

Student Involvement in STEM Activities

*Is it a good idea, what works and
how can we make it better?*



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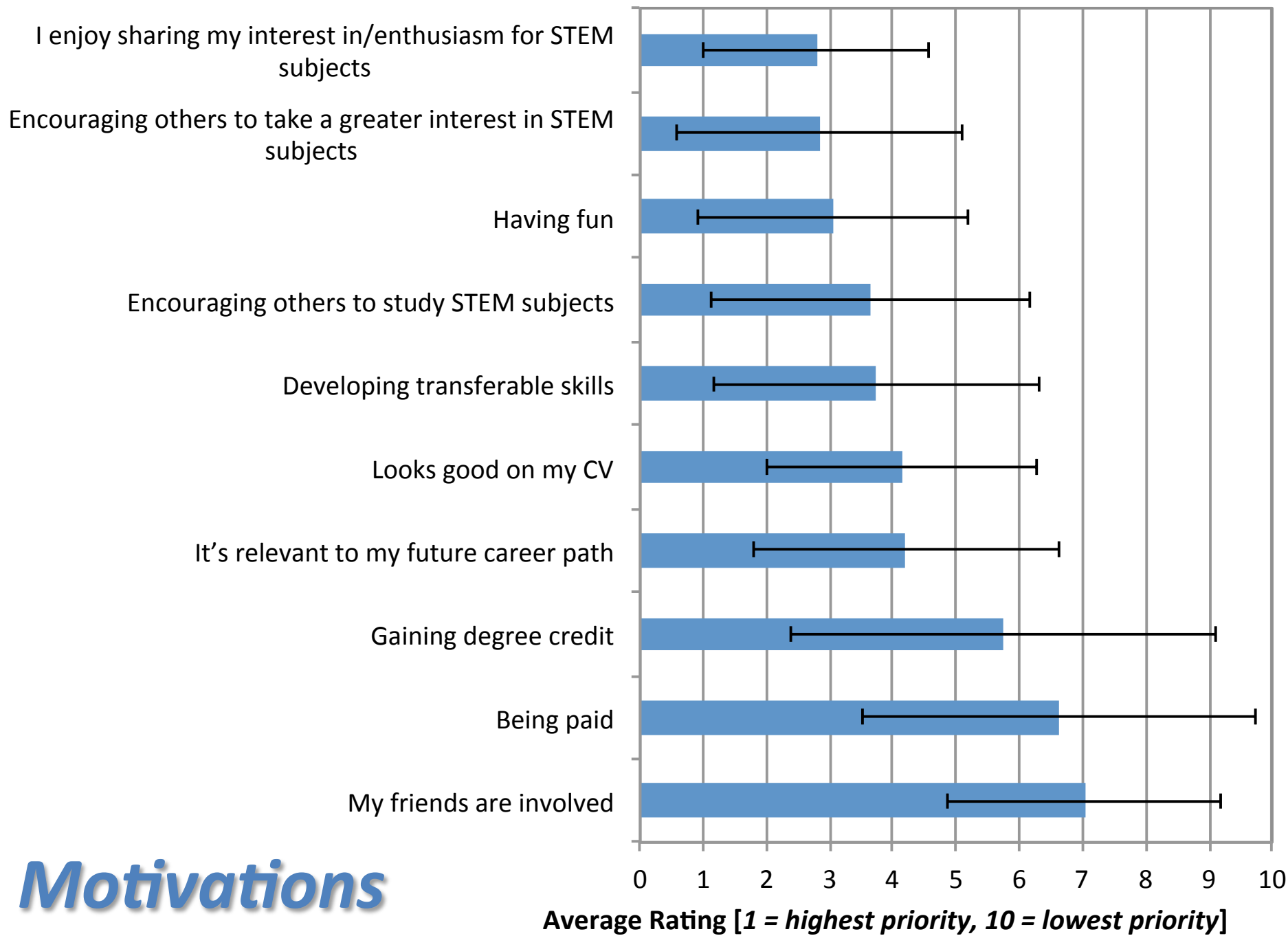
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Data collection methods:

- Electronic questionnaires distributed before ($n_1=40$) and after ($n_2=31$) being involved in the STEM communication activities
- Short audio recorded interviews ($n_3=21$)
- Informal debrief discussion

