



ABS*ci*CON 2017

MESA, ARIZONA

1
00:00:12,250 --> 00:00:06,150

you

2
00:00:17,230 --> 00:00:14,340

[Music]

3
00:00:19,359 --> 00:00:17,240

welcome once again thank you all so much

4
00:00:21,790 --> 00:00:19,369

for being here this morning at what is

5
00:00:24,400 --> 00:00:21,800

the second ever plenary session at AB

6
00:00:26,080 --> 00:00:24,410

saikhan devoted to education and for

7
00:00:28,689 --> 00:00:26,090

that I'd like to give a special thanks

8
00:00:30,880 --> 00:00:28,699

to Mary Wojtek Steve - and my fellow

9
00:00:38,439 --> 00:00:30,890

members of the scientific organizing

10
00:00:40,869 --> 00:00:38,449

committee right on so my name is Daniela

11
00:00:43,810 --> 00:00:40,879

Scalise and I'm the education lead for

12
00:00:45,790 --> 00:00:43,820

the astrobiology program at NASA I am my

13
00:00:47,709 --> 00:00:45,800

co conveners Melissa curvin Brooks and

14

00:00:51,190 --> 00:00:47,719

Erich Mielke or from whom you'll hear in

15

00:00:53,920 --> 00:00:51,200

a moment extend a special welcome to our

16

00:00:56,139 --> 00:00:53,930

panelists our speakers victoria plot

17

00:00:59,440 --> 00:00:56,149

Gerhardt's honored and Richard Pitts

18

00:01:01,869 --> 00:00:59,450

they are all social scientists actively

19

00:01:03,639 --> 00:01:01,879

working on issues in increasing

20

00:01:06,400 --> 00:01:03,649

diversity in education and in the

21

00:01:08,050 --> 00:01:06,410

workplace we're very grateful for them

22

00:01:09,790 --> 00:01:08,060

for coming out making the trip all the

23

00:01:14,620 --> 00:01:09,800

way out here today to share their

24

00:01:17,020 --> 00:01:14,630

knowledge and wisdom with us alright so

25

00:01:19,570 --> 00:01:17,030

our theme today is astrobiology

26
00:01:22,960 --> 00:01:19,580
education in a diverse world and toward

27
00:01:26,410 --> 00:01:22,970
a better one our aim is to inform

28
00:01:28,899 --> 00:01:26,420
inspire and empower you to embrace the

29
00:01:31,060 --> 00:01:28,909
vision of an astrobiology community that

30
00:01:33,850 --> 00:01:31,070
is stronger and more whole through

31
00:01:36,670 --> 00:01:33,860
diversity and to take action to realize

32
00:01:39,490 --> 00:01:36,680
that vision for those of you who were at

33
00:01:42,219 --> 00:01:39,500
the last apps icon two years ago at the

34
00:01:43,990 --> 00:01:42,229
first ever education plenary session you

35
00:01:45,700 --> 00:01:44,000
may remember that our charge to you

36
00:01:48,039 --> 00:01:45,710
there was to weave into your

37
00:01:49,870 --> 00:01:48,049
professional scientific identity the

38
00:01:52,539 --> 00:01:49,880

valuing of and participating in

39

00:01:55,330 --> 00:01:52,549

education and outreach so we echo that

40

00:01:58,359 --> 00:01:55,340

here today and charge you to weave in a

41

00:02:00,520 --> 00:01:58,369

commitment to expanding diversity for

42

00:02:03,639 --> 00:02:00,530

our community we recognize that each of

43

00:02:05,319 --> 00:02:03,649

you is different different backgrounds

44

00:02:08,169 --> 00:02:05,329

different institutions different

45

00:02:09,910 --> 00:02:08,179

disciplines and we hope that the

46

00:02:12,009 --> 00:02:09,920

information that shared today will

47

00:02:13,360 --> 00:02:12,019

provide you a foundation from which each

48

00:02:16,060 --> 00:02:13,370

of you can work perhaps in a different

49

00:02:18,449 --> 00:02:16,070

way perhaps and unified ways toward a

50

00:02:20,619 --> 00:02:18,459

more diverse and equitable future and

51
00:02:22,089 --> 00:02:20,629
reminding you that you already know how

52
00:02:24,420 --> 00:02:22,099
to do this really really well

53
00:02:26,640 --> 00:02:24,430
your astrobiologists

54
00:02:29,970 --> 00:02:26,650
and you don't we don't do astrobiology

55
00:02:32,970 --> 00:02:29,980
can't get done without diversity in

56
00:02:34,890 --> 00:02:32,980
disciplines so this should be inherent

57
00:02:36,599 --> 00:02:34,900
in you already and of course hopefully

58
00:02:41,640 --> 00:02:36,609
that makes the leap to embracing

59
00:02:43,170 --> 00:02:41,650
diversity of people that much easier so

60
00:02:44,970 --> 00:02:43,180
today again through the session we

61
00:02:46,920 --> 00:02:44,980
invite you to take a fresh look around

62
00:02:50,160 --> 00:02:46,930
you at the diversity landscape if you

63
00:02:52,319 --> 00:02:50,170

will at programs like equal opportunity

64

00:02:56,099 --> 00:02:52,329

at ideas and perspectives like

65

00:02:58,409 --> 00:02:56,109

colorblindness are they effective are

66

00:03:01,710 --> 00:02:58,419

they perpetuating stagnant status close

67

00:03:03,449 --> 00:03:01,720

and as and well it's important to look

68

00:03:05,429 --> 00:03:03,459

around you external to you of what's

69

00:03:08,789 --> 00:03:05,439

going on we think the key to this

70

00:03:11,039 --> 00:03:08,799

journey is probably internal and so we

71

00:03:14,520 --> 00:03:11,049

invite you to think about your mindset

72

00:03:18,349 --> 00:03:14,530

and embrace your potential to contribute

73

00:03:21,179 --> 00:03:18,359

to potential solutions and together

74

00:03:23,250 --> 00:03:21,189

independently in a unified way we should

75

00:03:25,319 --> 00:03:23,260

be looking at the paths forward how can

76

00:03:29,399 --> 00:03:25,329

we push boundaries and explore new

77

00:03:31,500 --> 00:03:29,409

models toward this better world and of

78

00:03:34,250 --> 00:03:31,510

course should any of these explorations

79

00:03:38,309 --> 00:03:34,260

and ideas lead you to be uncomfortable

80

00:03:40,619 --> 00:03:38,319

then get uncomfortable it's okay my

81

00:03:41,819 --> 00:03:40,629

education colleagues like to tell me

82

00:03:44,670 --> 00:03:41,829

that when you're uncomfortable and

83

00:03:46,349 --> 00:03:44,680

you're confused or irritated then you're

84

00:03:48,899 --> 00:03:46,359

about to learn something so hang in

85

00:03:51,599 --> 00:03:48,909

there and you will and we'll get through

86

00:03:56,250 --> 00:03:51,609

it together okay that's it for me I'm

87

00:04:04,920 --> 00:04:01,729

[Applause]

