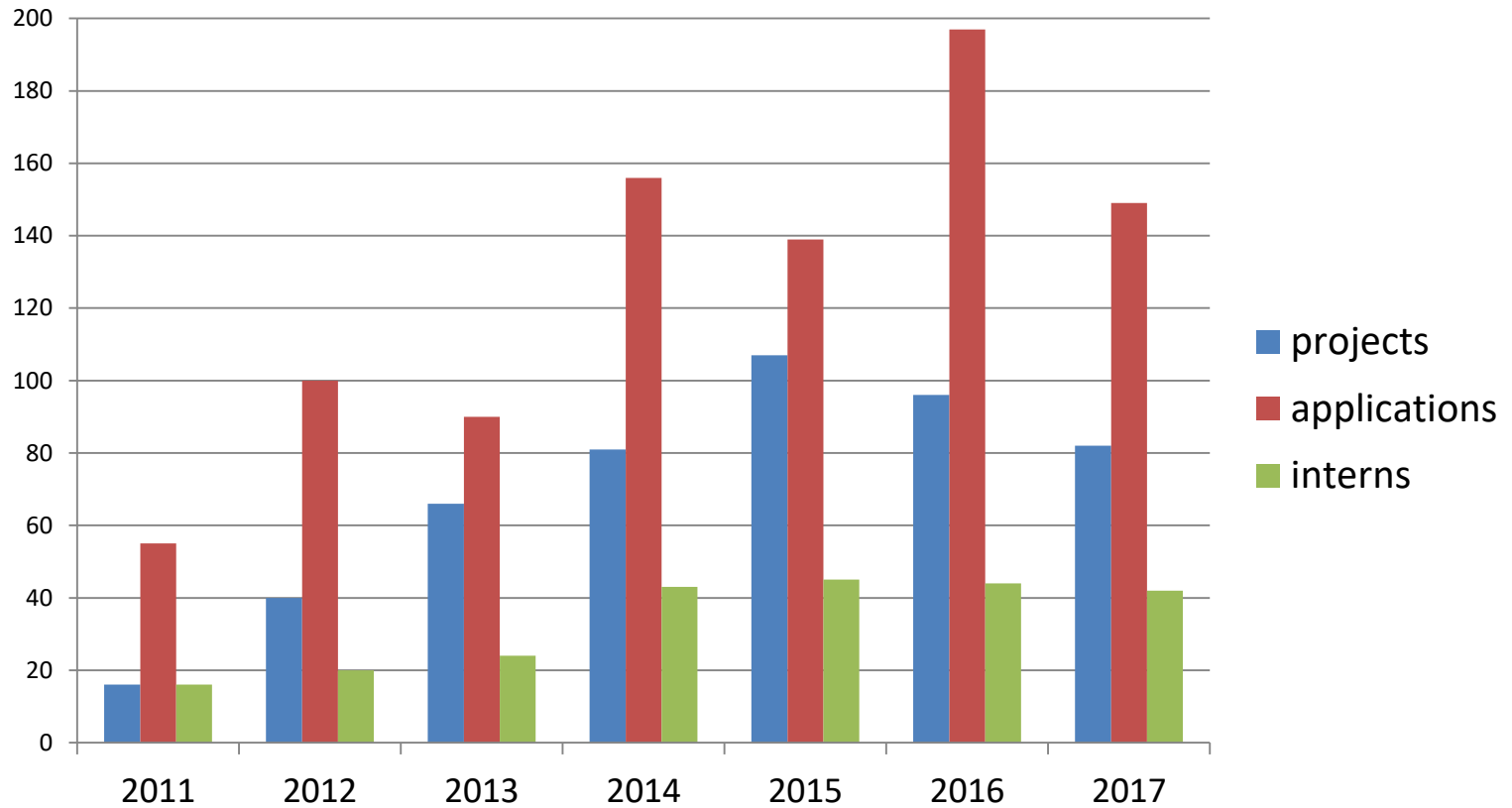


# Success rates of applicants

## % success of intern applicants

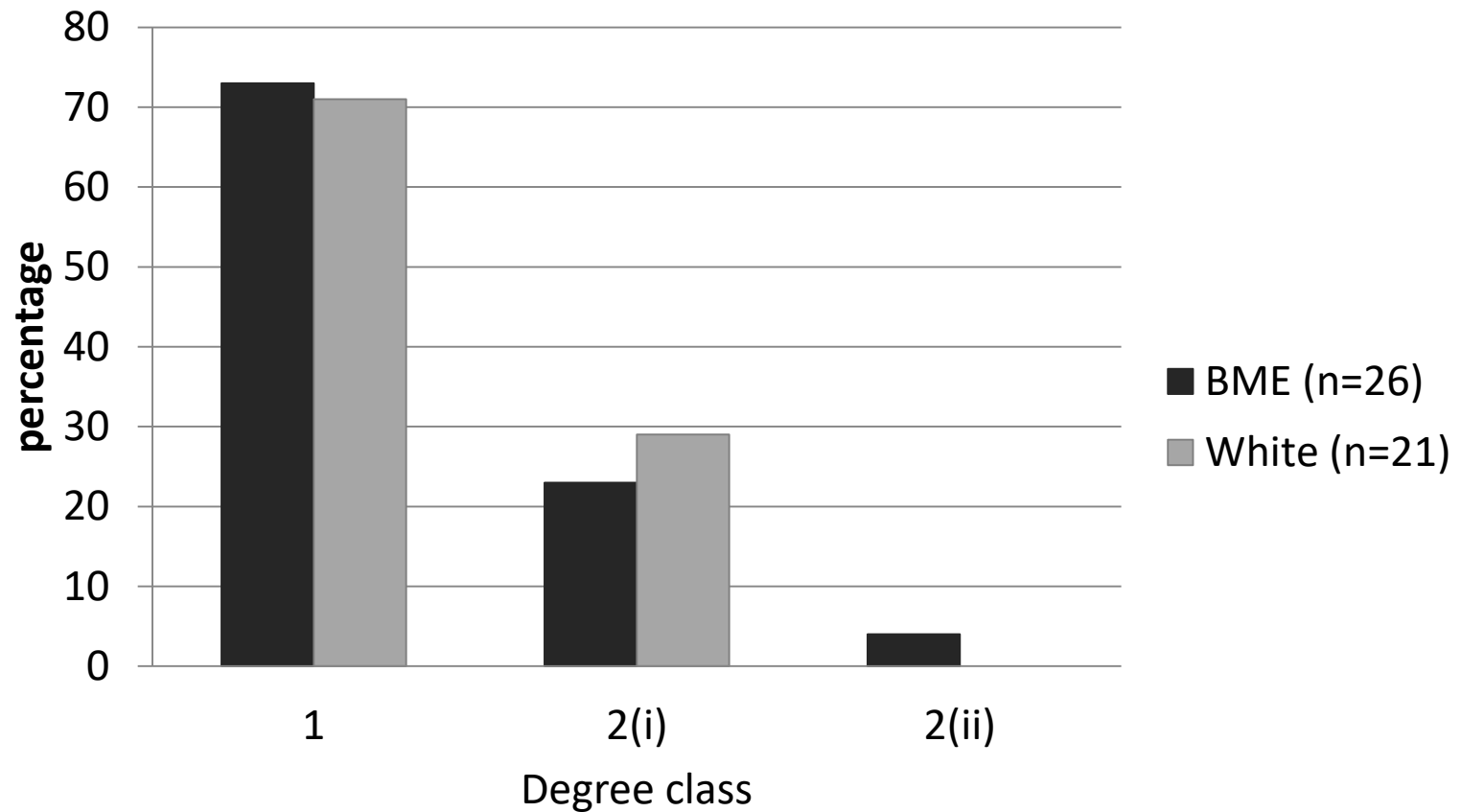


# SEC internship scheme

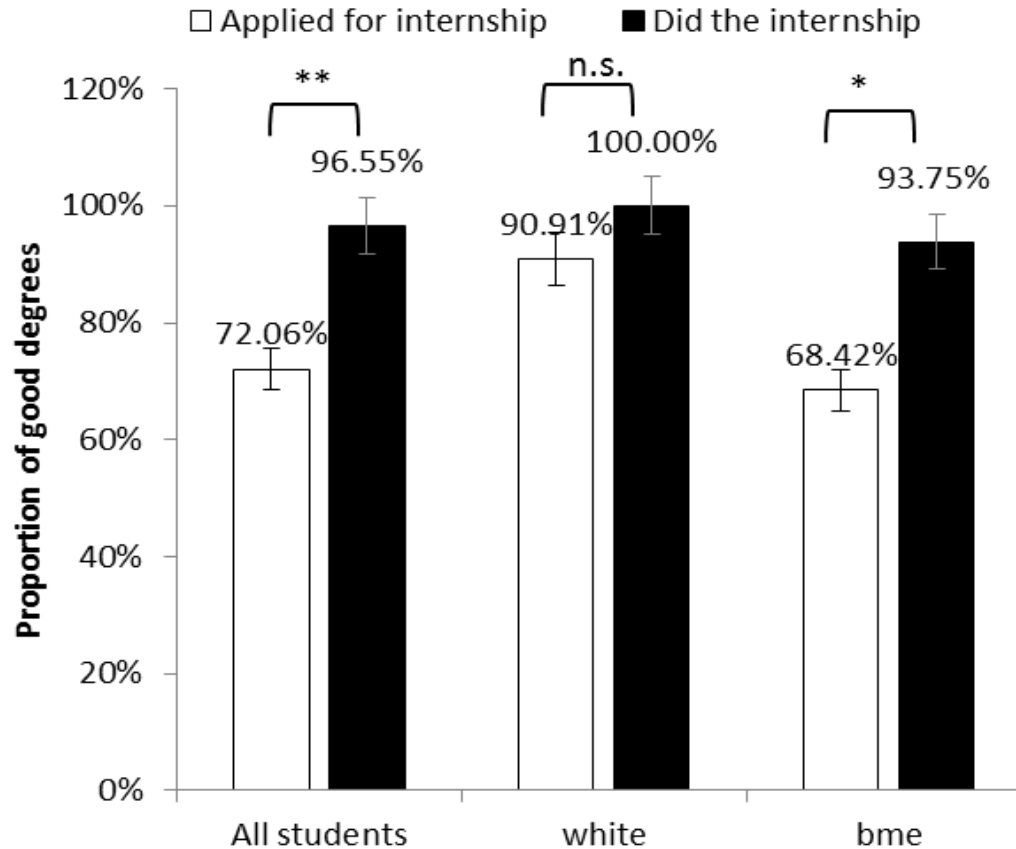




# Award outcomes (as of 2016) of Summer interns from 2013 and 2014



# Proportion of good degrees for interns and unsuccessful applicants graduating 2015



## Intern Evaluation 2015

**Online questionnaire used to ask interns to rate the scale of their learning gain in a number of areas, e.g.**

Knowing what you want to do after graduating eg  