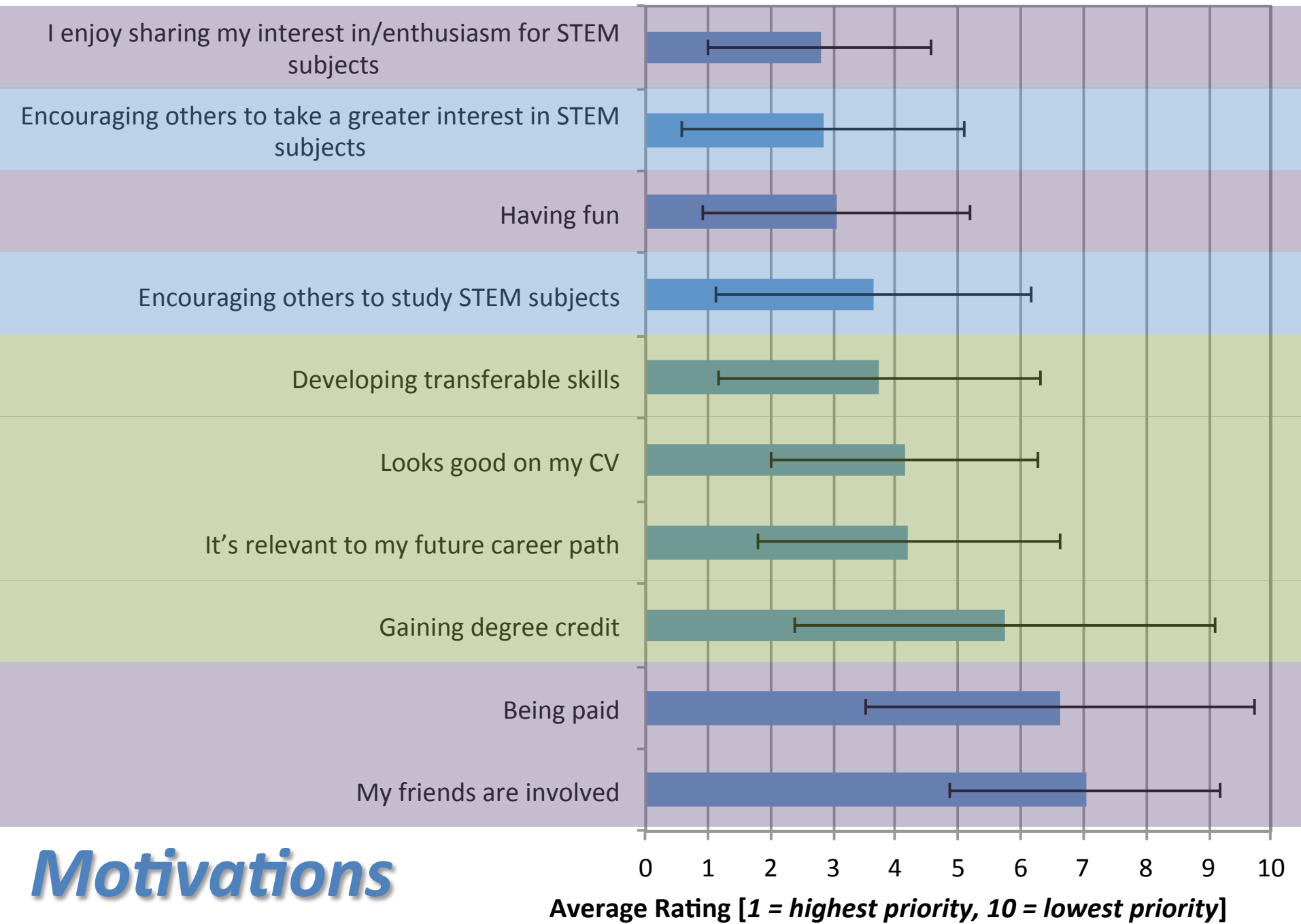
Demographics:

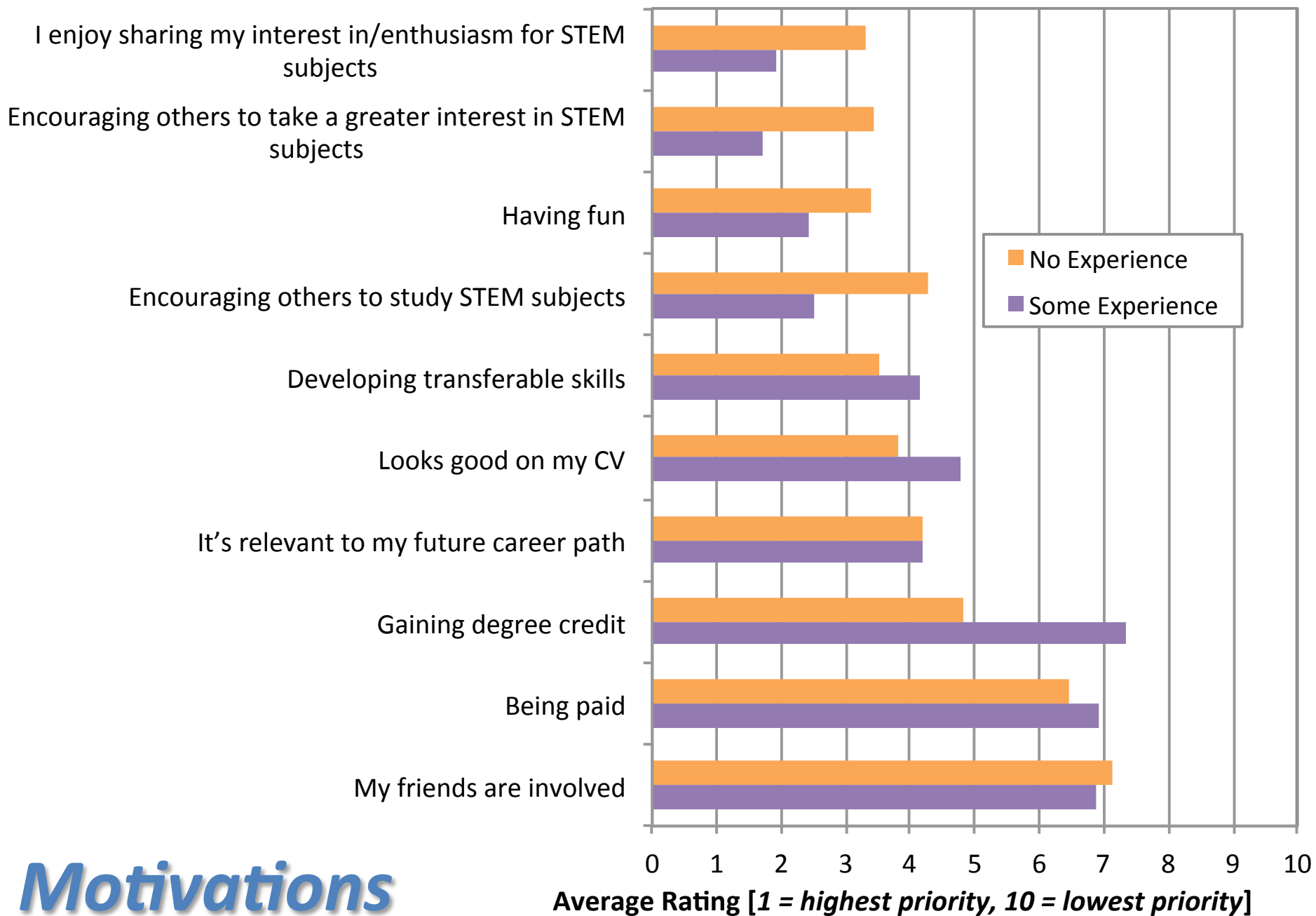
- 60 student STEM ambassadors (29M, 31F)
- Majority of respondents were female ($n_1=62.5\%$, $n_2=59.3\%$, $n_3=61.9\%$)
- Relatively inexperienced: 2/3 were new to STEM communication; only 2 had participated in more than 3 events.
- Vast majority were under 25 years of age ($n_1=87.5\%$; $n_2=92.6\%$)