88

00:04:06,479 --> 00:04:04,930

good morning I'm Melissa Kervin I'm from

89

00:04:11,220 --> 00:04:06,489

the and the staff scientist at the

90

00:04:13,550 --> 00:04:11,230

astrobiology Institute at the 2002 apps

91

00:04:15,960 --> 00:04:13,560

icon before I was part of the NAI

92

00:04:18,840 --> 00:04:15,970

very Bloomberg who was the first

93

00:04:21,270 --> 00:04:18,850

director and Karen Bradford who was the

94

00:04:23,939 --> 00:04:21,280

program analyst of the NA I looked

95

00:04:28,530 --> 00:04:23,949

around at the community and noted a lack

96

00:04:32,610 --> 00:04:28,540

of diversity so out of this program was

97

00:04:38,390 --> 00:04:32,620

developed the mayor's program oops sorry

98

00:04:42,000 --> 00:04:38,400

we were there too with with the goal of

99

00:04:43,950 --> 00:04:42,010

increasing diversity in the community by

100

00:04:48,140 --> 00:04:43,960

providing opportunities for faculty

101
00:04:51,090 --> 00:04:48,150
members to collaborate with researchers

102
00:04:51,810 --> 00:04:51,100
who were astrobiology funded at first

103
00:04:54,750 --> 00:04:51,820
there were where they were

104
00:04:57,330 --> 00:04:54,760
nei funded labs and it was expanded to

105
00:04:59,640 --> 00:04:57,340
the whole astrobiology program

106
00:05:01,230 --> 00:04:59,650
I have flyers available for anybody who

107
00:05:04,620 --> 00:05:01,240
would like some more information on me

108
00:05:09,870 --> 00:05:04,630
on the program if you're afterwards if

109
00:05:13,080 --> 00:05:09,880
you're interested starting in 2008 we we

110
00:05:18,089 --> 00:05:13,090
scheduled sessions at apps icon devoted

111
00:05:19,830 --> 00:05:18,099
towards looking at education at that's

112
00:05:21,900 --> 00:05:19,840
biology education in minority serving

113
00:05:23,610 --> 00:05:21,910

institutions and it's just wonderful

114

00:05:25,529 --> 00:05:23,620

that we have this opportunity to talk to

115

00:05:28,860 --> 00:05:25,539

the whole community here today in this

116

00:05:32,070 --> 00:05:28,870

plenary after the elections at the end

117

00:05:34,140 --> 00:05:32,080

of them this past year I heard from a

118

00:05:37,550 --> 00:05:34,150

number of people in the community asking

119

00:05:40,980 --> 00:05:37,560

how they could help to help to improve

120

00:05:43,379 --> 00:05:40,990

astrobiology diversity which was a

121

00:05:47,040 --> 00:05:43,389

timely request and it fit in quite well

122

00:05:51,510 --> 00:05:47,050

with our plans for this meeting at the

123

00:05:54,420 --> 00:05:51,520

science March this past Saturday I you

124

00:05:58,680 --> 00:05:54,430

know I was just you know I was I looked

125

00:06:02,310 --> 00:05:58,690

around and I also tried to identify the

126
00:06:05,219 --> 00:06:02,320
number of diverse people in the marching

127
00:06:10,459 --> 00:06:05,229
with me and you know there were some

128
00:06:13,469 --> 00:06:10,469
concerns there so right now I'd like to

129
00:06:14,279 --> 00:06:13,479
invite up Eric Melchior who is one of

130
00:06:17,070 --> 00:06:14,289
the

131
00:06:18,809 --> 00:06:17,080
past mayors fellows he was a fellow his

132
00:06:20,869 --> 00:06:18,819
art be the co convener of this session

133
00:06:26,399 --> 00:06:20,879
and he was also a marriage fellow in

134
00:06:28,350 --> 00:06:26,409
2008 and in 2015 in 2008 he was at the

135
00:06:30,629 --> 00:06:28,360
University of Hawaii which is actually a

136
00:06:34,049 --> 00:06:30,639
native Hawaiian serving institution and

137
00:06:36,629 --> 00:06:34,059
in 2015 at UC Riverside which is a

138
00:06:39,480 --> 00:06:36,639

Hispanic serving institution and he

139

00:06:41,790 --> 00:06:39,490

himself is at Cal State San Bernardino

140

00:06:50,959 --> 00:06:41,800

which is also a Hispanic serving

141

00:06:57,059 --> 00:06:54,209

Thank You Melissa so I'm going to start

142

00:06:59,100 --> 00:06:57,069

off with a personal narrative here you

143

00:07:01,829 --> 00:06:59,110

see I'm a Native American through my

144

00:07:03,929 --> 00:07:01,839

mother's side of the family and I was

145

00:07:06,899 --> 00:07:03,939

raised on stories told by my

146

00:07:10,529 --> 00:07:06,909

grandparents stories of the Miami and

147

00:07:13,920 --> 00:07:10,539

Potawatomi people stories of how

148

00:07:16,439 --> 00:07:13,930

dragonfly got his long tail and the

149

00:07:19,110 --> 00:07:16,449

historical accounts of the forced

150

00:07:21,179 --> 00:07:19,120

relocation of the Miami people being

151

00:07:25,279 --> 00:07:21,189

forced to leave their native homes in

152

00:07:27,570 --> 00:07:25,289

Indiana and Ohio and taken down to

153

00:07:32,159 --> 00:07:27,580

Florida where they were forced to work

154

00:07:33,989 --> 00:07:32,169

to build canals the drain swamps so that

155

00:07:35,249 --> 00:07:33,999

cities could be built one of those

156

00:07:36,809 --> 00:07:35,259

cities you might be familiar with

157

00:07:42,239 --> 00:07:36,819

because it still bears the name of the

158

00:07:45,119 --> 00:07:42,249

Miami people now I found as a young

159

00:07:50,850 --> 00:07:45,129

person I was terrified of this heritage

160

00:07:54,179 --> 00:07:50,860

and I hid I hid behind the Italian last

161

00:08:01,409 --> 00:07:54,189

name of my father and it was quite easy

162

00:08:04,379 --> 00:08:01,419

for me and why did I hide well one

163

00:08:07,859 --> 00:08:04,389

reason was the overt racism that you see

164

00:08:10,769 --> 00:08:07,869

in this country it permeates everything

165

00:08:13,649 --> 00:08:10,779

and sometimes it's hard to see if you're

166

00:08:16,259 --> 00:08:13,659

on the outside looking in but I found

167

00:08:19,829 --> 00:08:16,269

myself not wanting to be held up as a

168

00:08:22,619 --> 00:08:19,839

caricature of my true self the

169

00:08:24,629 --> 00:08:22,629

caricature which you probably see around

170

00:08:28,020 --> 00:08:24,639

you even to this day emblazoned on

171

00:08:32,820 --> 00:08:28,030

football helmets with exaggerated face

172

00:08:35,040 --> 00:08:32,830

features and on baseball jerseys there's

173

00:08:38,760 --> 00:08:35,050

also a more subtle form that it takes

174

00:08:40,250 --> 00:08:38,770

and that is the idea that you can be

175

00:08:43,050 --> 00:08:40,260

robbed of even your own personal

176

00:08:45,870 --> 00:08:43,060

accomplishments and I didn't want to

177

00:08:50,340 --> 00:08:45,880

have people say well look at where he is

178

00:08:52,050 --> 00:08:50,350

that's because he's Indian and he must

179

00:08:55,530 --> 00:08:52,060

have had a leg up somewhere along there

180

00:08:58,140 --> 00:08:55,540

and the idea that you can rob someone of

181

00:09:00,420 --> 00:08:58,150

their own accomplishments or sense of

182

00:09:03,810 --> 00:09:00,430

accomplishment is a devastating thing to

183

00:09:06,810 --> 00:09:03,820

someone so I hid until the last year of

184

00:09:09,810 --> 00:09:06,820

graduate school when I had kind of a

185

00:09:12,120 --> 00:09:09,820

cathartic moment and realized how

186

00:09:16,110 --> 00:09:12,130

morally wrong it was to hide because

187

00:09:19,110 --> 00:09:16,120

there's so many people who can't and so

188

00:09:21,660 --> 00:09:19,120

I made a very conscious decision to seek

189

00:09:26,840 --> 00:09:21,670

employment right after my PhD at a

190

00:09:31,430 --> 00:09:26,850

tribal college that's hard and if we can

191

00:09:38,610 --> 00:09:31,440

move forward let's see here

192

00:09:42,300 --> 00:09:38,620