career path

Ability to interpret results or information

Scientific writing

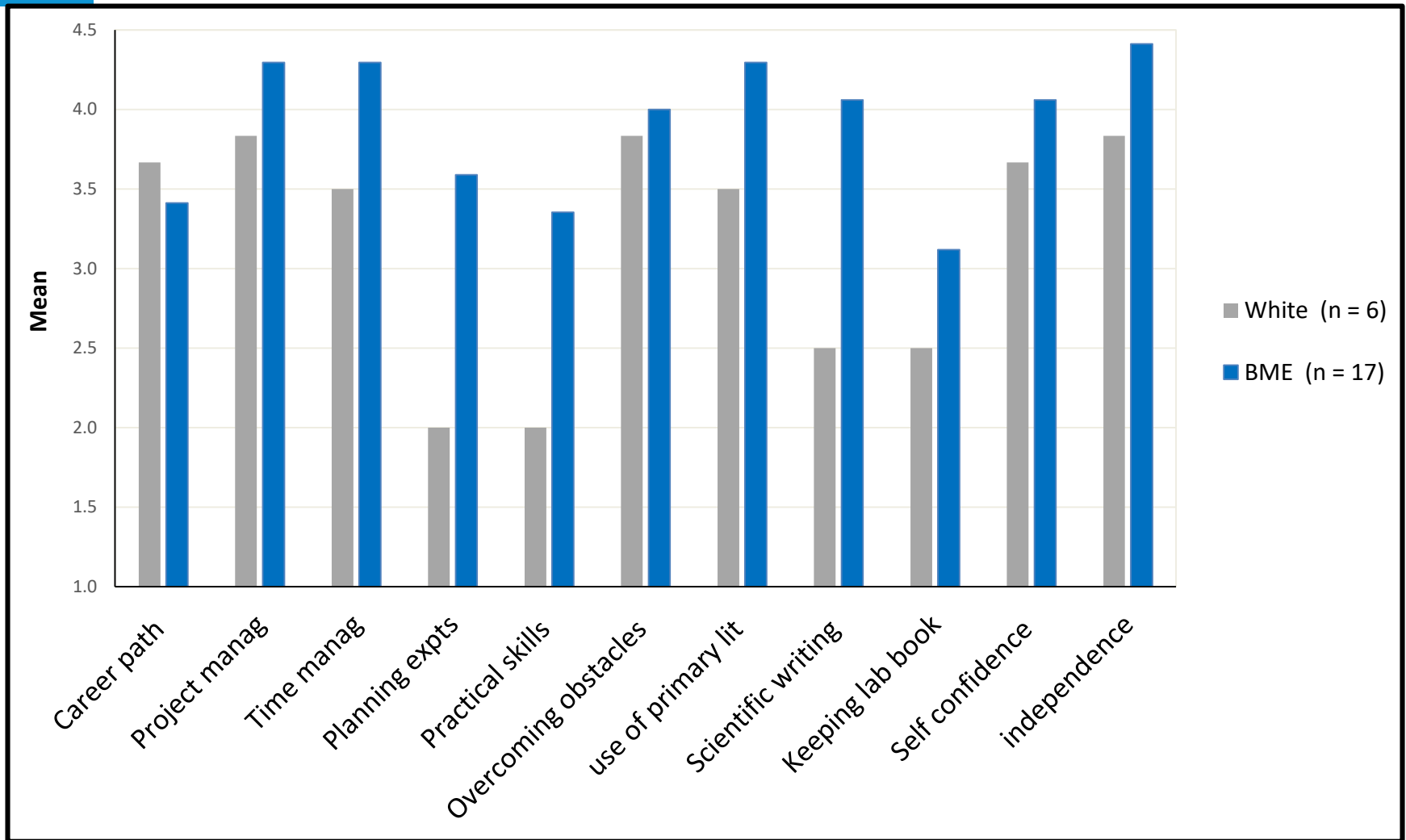
Planning experiments

Ability to read and understand primary literature

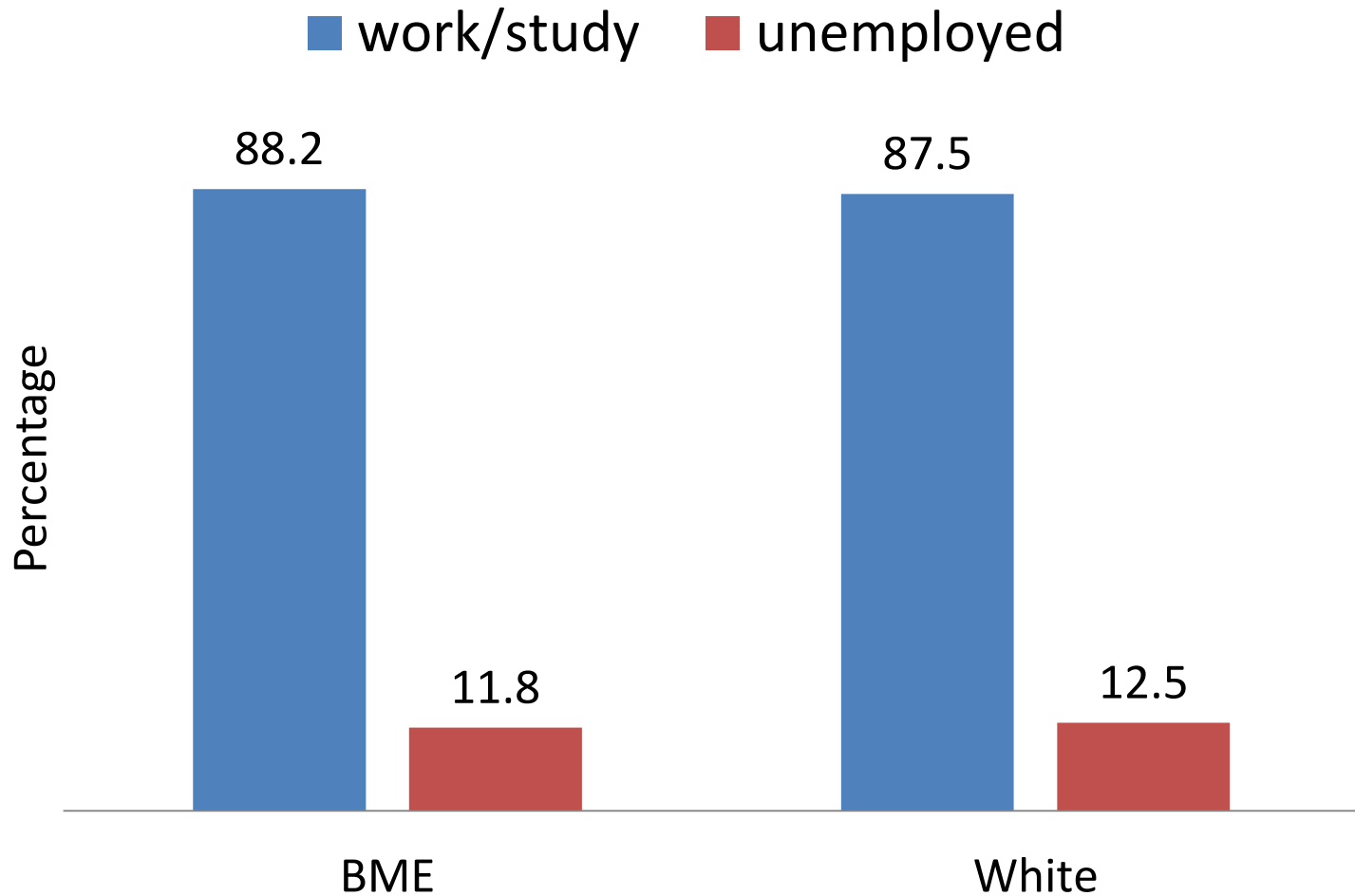
Project management skills

Time management skill etc.

# Learning gains of Research Interns 2014/15



# Destination of Leavers HE data for interns (n= 31)



# Conclusions

- **Success rate of BME applicants improved through changes to advertising and application process.**