Motivations

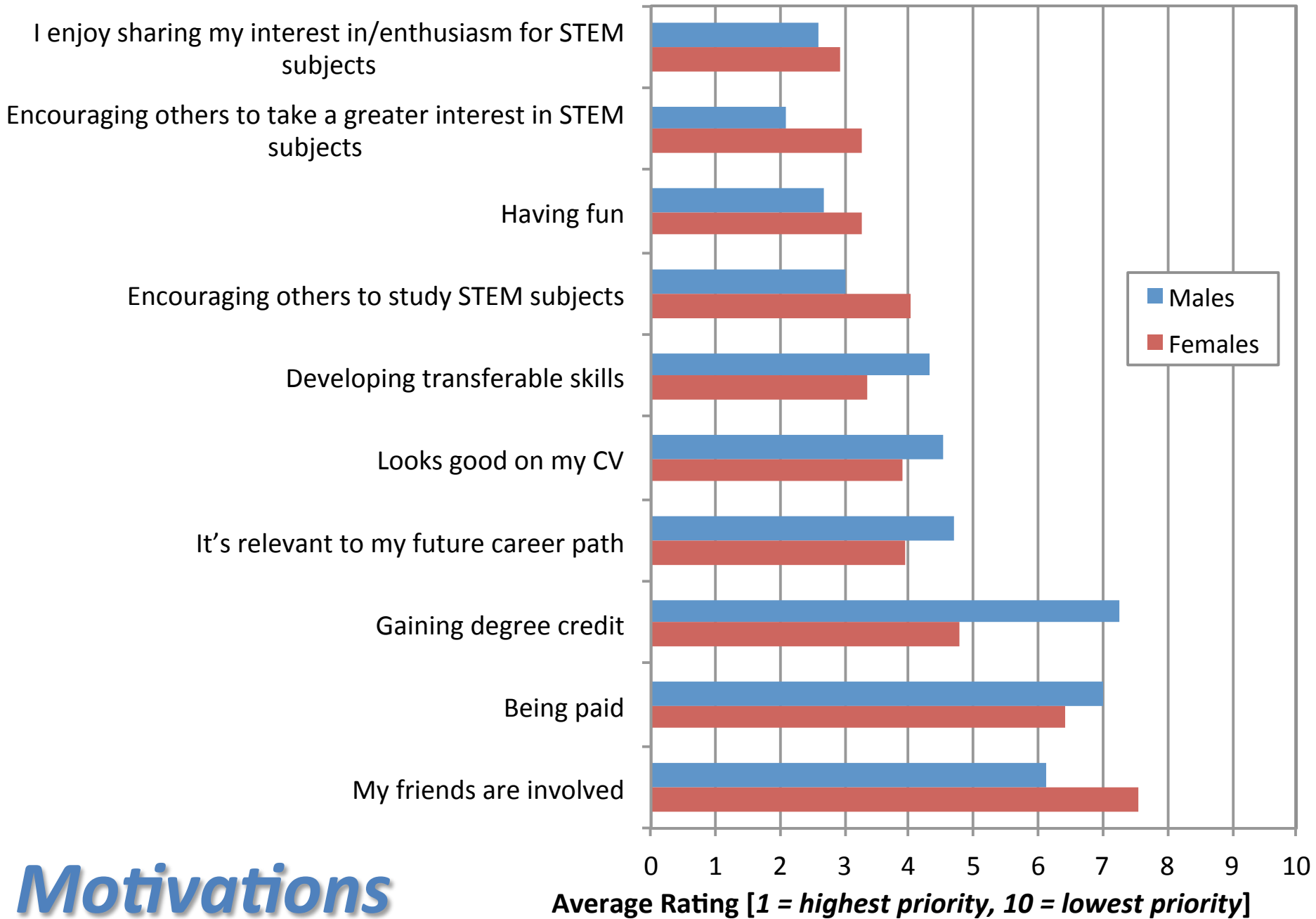
Average Rating [1 = highest priority, 10 = lowest priority]





Motivations

Average Rating [1 = highest priority, 10 = lowest priority]