we're oh here we are and it's hard for a

193

00:09:45,060 --> 00:09:42,310

number of reasons to work at a minority

194

00:09:48,420 --> 00:09:45,070

-serving institution which may not have

195

00:09:51,270 --> 00:09:48,430

the resources of a large r1 and where

196

00:09:54,210 --> 00:09:51,280

work with the community and work with

197

00:09:56,790 --> 00:09:54,220

outreach and diversity is valued there's

198

00:09:59,820 --> 00:09:56,800

this misconception that people who do

199

00:10:01,800 --> 00:09:59,830

outreach and diversity efforts are not

200

00:10:05,700 --> 00:10:01,810

good enough to pursue an academic career

201
00:10:07,190 --> 00:10:05,710
and this is something that many of you

202
00:10:09,480 --> 00:10:07,200
probably would shake your head and say

203
00:10:12,450 --> 00:10:09,490
well I know that's not true

204
00:10:13,320 --> 00:10:12,460
but it's something that lingers down

205
00:10:15,660 --> 00:10:13,330
there

206
00:10:18,000 --> 00:10:15,670
in people's minds why did somebody

207
00:10:20,340 --> 00:10:18,010
pursue this and this can actually

208
00:10:22,710 --> 00:10:20,350
negatively reinforced some stereotypes

209
00:10:25,770 --> 00:10:22,720
when somebody who has come through a

210
00:10:28,650 --> 00:10:25,780
path themselves and then decides to help

211
00:10:31,260 --> 00:10:28,660
those behind them finds themselves in

212
00:10:34,140 --> 00:10:31,270
this kind of self-fulfilling prophecy

213
00:10:36,180 --> 00:10:34,150

that their work is not valued as much as

214

00:10:38,940 --> 00:10:36,190

a result of the direction that it's

215

00:10:40,800 --> 00:10:38,950

taken and people see that and there's

216

00:10:41,490 --> 00:10:40,810

also the informal sanctions which are

217

00:10:43,890 --> 00:10:41,500

referred to

218

00:10:46,740 --> 00:10:43,900

as the Sagan effect and I want to

219

00:10:49,560 --> 00:10:46,750

acknowledge the work of Sanjoy some who

220

00:10:52,290 --> 00:10:49,570

I hope is in the audience here at the

221

00:10:55,950 --> 00:10:52,300

last apps icon in Chicago gave a

222

00:11:00,980 --> 00:10:55,960

wonderful presentation at the education

223

00:11:03,500 --> 00:11:00,990

plenary and the Sagan effect of course

224

00:11:06,510 --> 00:11:03,510

Carl Sagan being one of the founders of

225

00:11:08,880 --> 00:11:06,520

astrobiology and with a stellar research

226

00:11:10,530 --> 00:11:08,890

record you would think that he would

227

00:11:14,580 --> 00:11:10,540

have been a shoo-in for the National

228

00:11:17,730 --> 00:11:14,590

Academy but his work in diversity and

229

00:11:20,880 --> 00:11:17,740

outreach kind of worked against that and

230

00:11:28,590 --> 00:11:20,890

so it's something that we can fall prey

231

00:11:31,740 --> 00:11:28,600

to the reality is that scientists who do

232

00:11:33,960 --> 00:11:31,750

engage with the community and with

233

00:11:36,600 --> 00:11:33,970

diversity efforts actually perform

234

00:11:39,270 --> 00:11:36,610

better academically and there's research

235

00:11:42,780 --> 00:11:39,280

that sanjay and others have done into

236

00:11:45,390 --> 00:11:42,790

this that have shown this in fact some

237

00:11:47,910 --> 00:11:45,400

of our most productive scientists and

238

00:11:50,970 --> 00:11:47,920

active scientists actually are doing

239

00:11:54,150 --> 00:11:50,980

much of our stem outreach and so there

240

00:11:57,090 --> 00:11:54,160

is a reason to value what we're doing if

241

00:12:00,120 --> 00:11:57,100

we can overcome this this bias towards

242

00:12:02,930 --> 00:12:00,130

these programs and towards this and I

243

00:12:05,460 --> 00:12:02,940

would argue that if you think that

244

00:12:09,030 --> 00:12:05,470

education and outreach and diversity

245

00:12:11,370 --> 00:12:09,040

programs are fluff try talking about

246

00:12:15,120 --> 00:12:11,380

your research to a roomful of third

247

00:12:17,220 --> 00:12:15,130

graders because if you can't do that you

248

00:12:19,110 --> 00:12:17,230

need to look inward and evaluate whether

249

00:12:22,950 --> 00:12:19,120

you truly understand what it is that

250

00:12:24,860 --> 00:12:22,960

you're doing lastly I want to talk about

251
00:12:27,390 --> 00:12:24,870
some of the challenges that we have with

252
00:12:30,240 --> 00:12:27,400
the students themselves and this is an

253
00:12:32,280 --> 00:12:30,250
emerging trend and it's very prevalent

254
00:12:35,760 --> 00:12:32,290
at Cal State University San Bernardino

255
00:12:37,470 --> 00:12:35,770
where we had a self-study that we did we

256
00:12:41,610 --> 00:12:37,480
found that nine percent of our students

257
00:12:44,550 --> 00:12:41,620
are homeless and that 21 percent of our

258
00:12:46,950 --> 00:12:44,560
students have food insecurity which is

259
00:12:48,690 --> 00:12:46,960
defined as having at least one meal a

260
00:12:50,579 --> 00:12:48,700
day where you don't know where it's

261
00:12:53,400 --> 00:12:50,589
going to come from and that you probably

262
00:12:55,230 --> 00:12:53,410
skip it for that reason and I put some

263
00:12:57,269 --> 00:12:55,240

headlines up here

264

00:12:59,579 --> 00:12:57,279

because this is such a staggering fact

265

00:13:01,740 --> 00:12:59,589

it's almost hard to believe that this

266

00:13:04,949 --> 00:13:01,750

could be going on but it even extends

267

00:13:07,199 --> 00:13:04,959

beyond institutions that are serving

268

00:13:09,750 --> 00:13:07,209

poorer communities dominantly there's

269

00:13:11,820 --> 00:13:09,760

even some larger universities where this

270

00:13:13,380 --> 00:13:11,830

is becoming more of an issue can I see a

271

00:13:16,590 --> 00:13:13,390

show of hands from people who know this

272

00:13:22,019 --> 00:13:16,600

is occurring at their university yeah

273

00:13:25,829 --> 00:13:22,029

and here's the problem try explaining to

274

00:13:30,240 --> 00:13:25,839

a classroom of Native Americans who live

275

00:13:33,840 --> 00:13:30,250

on a reservation in abject poverty why

276

00:13:39,920 --> 00:13:33,850

they should care about astrobiology let

277

00:13:43,860 --> 00:13:39,930

alone study that again that is hard so I

278

00:13:45,449 --> 00:13:43,870

encourage you to listen to the

279

00:13:49,889 --> 00:13:45,459

presentations you're going to be given

280

00:13:52,800 --> 00:13:49,899

by our speakers here and see what you

281

00:13:55,050 --> 00:13:52,810

can gather from their knowledge on the

282

00:13:57,329 --> 00:13:55,060

subject and I'm going to turn it over to

283

00:14:08,340 --> 00:13:57,339

Melissa who will be introducing the

284

00:14:10,769 --> 00:14:08,350

speakers thank you our first speaker

285

00:14:12,780 --> 00:14:10,779

this morning is dr. dr. Richard Pitts

286

00:14:14,639 --> 00:14:12,790

who received his PhD from the University

287

00:14:17,579 --> 00:14:14,649

of Arizona I hope that's okay since

288

00:14:19,829 --> 00:14:17,589

we're so close to ASU but um

289

00:14:21,870 --> 00:14:19,839

he received his degree in sociology and

290

00:14:24,449 --> 00:14:21,880

he's focused his research on religion

291

00:14:26,340 --> 00:14:24,459

education and Social Psychology his

292

00:14:27,990 --> 00:14:26,350

current work is funded by the National

293

00:14:29,579 --> 00:14:28,000

Science Foundation looking at

294

00:14:32,400 --> 00:14:29,589

persistence and attrition from

295

00:14:34,380 --> 00:14:32,410

postdoctoral academic careers let's all

296

00:14:39,450 --> 00:14:34,390

welcome dr. Pitts

297

00:14:41,080 --> 00:14:39,460

[Applause]