- **Significant association between doing an internship and obtaining good degrees for BME students, ( $N=72$ )  $p = .04^*$  but no such association for white students, ( $N=22$ )  $p = .286$ .**
- **BME students appear to identify greater learning gains, but again small numbers involved**

# References

- Hunter, A-B., Laursen, S.L., & Seymour, E. (2007). *Becoming a scientist: The role of undergraduate research in students' cognitive, personal, and professional development*, Science Education, 91, 36-74.
- Jenkins A. and Healy M. (2009) , Developing undergraduate research and inquiry, York: The Higher Education Academy [Online] June 2009. Available from [https://www.heacademy.ac.uk/sites/default/files/developingundergraduate\\_final.pdf](https://www.heacademy.ac.uk/sites/default/files/developingundergraduate_final.pdf)
- Lopatto, D. (2007). *Undergraduate Research Experiences Support Science Career Decisions and Active Learning*, Cell Biology Education 6, 297–306,
- Pender, M., Marcotte, D.E., Domingo, M. R. S. and Maton, K. I, (2010). *The STEM Pipeline: The Role of Summer Research Experience in Minority Students' Ph.D. Aspirations*. Education Policy Analysis Archives. 18(30), 1–36.
- Russell S. H, Hancock M. P., McCullough J. (2007) *Benefits of Undergraduate Research Experiences*, Science 316, 548-549
- Seymour, E., Hunter, A-B., Laursen, S. L., and DeAntoni, T. (2004). *Establishing the benefits of research experiences for undergraduates in the sciences: first findings from a three-year study*, Science Education 88, 493–534.