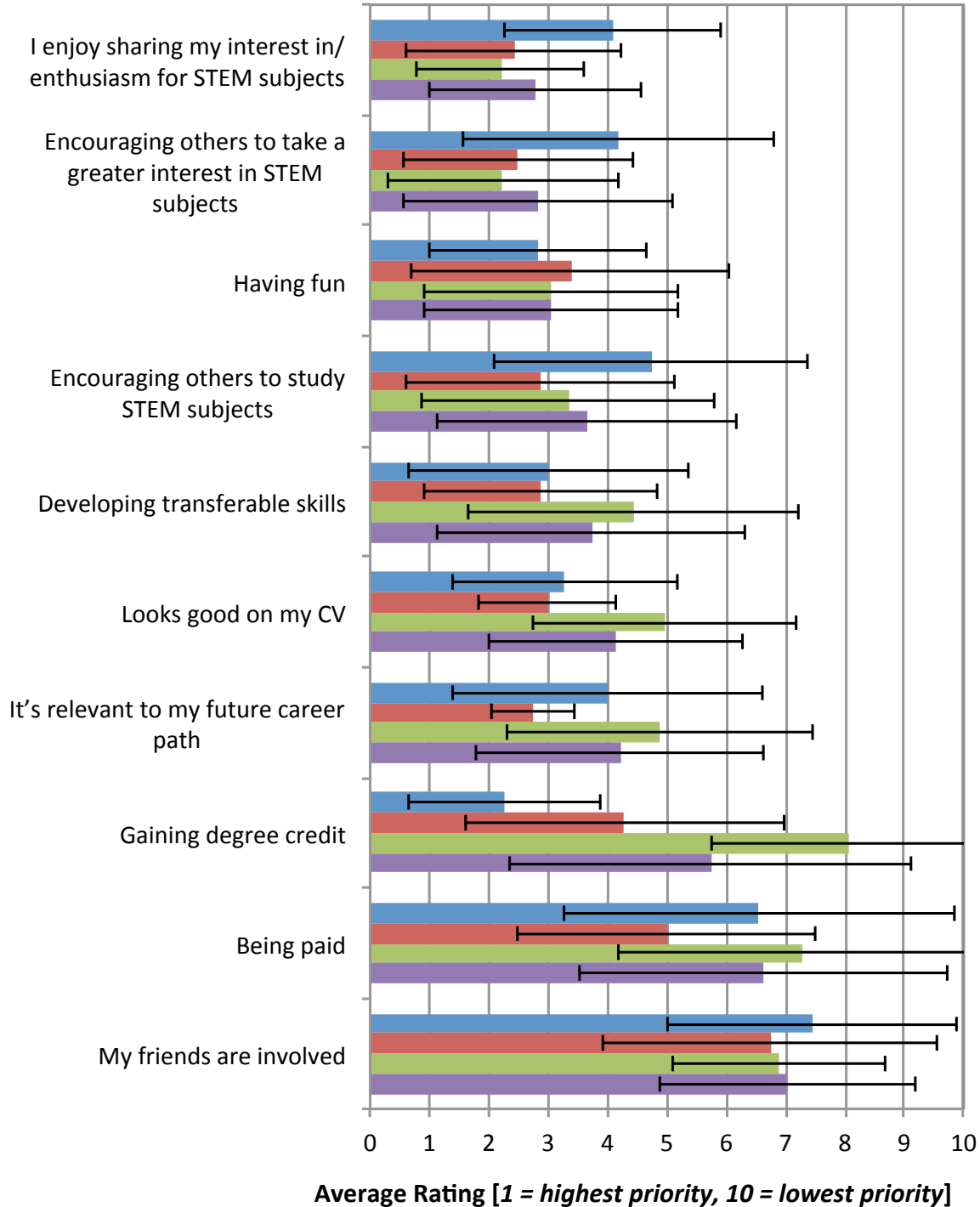


Motivations

Average Rating [1 = highest priority, 10 = lowest priority]

Motivations

- Accredited module
- Paid position
- Volunteer
- Overall



Research Findings

What they hoped to gain:

- 51 'internal' factors:
 - skills development ($n_1=16$)
 - experience ($n_1=9$)
 - enjoyment ($n_1=7$)
 - confidence ($n_1=5$)
 - knowledge ($n_1=4$)
 - contacts ($n_1=3$)
- 6 factors relating to their **career** e.g. *'To enrich my skills and give me a headstart in my teaching career'* or *'Experience to put on my CV'*.
- 23 'external' e.g. *'getting children involved in and interested in science'*
- Three comments recognised **bi-directional learning** between the demonstrator and the audience

Recognised barriers:

- By far the most common barrier identified was time ($n_1=27$)
- Other commitments ($n_1=16$) e.g. *'Pressure of pretty much always feeling like I should be working on PhD stuff directly...'*
- Lack of confidence ($n_1=7$)
- Transport problems and distant locations ($n_1=5$)
- Financial factors e.g. travel costs ($n_1=4$)
- Time required to plan such activities if unsupported costs ($n_1=3$)
- Proximity of multiple events in NSEW (project team)

Pre-event emotions:

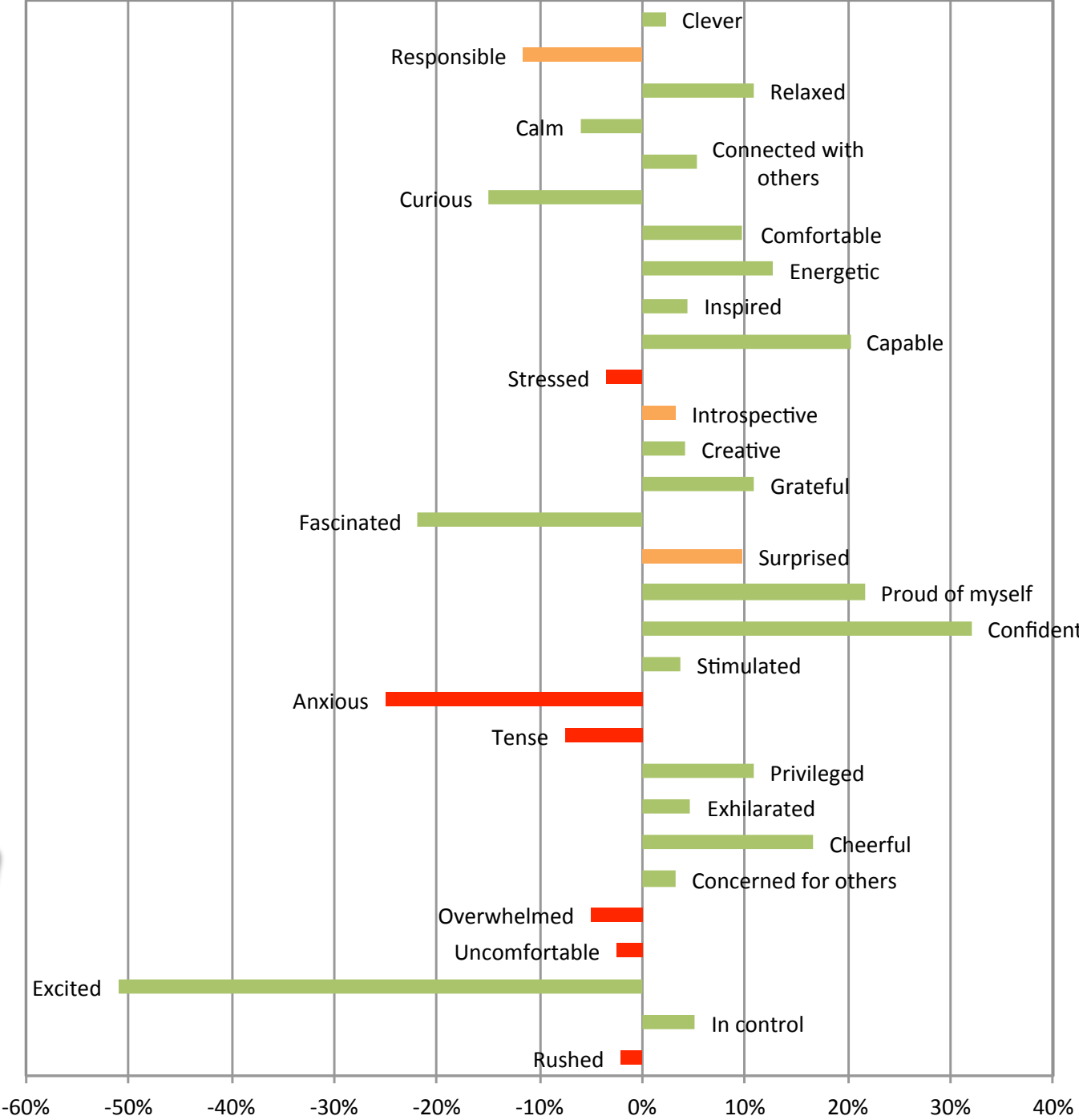


Post-event emotions:



*Reported
emotions*

Comparison of reported emotions



Research Conclusions

- There is no ‘one’ model for student involvement in STEM communication activities
- Both internal and external motivations should be emphasised when recruiting participants
- Students report overwhelmingly positive outcomes and reduction of negative emotions
- Student involvement can be supported through:
 - Pre-organised events which reduce time commitment
 - Training to support skills and confidence development
 - Covering travel expenses and/or arranging transport

Next Steps

- The qualitative data explains some of the deeper reasons behind these issues
- Longitudinal follow-up is planned... *what should we ask?*
- Preparation of a Guide summarising advice on setting up a STEM ambassador scheme... *what else would you include?*