298

00:14:44,740 --> 00:14:41,090

thanks Melissa

299

00:14:47,790 --> 00:14:44,750

good morning that's why I don't teach

300

00:14:50,400 --> 00:14:47,800

early morning classes I'd never quite

301
00:14:53,140 --> 00:14:50,410
sure I'm awake

302
00:14:57,280 --> 00:14:53,150
you go ahead and get a sense of when my

303
00:14:59,170 --> 00:14:57,290
time limit isn't um so I'm always

304
00:15:01,570 --> 00:14:59,180
encouraged when I'm talking to a group

305
00:15:04,600 --> 00:15:01,580
with this many people especially at 8:30

306
00:15:06,880 --> 00:15:04,610
in the morning around diversity because

307
00:15:08,950 --> 00:15:06,890
my work in undergraduate and graduate

308
00:15:10,360 --> 00:15:08,960
admissions has taught me that

309
00:15:16,720 --> 00:15:10,370
essentially there are three different

310
00:15:19,600 --> 00:15:16,730
kinds of of people there are especially

311
00:15:21,700 --> 00:15:19,610
faculty there are the color and

312
00:15:24,000 --> 00:15:21,710
sensitives or the people who don't want

313
00:15:27,550 --> 00:15:24,010

you ever bringing up race and diversity

314

00:15:30,610 --> 00:15:27,560

in the sciences they're the color

315

00:15:31,840 --> 00:15:30,620

sensitive the people who are you know

316

00:15:34,090 --> 00:15:31,850

where I always feel like I'm preaching

317

00:15:37,330 --> 00:15:34,100

to the choir because they already get it

318

00:15:39,670 --> 00:15:37,340

they're all signed onto the agenda and

319

00:15:41,940 --> 00:15:39,680

then probably the larger group

320

00:15:46,000 --> 00:15:41,950

ultimately exactly are the colorblind

321

00:15:49,440 --> 00:15:46,010

who for good reasons in lots of ways

322

00:15:52,360 --> 00:15:49,450

would rather you know to be fair and to

323

00:15:55,360 --> 00:15:52,370

sort of spread the wealth and not to be

324

00:15:58,270 --> 00:15:55,370

considered racist tend to avoid thinking

325

00:16:00,550 --> 00:15:58,280

about color they want to do it but they

326

00:16:03,670 --> 00:16:00,560

tend to say I'm colorblind I don't see

327

00:16:06,430 --> 00:16:03,680

color color probably shouldn't matter

328

00:16:09,100 --> 00:16:06,440

and what always I have to remind them is

329

00:16:12,310 --> 00:16:09,110

that colorblind attitudes don't always

330

00:16:14,800 --> 00:16:12,320

lead to color neutral outcomes and so

331

00:16:16,180 --> 00:16:14,810

it's really important for scientists in

332

00:16:18,490 --> 00:16:16,190

particular this is the group that I

333

00:16:20,860 --> 00:16:18,500

always find having I don't have to argue

334

00:16:23,350 --> 00:16:20,870

with sociologists I assure you about

335

00:16:26,980 --> 00:16:23,360

whether or not diversity matters it is

336

00:16:29,110 --> 00:16:26,990

often the natural and life sciences and

337

00:16:31,570 --> 00:16:29,120

the physical scientists who are always

338

00:16:33,400 --> 00:16:31,580

like it shouldn't matter and so I'm

339

00:16:35,770 --> 00:16:33,410

always very encouraged that people show

340

00:16:37,300 --> 00:16:35,780

up for these things in a science context

341

00:16:39,880 --> 00:16:37,310

because it means that somebody other

342

00:16:42,730 --> 00:16:39,890

than the sociologists care about these

343

00:16:46,150 --> 00:16:42,740

issues so I'm going to talk about 10

344

00:16:47,950 --> 00:16:46,160

barriers to diversifying stem as I was

345

00:16:49,390 --> 00:16:47,960

talking to the to the group of us you

346

00:16:51,139 --> 00:16:49,400

know this isn't going to be totally

347

00:16:52,760 --> 00:16:51,149

Pollyanna yes

348

00:16:54,620 --> 00:16:52,770

it's not going to be a whole lot of man

349

00:16:56,150 --> 00:16:54,630

this is easy just get out there and do

350

00:16:58,940 --> 00:16:56,160

it not just slap you on your buttons

351

00:17:03,620 --> 00:16:58,950

send you out to diversify astrobiology

352

00:17:05,720 --> 00:17:03,630

like that's just not how it works and so

353

00:17:07,429 --> 00:17:05,730

I think I'll leave you with more

354

00:17:08,900 --> 00:17:07,439

questions I think than answers but I

355

00:17:12,620 --> 00:17:08,910

hope that at the end of this you'll

356

00:17:15,380 --> 00:17:12,630

learn some things so first let me talk

357

00:17:18,650 --> 00:17:15,390

about sociology's problem so sociology

358

00:17:20,360 --> 00:17:18,660

as a discipline students tend to take

359

00:17:21,919 --> 00:17:20,370

our undergraduate courses and usually

360

00:17:23,809 --> 00:17:21,929

it's their first encounter unlike with

361

00:17:26,569 --> 00:17:23,819

the sides with the natural and physical

362

00:17:28,280 --> 00:17:26,579

sciences sociology the first time they

363

00:17:29,600 --> 00:17:28,290

sort of encounter it is when they come

364

00:17:32,450 --> 00:17:29,610

to college and so they sit in our

365

00:17:35,590 --> 00:17:32,460

classes and they love it because we're

366

00:17:38,150 --> 00:17:35,600

we're doing solving social problems and

367

00:17:40,940 --> 00:17:38,160

unlike economics that other social

368

00:17:42,890 --> 00:17:40,950

science you know in psychology in some

369

00:17:45,620 --> 00:17:42,900

cases we don't quite look like a science

370

00:17:47,630 --> 00:17:45,630

because there's not that much math and

371

00:17:49,310 --> 00:17:47,640

then this other issue around you know we

372

00:17:50,900 --> 00:17:49,320

talk about big things that students care

373

00:17:54,590 --> 00:17:50,910

about and they're like marching about

374

00:17:57,980 --> 00:17:54,600

racism sexism and heterosexism so

375

00:17:59,870 --> 00:17:57,990

students love being sociologists while

376

00:18:01,310 --> 00:17:59,880

they're in undergrad and then they say

377

00:18:03,410 --> 00:18:01,320

oh I think I'm going to get a PhD in

378

00:18:05,270 --> 00:18:03,420

that that sounds really cool and then

379

00:18:07,220 --> 00:18:05,280

something happens when they encounter us

380

00:18:08,660 --> 00:18:07,230

the same need that they had as an

381

00:18:10,610 --> 00:18:08,670

undergrad they encounter me as a

382

00:18:13,970 --> 00:18:10,620

graduate faculty member and they're like

383

00:18:16,130 --> 00:18:13,980

so you dude right and so one of the

384

00:18:19,040 --> 00:18:16,140

things that I often have to put in my

385

00:18:20,720 --> 00:18:19,050

letters for graduate students our

386

00:18:22,130 --> 00:18:20,730

prospective graduate students is a

387

00:18:23,720 --> 00:18:22,140

statement like this one of the

388

00:18:25,340 --> 00:18:23,730

tendencies that I've seen in both

389

00:18:27,740 --> 00:18:25,350

undergraduate and graduate sociology

390

00:18:30,140 --> 00:18:27,750

students is is sometimes alarming streak

391

00:18:31,580 --> 00:18:30,150

of do-gooder ISM that as many students

392

00:18:33,710 --> 00:18:31,590

enter this discipline because they want

393

00:18:35,900 --> 00:18:33,720

to change people's lives or eliminate

394

00:18:37,610 --> 00:18:35,910

all equality in the world and so they

395

00:18:40,180 --> 00:18:37,620

encounter they come to graduate school

396

00:18:43,160 --> 00:18:40,190

and promising students drop out of our

397

00:18:44,840 --> 00:18:43,170

programs pursue world-changing options

398

00:18:47,090 --> 00:18:44,850

outside of the Academy so I always have

399

00:18:51,169 --> 00:18:47,100

to then tell people like me who are

400

00:18:53,150 --> 00:18:51,179

admitting students we've all taught that

401
00:18:54,440 --> 00:18:53,160
while Karla in this case holds some of

402
00:18:56,390 --> 00:18:54,450
these values I'm quite convinced that

403
00:18:57,830 --> 00:18:56,400
she plans to fulfill them in her

404
00:19:00,110 --> 00:18:57,840
scholarship and her teaching and

405
00:19:02,060 --> 00:19:00,120
actually pursue what we are training her

406
00:19:04,070 --> 00:19:02,070
to do ultimately which is to be an

407
00:19:06,110 --> 00:19:04,080
academic scientist

408
00:19:08,210 --> 00:19:06,120
cannot drop out and say especially the

409
00:19:10,100 --> 00:19:08,220
Masters often and say I don't want to do

410
00:19:12,560 --> 00:19:10,110
this because this isn't quite what I

411
00:19:15,050 --> 00:19:12,570
thought science this particular science

412
00:19:17,060 --> 00:19:15,060
was and so what I find again and again

413
00:19:19,970 --> 00:19:17,070

is that what we do is a great job of

414

00:19:23,090 --> 00:19:19,980

teaching young people to love sociology

415

00:19:24,500 --> 00:19:23,100

the science but we don't ever really do

416

00:19:27,500 --> 00:19:24,510

much of a good job of teaching them to

417

00:19:29,510 --> 00:19:27,510

love being an academic professional

418

00:19:32,240 --> 00:19:29,520

scientist and so I want to talk about

419

00:19:34,190 --> 00:19:32,250

that by thinking about whether or not

420

00:19:37,460 --> 00:19:34,200

astrobiology has some of the same

421

00:19:39,200 --> 00:19:37,470

problems so in terms of numbers You

422

00:19:41,990 --> 00:19:39,210

certainly have a problem at reading

423

00:19:44,840 --> 00:19:42,000

Holbrook says of ninety of nearly 600

424

00:19:47,120 --> 00:19:44,850

faculty at the top-40 Act I'm so not

425

00:19:50,690 --> 00:19:47,130

used to having it was like Church having

426
00:19:53,060 --> 00:19:50,700
the PowerPoint being there of nearly 600

427
00:19:55,430 --> 00:19:53,070
faculty at the top 40 Astro programs 42

428
00:19:59,120 --> 00:19:55,440
or asian pacific-islander 7 or hispanic

429
00:20:01,250 --> 00:19:59,130
latino 6 or black it's pretty bad for

430
00:20:03,200 --> 00:20:01,260
discipline and this isn't like Astro

431
00:20:04,760 --> 00:20:03,210
biology which is interdisciplinary which

432
00:20:08,720 --> 00:20:04,770
should sort of expand this is just

433
00:20:11,660 --> 00:20:08,730
astronomy and physics so we think oh but

434
00:20:14,030 --> 00:20:11,670
but what we're doing is we get students

435
00:20:15,920 --> 00:20:14,040
really excited about science by showing

436
00:20:18,830 --> 00:20:15,930
them some really cool black and brown

437
00:20:24,580 --> 00:20:18,840
scientists right you know we list them

438
00:20:27,590 --> 00:20:24,590

up there usually astronomers and

439

00:20:28,910 --> 00:20:27,600

astronauts but at the end of the day

440

00:20:30,590 --> 00:20:28,920

it's really hard to then turn one

441

00:20:31,760 --> 00:20:30,600

astrobiology because even these people

442

00:20:34,640 --> 00:20:31,770

don't walk around and introduce

443

00:20:37,570 --> 00:20:34,650

themselves astrobiologists you know they

444

00:20:41,260 --> 00:20:37,580

introduce themselves as astronomers and

445

00:20:47,810 --> 00:20:41,270

physicists and what's that other thing

446

00:20:49,880 --> 00:20:47,820

astronauts so so so I think all in some

447

00:20:52,600 --> 00:20:49,890

ways what kind of problem that I think

448

00:20:55,250 --> 00:20:52,610

we have in sociology where people

449

00:20:56,870 --> 00:20:55,260

encounter people like us all the time

450

00:21:00,140 --> 00:20:56,880

right they take our classes but they

451
00:21:01,880 --> 00:21:00,150
have no idea what in the world we do in

452
00:21:04,250 --> 00:21:01,890
the real life it's that sort of the

453
00:21:06,470 --> 00:21:04,260
magic tricks of science right and then

454
00:21:08,630 --> 00:21:06,480
they encounter trying to be and follow

455
00:21:10,460 --> 00:21:08,640
us as professional scientists and they

456
00:21:13,400 --> 00:21:10,470
say oh I don't think that's what I

457
00:21:16,160 --> 00:21:13,410
thought this was so what I want to talk

458
00:21:17,470 --> 00:21:16,170
about is essentially how we do a good

459
00:21:19,840 --> 00:21:17,480
job of developing science I'd

460
00:21:21,909 --> 00:21:19,850
any and then talk a little bit about how

461
00:21:23,919 --> 00:21:21,919
it is that we undo or don't fully

462
00:21:25,810 --> 00:21:23,929
develop in student students what I think

463
00:21:27,880 --> 00:21:25,820

is more important at the end of the day

464

00:21:29,380 --> 00:21:27,890

and that is a professional identity as a

465

00:21:31,600 --> 00:21:29,390

scientist and not just an academic

466

00:21:35,380 --> 00:21:31,610

identity as a scientist so I want to

467

00:21:36,760 --> 00:21:35,390

talk really briefly about identity how

468

00:21:40,180 --> 00:21:36,770

you get an identity so we'll talk about

469

00:21:42,190 --> 00:21:40,190

science identity so so when we think

470

00:21:43,299 --> 00:21:42,200

about how you have an identity like who

471

00:21:45,730 --> 00:21:43,309

you are

472

00:21:47,169 --> 00:21:45,740

there are different parts of it that I

473

00:21:48,970 --> 00:21:47,179

as a social psychologist and a

474

00:21:50,740 --> 00:21:48,980

sociologist tend to think about and so

475

00:21:52,480 --> 00:21:50,750

they're listed here one is identity

476

00:21:54,610 --> 00:21:52,490

prominence one is identity salient so

477

00:21:56,169 --> 00:21:54,620

identity prominence is this thing like

478

00:21:58,510 --> 00:21:56,179

where you walk around in the social

479

00:22:00,280 --> 00:21:58,520

world and this is an identity that you

480

00:22:03,370 --> 00:22:00,290

have that is really like when you think

481

00:22:05,669 --> 00:22:03,380

of Who I am this is an identity that you

482

00:22:07,750 --> 00:22:05,679

think is who you are so for me certainly

483

00:22:09,940 --> 00:22:07,760

sociologists is one of those identities

484

00:22:14,320 --> 00:22:09,950

but it's also this interesting dynamic

485

00:22:16,600 --> 00:22:14,330

around in our survey we ask when you

486

00:22:18,549 --> 00:22:16,610

introduce yourself to a new person what

487

00:22:20,799 --> 00:22:18,559

kinds of things do you say when you say

488

00:22:22,960 --> 00:22:20,809

hi my name is Richard Pitts and I am

489

00:22:25,690 --> 00:22:22,970

right the kind of things I think for

490

00:22:28,870 --> 00:22:25,700

people in my generation as old people we

491

00:22:31,390 --> 00:22:28,880

put in our match.com profile and you

492

00:22:36,600 --> 00:22:31,400

young people put in your your what he

493

00:22:39,220 --> 00:22:36,610

call them I don't even use them tinder

494

00:22:40,600 --> 00:22:39,230

profile right the kinds of things that

495

00:22:42,220 --> 00:22:40,610

you think is important for somebody else

496

00:22:44,110 --> 00:22:42,230

to know that is enough there's a

497

00:22:46,390 --> 00:22:44,120

prominent identity for you the other

498

00:22:48,070 --> 00:22:46,400

thing is this idea of identity salience

499

00:22:49,539 --> 00:22:48,080

where that's an identity and again it's

500

00:22:51,640 --> 00:22:49,549

a component of identity where the

501
00:22:53,680 --> 00:22:51,650
identity is so strong that when a new

502
00:22:55,570 --> 00:22:53,690
situation are in doing decision is the

503
00:22:58,090 --> 00:22:55,580
way I like to think about it comes into

504
00:23:00,130 --> 00:22:58,100
play which of your identities is the one

505
00:23:03,669 --> 00:23:00,140
that actually is making that decision

506
00:23:05,650 --> 00:23:03,679
right so for me when I'm walking to the

507
00:23:07,360 --> 00:23:05,660
mall when I started at Vanderbilt I used

508
00:23:08,350 --> 00:23:07,370
to go to the mall very casually and not

509
00:23:11,080 --> 00:23:08,360
have to worry about it

510
00:23:13,000 --> 00:23:11,090
because I was just new guy in Nashville

511
00:23:15,310 --> 00:23:13,010
but after teaching there for many years

512
00:23:17,440 --> 00:23:15,320
now I'm professor Pitt so I can't go to

513
00:23:18,580 --> 00:23:17,450

the mall anymore because students are

514

00:23:19,840 --> 00:23:18,590

like what are you doing here at the mall

515

00:23:21,340 --> 00:23:19,850

I can't go to the clubs anymore what are

516

00:23:23,110 --> 00:23:21,350

you doing here at the club I can't be on

517

00:23:24,890 --> 00:23:23,120

one tender anymore dr. Pitts what are

518

00:23:28,500 --> 00:23:24,900

you doing on gender

519

00:23:30,630 --> 00:23:28,510

right and so this identity has grown in

520

00:23:33,690 --> 00:23:30,640

me over time to the point that it

521

00:23:36,150 --> 00:23:33,700

determines my decision-making right in

522

00:23:38,040 --> 00:23:36,160

ways that aren't even you know at the

523

00:23:40,260 --> 00:23:38,050

sort of front of my mind sometimes it is

524

00:23:42,140 --> 00:23:40,270

unconscious and so how do you get these

525

00:23:44,580 --> 00:23:42,150

identities how do you get this identity

526

00:23:46,290 --> 00:23:44,590

prominence and say Lance it's affected

527

00:23:48,630 --> 00:23:46,300

by role commitment so it's affected by

528

00:23:50,610 --> 00:23:48,640

the number of people who you know you as

529

00:23:52,950 --> 00:23:50,620

a holder of that identity and treats you

530

00:23:56,040 --> 00:23:52,960

as a holder of that identity and then

531

00:23:58,410 --> 00:23:56,050

also your own sense of belonging to the

532

00:24:00,450 --> 00:23:58,420

group of people who hold that identity

533

00:24:03,510 --> 00:24:00,460

right so another question that we ask in

534

00:24:05,850 --> 00:24:03,520

our surveys is if you could not hang out

535

00:24:08,850 --> 00:24:05,860

with other sociologists or you could not

536

00:24:09,930 --> 00:24:08,860

hang out with other bio astrobiologists

537

00:24:13,140 --> 00:24:09,940

would you be sad

538

00:24:15,630 --> 00:24:13,150

when you leave and when you leave the

539

00:24:18,150 --> 00:24:15,640

conference the apps icon conference do

540

00:24:20,400 --> 00:24:18,160

you feel just a little empty when you

541

00:24:22,260 --> 00:24:20,410

get back on that bus and go back to your

542

00:24:23,190 --> 00:24:22,270

campuses or your regular jobs right

543

00:24:25,500 --> 00:24:23,200

because then what we're trying to

544

00:24:27,090 --> 00:24:25,510

understand is how many people interact

545

00:24:29,340 --> 00:24:27,100

with you as a holder of that identity

546

00:24:31,020 --> 00:24:29,350

and therefore you come becomes more

547

00:24:33,960 --> 00:24:31,030

salient becomes more prominent and then

548

00:24:36,230 --> 00:24:33,970

how attached are you to that identity

549

00:24:38,610 --> 00:24:36,240

and if you ER if it's both prominent and

550

00:24:40,560 --> 00:24:38,620

salient what we argue is that you were

551
00:24:43,530 --> 00:24:40,570
going to seek opportunities to actually

552
00:24:45,090 --> 00:24:43,540
perform that identity and an important

553
00:24:47,310 --> 00:24:45,100
one of those ways of performing that

554
00:24:50,010 --> 00:24:47,320
identity is performing it professionally

555
00:24:52,020 --> 00:24:50,020
right so if it's something inside so

556
00:24:54,360 --> 00:24:52,030
strong it is an identity that is so

557
00:24:56,550 --> 00:24:54,370
strong in you what we argue is that you

558
00:24:58,860 --> 00:24:56,560
will seek out opportunities to be an

559
00:25:01,860 --> 00:24:58,870
astrobiologist to operate as an

560
00:25:03,660 --> 00:25:01,870
astrobiologist to do astrobiology and

561
00:25:06,210 --> 00:25:03,670
probably the best way to do that is to

562
00:25:06,990 --> 00:25:06,220
have to do it eight hours a week eight

563
00:25:11,730 --> 00:25:07,000

hours a day

564

00:25:15,510 --> 00:25:11,740

who does eight hours a week that hours a

565

00:25:17,430 --> 00:25:15,520

day as a professional scientist and so

566

00:25:19,860 --> 00:25:17,440

what's great about stem programming the

567

00:25:21,000 --> 00:25:19,870

McNair program and so come and other

568

00:25:23,670 --> 00:25:21,010

things student organizations the

569

00:25:25,410 --> 00:25:23,680

students do and having high schools of

570

00:25:27,510 --> 00:25:25,420

science and that kind of thing is that

571

00:25:29,940 --> 00:25:27,520

it does a great job at the early stages

572

00:25:32,430 --> 00:25:29,950

of inculcating in people young people

573

00:25:34,080 --> 00:25:32,440

black and brown people women some

574

00:25:36,120 --> 00:25:34,090

competence and self-efficacy as a

575

00:25:38,010 --> 00:25:36,130

scientist but they're also interacting

576

00:25:40,080 --> 00:25:38,020

with people who are like hey you're

577

00:25:42,090 --> 00:25:40,090

our scientists I'm a scientist let's all

578

00:25:45,540 --> 00:25:42,100

do science together so at the end of the

579

00:25:47,610 --> 00:25:45,550

time at the end of going to M sub for

580

00:25:50,010 --> 00:25:47,620

example in Illinois people like I can't

581

00:25:51,870 --> 00:25:50,020

imagine to anything but going to

582

00:25:53,580 --> 00:25:51,880

undergrad and being a scientist and then

583

00:25:55,920 --> 00:25:53,590

we have to be a science major where

584

00:25:58,860 --> 00:25:55,930

you're always around scientists I can't

585

00:26:00,810 --> 00:25:58,870

imagine doing anything but being going a

586

00:26:03,510 --> 00:26:00,820

ph.d program to be a scientist at the

587

00:26:05,460 --> 00:26:03,520

end of those four years and so certainly

588

00:26:07,260 --> 00:26:05,470

stem programming certainly stem

589

00:26:08,700 --> 00:26:07,270

programming does the kinds of things

590

00:26:11,760 --> 00:26:08,710

that a person like me that's concerned

591

00:26:14,280 --> 00:26:11,770

about how a science identity blossoms in

592

00:26:16,200 --> 00:26:14,290

a person stem programming at all these

593

00:26:18,870 --> 00:26:16,210

levels does a great job of doing that

594

00:26:21,600 --> 00:26:18,880

it increases prominence and makes these

595

00:26:24,150 --> 00:26:21,610

identities besides identity more salient

596

00:26:26,400 --> 00:26:24,160

okay so that's great

597

00:26:29,070 --> 00:26:26,410

oh man dr. Ted you seem to have solve

598

00:26:31,200 --> 00:26:29,080

the problem more science programming at

599

00:26:34,200 --> 00:26:31,210

the high school level in the college

600

00:26:37,560 --> 00:26:34,210

level but we have a problem and that is

601
00:26:39,720 --> 00:26:37,570
that people don't people don't just

602
00:26:41,820 --> 00:26:39,730
encounter once they start graduate

603
00:26:43,680 --> 00:26:41,830
school as I said students come to

604
00:26:45,900 --> 00:26:43,690
Vanderbilt and they say oh man I love

605
00:26:47,730 --> 00:26:45,910
all this sociology but then they

606
00:26:49,740 --> 00:26:47,740
encounter me and say now you have to

607
00:26:51,750 --> 00:26:49,750
take our two semesters stat sequence and

608
00:26:53,880 --> 00:26:51,760
then we spend weeks and weeks and weeks

609
00:26:56,190 --> 00:26:53,890
where we show them research that only

610
00:26:57,630 --> 00:26:56,200
has an r-square to point to and the

611
00:26:59,340 --> 00:26:57,640
students are like oh that's not

612
00:27:02,160 --> 00:26:59,350
explaining anything we don't go to solve

613
00:27:04,170 --> 00:27:02,170

anything using that model one of our

614

00:27:06,030 --> 00:27:04,180

students in every single whatever our

615

00:27:08,010 --> 00:27:06,040

model I put in front of her she's always

616

00:27:09,750 --> 00:27:08,020

like that model is flawed in all these

617

00:27:11,520 --> 00:27:09,760

ways because it's heterosexist and it's

618

00:27:13,140 --> 00:27:11,530

racist and it's not feminist and a whole

619

00:27:14,610 --> 00:27:13,150

kind of thing is just a flawed model and

620

00:27:17,010 --> 00:27:14,620

then we're like okay I guess there's not

621

00:27:18,810 --> 00:27:17,020

a whole lot that we can learn here and

622

00:27:19,740 --> 00:27:18,820

so that's one of the things that happens

623

00:27:22,430 --> 00:27:19,750

so when we're thinking about what the

624

00:27:25,980 --> 00:27:22,440

barrier is one of the barriers is

625

00:27:28,860 --> 00:27:25,990

students encountering us as professors

626
00:27:31,740 --> 00:27:28,870
when they're getting their PhDs in our

627
00:27:33,360 --> 00:27:31,750
disciplines they love science until they

628
00:27:35,340 --> 00:27:33,370
are graduate students in science and

629
00:27:36,840 --> 00:27:35,350
they say things like this I really enjoy

630
00:27:38,670 --> 00:27:36,850
taking care of and interacting with

631
00:27:40,470 --> 00:27:38,680
people join basic science doesn't give

632
00:27:42,900 --> 00:27:40,480
me that like I hoped maybe I'll get a

633
00:27:45,240 --> 00:27:42,910
career in Amethi geology which led me

634
00:27:46,740 --> 00:27:45,250
into science at the first place or I've

635
00:27:49,350 --> 00:27:46,750
been doing research since I was a

636
00:27:51,990 --> 00:27:49,360
sophomore and my p.i who is my role

637
00:27:53,670 --> 00:27:52,000
model seems to love Reese

638
00:27:55,880 --> 00:27:53,680

keeps getting her funding request denied

639

00:27:58,380 --> 00:27:55,890

the science is solid they still say no

640

00:28:00,960 --> 00:27:58,390

watching that process is disillusioning

641

00:28:02,970 --> 00:28:00,970

or there's the intersection of the

642

00:28:04,830 --> 00:28:02,980

science identity with other important

643

00:28:06,360 --> 00:28:04,840

identities to people that they develop

644

00:28:08,610 --> 00:28:06,370

not when they're freshmen in college

645

00:28:10,950 --> 00:28:08,620

they develop as grown-ups when they come

646

00:28:12,570 --> 00:28:10,960

to us in graduate school my life changed

647

00:28:15,230 --> 00:28:12,580

I'm now married and had a child recently

648

00:28:17,490 --> 00:28:15,240

and I see the advisors often female

649

00:28:19,770 --> 00:28:17,500

advisors I've had whose family lies a

650

00:28:21,150 --> 00:28:19,780

below average and don't want that I know

651

00:28:22,710 --> 00:28:21,160

I can do something else and be

652

00:28:24,930 --> 00:28:22,720

intellectually challenged without

653

00:28:27,720 --> 00:28:24,940

working constantly and still lacking job

654

00:28:29,670 --> 00:28:27,730

security so at the end of the day the

655

00:28:31,290 --> 00:28:29,680

barrier I argue is that we teach

656

00:28:33,690 --> 00:28:31,300

students to love doing science

657

00:28:35,190 --> 00:28:33,700

especially at the high school the k-12

658

00:28:37,680 --> 00:28:35,200

level and high in the college level

659

00:28:39,540 --> 00:28:37,690

undergrad level but we don't do a whole

660

00:28:40,770 --> 00:28:39,550

lot in terms of teaching them to love

661

00:28:43,170 --> 00:28:40,780

the idea of being a professional

662

00:28:45,030 --> 00:28:43,180

scientist and I would argue they have

663

00:28:46,380 --> 00:28:45,040

fantasies about what we do as

664

00:28:48,120 --> 00:28:46,390

professional scientists because they see

665

00:28:50,670 --> 00:28:48,130

us being brilliant and smart and funny

666

00:28:51,960 --> 00:28:50,680

in the classroom twice a week but they

667

00:28:54,200 --> 00:28:51,970

don't see what happens when I'm sitting

668

00:28:56,610 --> 00:28:54,210

in my office the other six hours a day

669

00:28:58,140 --> 00:28:56,620

right until they become graduate

670

00:29:00,990 --> 00:28:58,150

students and they're also sitting in my

671

00:29:03,900 --> 00:29:01,000

office with me six hours a day right and

672

00:29:05,880 --> 00:29:03,910

so and so I have sort of three questions

673

00:29:07,500 --> 00:29:05,890

that I'm trying to think through as a

674

00:29:10,890 --> 00:29:07,510

scientist as a social scientist trying

675

00:29:12,360 --> 00:29:10,900

to understand what actually hinders the

676
00:29:14,010 --> 00:29:12,370
development of professional science

677
00:29:16,290 --> 00:29:14,020
identity and I think it's a problem for

678
00:29:19,710 --> 00:29:16,300
sociologists is a problem for

679
00:29:21,920 --> 00:29:19,720
astronomist astronomers force it

680
00:29:27,150 --> 00:29:21,930
physicists I always want to say

681
00:29:28,790 --> 00:29:27,160
physicians and for astrobiologists as

682
00:29:31,230 --> 00:29:28,800
well and there are these three things a

683
00:29:33,960 --> 00:29:31,240
academic professional culture this is a

684
00:29:36,180 --> 00:29:33,970
hard question what do we FAC aliy model

685
00:29:38,820 --> 00:29:36,190
about further training requirements work

686
00:29:40,440 --> 00:29:38,830
tasks occupational prestige funding

687
00:29:42,120 --> 00:29:40,450
opportunities and job satisfaction

688
00:29:44,670 --> 00:29:42,130

things that students don't encounter

689

00:29:47,130 --> 00:29:44,680

before graduate school often that may

690

00:29:49,080 --> 00:29:47,140

make academic careers unappealing it

691

00:29:51,840 --> 00:29:49,090

could be that the reason why we can't

692

00:29:56,370 --> 00:29:51,850

diversify astrobiology is because people

693

00:29:58,710 --> 00:29:56,380

have too much proximity to us right

694

00:30:00,870 --> 00:29:58,720

social relationships is it enough to

695

00:30:03,690 --> 00:30:00,880

have similar student peers like you have

696

00:30:05,940 --> 00:30:03,700

often an undergrad or again in STEM

697

00:30:07,710 --> 00:30:05,950

charter schools but few similar

698

00:30:09,810 --> 00:30:07,720

people who look like you professional

699

00:30:12,500 --> 00:30:09,820

family role models laboratory and thesis

700

00:30:14,970 --> 00:30:12,510

advisors and postdoctoral mentors is

701
00:30:17,039 --> 00:30:14,980
trying to train students at places where

702
00:30:18,480 --> 00:30:17,049
the people aren't writing grants trying

703
00:30:20,610 --> 00:30:18,490
to train people where people don't have

704
00:30:22,529 --> 00:30:20,620
an entrepreneurial research Enterprise

705
00:30:24,509 --> 00:30:22,539
because they mainly teach science are

706
00:30:27,509 --> 00:30:24,519
those the best places for us to be

707
00:30:29,360 --> 00:30:27,519
growing the science identity and people

708
00:30:32,940 --> 00:30:29,370
who ultimately we want to be like us

709
00:30:34,919 --> 00:30:32,950
often at our ones etc it's sort of doing

710
00:30:36,659 --> 00:30:34,929
pure science where the resources wind up

711
00:30:39,120 --> 00:30:36,669
enable them to do that and then thirdly

712
00:30:41,039 --> 00:30:39,130
really this idea of intersectionality

713
00:30:42,840 --> 00:30:41,049

and that is do other important social

714

00:30:45,210 --> 00:30:42,850

identities that we just sort of say why

715

00:30:47,129 --> 00:30:45,220

that shouldn't matter but we really need

716

00:30:48,720 --> 00:30:47,139

to consider the intersections in the

717

00:30:51,330 --> 00:30:48,730

relationship of this in actually

718

00:30:53,220 --> 00:30:51,340

hindering science identity professional

719

00:30:54,779 --> 00:30:53,230

science identity development is do other

720

00:30:57,389 --> 00:30:54,789

important social identities racial

721

00:30:59,430 --> 00:30:57,399

identity religious identity is often a

722

00:31:01,649 --> 00:30:59,440

big issue for people wanting to be

723

00:31:03,600 --> 00:31:01,659

scientists particularly scientists that

724

00:31:05,700 --> 00:31:03,610

would argue that there might be life

725

00:31:08,490 --> 00:31:05,710

somewhere else that God had the audacity

726
00:31:10,470 --> 00:31:08,500
to not tell us he put their social

727
00:31:11,940 --> 00:31:10,480
economic and familial identities that

728
00:31:14,370 --> 00:31:11,950
interact with science identity in ways

729
00:31:16,080 --> 00:31:14,380
that decrease the kind of commitment

730
00:31:18,180 --> 00:31:16,090
that I talked about to this identity and

731
00:31:20,460 --> 00:31:18,190
therefore are others more prominent and

732
00:31:22,799 --> 00:31:20,470
do they become more prominent as people

733
00:31:25,950 --> 00:31:22,809
develop in other ways that actually

734
00:31:27,750 --> 00:31:25,960
serve as a as a hindrance ultimately to

735
00:31:29,220 --> 00:31:27,760
the development of the science identity

736
00:31:32,129 --> 00:31:29,230
in terms of wanting to be a professional

737
00:31:33,720 --> 00:31:32,139
scientist and so again no answers

738
00:31:35,100 --> 00:31:33,730

necessarily but certainly I've sort of

739

00:31:37,110 --> 00:31:35,110

given you some tools and some things to

740

00:31:39,509 --> 00:31:37,120

sort of think about ways to sort of

741

00:31:41,220 --> 00:31:39,519

think about the challenge of this and

742

00:31:42,480 --> 00:31:41,230

then hopefully my colleagues will will

743

00:31:44,430 --> 00:31:42,490

tell you all the good stuff which

744

00:31:47,700 --> 00:31:44,440

they're not they they we're all in the

745

00:31:49,919 --> 00:31:47,710

same campus is hard to think about how

746

00:31:58,740 --> 00:31:49,929

we can do this and not not just how we

747

00:32:04,660 --> 00:32:01,770

Thank You Richard that was great

748

00:32:07,090 --> 00:32:04,670

okay our next speaker is dr. Gerhard

749

00:32:09,100 --> 00:32:07,100

Stoddard who is a sociologist of science

750

00:32:10,450 --> 00:32:09,110

at the science education department of

751
00:32:13,030 --> 00:32:10,460
the harvard-smithsonian Center for

752
00:32:15,040 --> 00:32:13,040
Astrophysics and an associate of the

753
00:32:16,840 --> 00:32:15,050
Harvard physics department he's

754
00:32:18,640 --> 00:32:16,850
conducted several large empirical

755
00:32:21,130 --> 00:32:18,650
studies on gender aspects of STEM

756
00:32:34,360 --> 00:32:21,140
careers and on STEM education

757
00:32:38,950 --> 00:32:34,370
welcome Gerhard well good morning

758
00:32:41,740 --> 00:32:38,960
everyone I'm absolutely delighted to be

759
00:32:43,810 --> 00:32:41,750
at this Astro biology conference I

760
00:32:47,890 --> 00:32:43,820
appreciate the invitation I'm a

761
00:32:50,770 --> 00:32:47,900
sociologist of science and sociologists

762
00:32:58,000 --> 00:32:50,780
of science have been studying the

763
00:33:01,390 --> 00:32:58,010

development of specialties in science

764

00:33:04,780 --> 00:33:01,400

extensively so that's kind of what we do

765

00:33:08,710 --> 00:33:04,790

and it might be interesting for members

766

00:33:11,350 --> 00:33:08,720

of this specialty who I know are very

767

00:33:15,550 --> 00:33:11,360

much focused on the origins of life in

768

00:33:16,990 --> 00:33:15,560

its development to look at the origins

769

00:33:21,820 --> 00:33:17,000

and the development of your own

770

00:33:24,100 --> 00:33:21,830

discipline there are a few stages of

771

00:33:26,520 --> 00:33:24,110

institutionalization that sub

772

00:33:27,750 --> 00:33:26,530

specialties and specialists go through

773

00:33:30,430 --> 00:33:27,760

predictably

774

00:33:33,460 --> 00:33:30,440

there are some milestones that I put on

775

00:33:36,760 --> 00:33:33,470

the on the overhead like conferences

776

00:33:39,610 --> 00:33:36,770

this is one of them associations you

777

00:33:44,050 --> 00:33:39,620

have one journals you have them already

778

00:33:46,920 --> 00:33:44,060

so these are things that are about the

779

00:33:49,920 --> 00:33:46,930

organization of communication and

780

00:33:53,890 --> 00:33:49,930

subspecialties organize different

781

00:33:56,200 --> 00:33:53,900

boundaries around communication and and

782

00:33:58,930 --> 00:33:56,210

these are the institutional vehicles by

783

00:34:02,650 --> 00:33:58,940

which you accomplish that and you have

784

00:34:05,800 --> 00:34:02,660

done so the other things are kind of in

785

00:34:08,169 --> 00:34:05,810

the future of this field that probably

786

00:34:11,639 --> 00:34:08,179

don't exist so much if they exist at all

787

00:34:15,879 --> 00:34:11,649

all like getting a degree in

788

00:34:18,639 --> 00:34:15,889

astrobiology or finally having a

789

00:34:21,970 --> 00:34:18,649

department of astrobiology at some

790

00:34:24,129 --> 00:34:21,980

University and once once that has been

791

00:34:26,710 --> 00:34:24,139

achieved then you have arrived so then

792

00:34:29,470 --> 00:34:26,720

then you know no longer a little growing

793

00:34:34,419 --> 00:34:29,480

specialty but yeah you're a grown

794

00:34:39,789 --> 00:34:34,429

specialty so so what what does that mean

795

00:34:42,519 --> 00:34:39,799

how does a subspecialty develop and the

796

00:34:45,639 --> 00:34:42,529

interesting thing is that we hardly ever

797

00:34:50,169 --> 00:34:45,649

find a subspecialty developing the

798

00:34:53,649 --> 00:34:50,179

linear form there is typically a phase

799

00:34:56,409 --> 00:34:53,659

of rapid growth the development of

800

00:34:59,170 --> 00:34:56,419

specialties goes in a logistic curve

801
00:35:01,960 --> 00:34:59,180
there's a slow beginning then there's

802
00:35:05,279 --> 00:35:01,970
this critical phase of rapid growth and

803
00:35:10,269 --> 00:35:05,289
then it kind of levels out again and

804
00:35:13,630 --> 00:35:10,279
what what I think you are at is this

805
00:35:17,440 --> 00:35:13,640
critical phase of rapid growth and this

806
00:35:22,329 --> 00:35:17,450
is important this is the time you will

807
00:35:25,390 --> 00:35:22,339
remember well because a lot of switches

808
00:35:28,029 --> 00:35:25,400
have to be thrown now that will affect

809
00:35:30,490 --> 00:35:28,039
what's going to happen later on so

810
00:35:33,579 --> 00:35:30,500
choices have to be made and you have to

811
00:35:35,829 --> 00:35:33,589
be very careful about how to make these

812
00:35:41,829 --> 00:35:35,839
choices also in relationship to a

813
00:35:44,680 --> 00:35:41,839

diversity integration and so on this is

814

00:35:47,049 --> 00:35:44,690

another thing that sociologists pay more

815

00:35:49,539 --> 00:35:47,059

attention to then maybe scientists or

816

00:35:51,309 --> 00:35:49,549

people in that specialty and that's the

817

00:35:55,420 --> 00:35:51,319

distinction between cognitive leaders

818

00:35:59,170 --> 00:35:55,430

and organizational innovators often this

819

00:36:02,260 --> 00:35:59,180

goes hand in hand especially as a new

820

00:36:05,289 --> 00:36:02,270

sub special to develop so it's just one

821

00:36:08,200 --> 00:36:05,299

person that both make scientific

822

00:36:10,599 --> 00:36:08,210

contributions and and kind of tries to

823

00:36:11,710 --> 00:36:10,609

to hoard the colleagues the few

824

00:36:15,430 --> 00:36:11,720

colleagues that do the same thing

825

00:36:17,920 --> 00:36:15,440

together but as you grow there might

826

00:36:21,120 --> 00:36:17,930

these two functions might come apart and

827

00:36:25,200 --> 00:36:21,130

and my advice to you is

828

00:36:27,150 --> 00:36:25,210

value the organizational innovators this

829

00:36:29,460 --> 00:36:27,160

is not what's usually done I mean the

830

00:36:33,180 --> 00:36:29,470

the currency the the coin of the realm

831

00:36:35,220 --> 00:36:33,190

is is information is knowledge so so the

832

00:36:37,920 --> 00:36:35,230

cognitive leaders are the ones that

833

00:36:39,930 --> 00:36:37,930

everybody looks up to but there's this

834

00:36:43,830 --> 00:36:39,940

critical function of getting you

835

00:36:46,500 --> 00:36:43,840

organized which somebody has to do and

836

00:36:54,330 --> 00:36:46,510

these people should be appreciated for

837

00:36:59,010 --> 00:36:54,340

doing it so now this is a I've

838

00:37:01,740 --> 00:36:59,020

specialized on women but in science but

839

00:37:04,860 --> 00:37:01,750

I'm trying to say this about both women

840

00:37:07,800 --> 00:37:04,870

and underrepresented minorities which to

841

00:37:11,990 --> 00:37:07,810

some extent are similar to other extent

842

00:37:14,370 --> 00:37:12,000

to uh some other extent are different so

843

00:37:17,100 --> 00:37:14,380

first I want to talk about blatant

844

00:37:20,940 --> 00:37:17,110

obstacles everybody knows about them

845

00:37:24,720 --> 00:37:20,950

discrimination harassment we wish that

846

00:37:27,290 --> 00:37:24,730

did not exist anymore but it does people

847

00:37:30,290 --> 00:37:27,300

who are from the Astronomy community

848

00:37:33,120 --> 00:37:30,300

probably are aware of a few cases

849

00:37:37,190 --> 00:37:33,130

recently that were highly publicized so

850

00:37:41,070 --> 00:37:37,200

so this is this is an ongoing problem

851
00:37:44,010 --> 00:37:41,080
but from a sociological point even more

852
00:37:48,690 --> 00:37:44,020
intriguing or subtle obstacles and these

853
00:37:50,730 --> 00:37:48,700
will be even more enduring and the the

854
00:37:54,660 --> 00:37:50,740
root of this is what we call in

855
00:37:57,510 --> 00:37:54,670
sociology the stranger problem what does

856
00:38:00,090 --> 00:37:57,520
it mean to be a stranger in a culture to

857
00:38:03,450 --> 00:38:00,100
not know the culture but to come into it

858
00:38:05,780 --> 00:38:03,460
and and there are micro mechanisms

859
00:38:08,760 --> 00:38:05,790
things that are not that obvious as

860
00:38:12,470 --> 00:38:08,770
harassment or as discrimination but tiny

861
00:38:15,990 --> 00:38:12,480
little things that go on in day-to-day

862
00:38:19,440 --> 00:38:16,000
interactions and and it this is a

863
00:38:22,020 --> 00:38:19,450

dependent boat on the natives what the

864

00:38:24,870 --> 00:38:22,030

natives do how the natives treat the

865

00:38:27,930 --> 00:38:24,880

strangers and how the strangers act so

866

00:38:30,120 --> 00:38:27,940

there it goes from both ways and like

867

00:38:33,210 --> 00:38:30,130

what Richard said identity that's how

868

00:38:34,900 --> 00:38:33,220

the stranger feels does the stranger

869

00:38:37,539 --> 00:38:34,910

feel he or she belongs

870

00:38:40,660 --> 00:38:37,549

in that strange community and then of

871

00:38:43,599 --> 00:38:40,670

course the the treatment that the

872

00:38:46,420 --> 00:38:43,609

stranger receives from the natives and

873

00:38:48,700 --> 00:38:46,430

if the natives are smart enough they

874

00:38:51,190 --> 00:38:48,710

don't blatantly discriminate but the

875

00:38:56,230 --> 00:38:51,200

outcome will be similar so there are

876

00:38:58,779 --> 00:38:56,240

several social psychological mechanisms

877

00:39:01,299 --> 00:38:58,789

that are really well researched and you

878

00:39:04,890 --> 00:39:01,309

could look them up like unconscious bias

879

00:39:08,799 --> 00:39:04,900

that people have stereotypes threat

880

00:39:10,420 --> 00:39:08,809

implicit association so it really makes

881

00:39:19,029 --> 00:39:10,430

a difference if you're a stranger in a

882

00:39:22,569 --> 00:39:19,039

culture or a native in the culture this

883

00:39:24,670 --> 00:39:22,579

is a phrase that's heard very often when

884

00:39:26,529 --> 00:39:24,680

people want to change things this is

885

00:39:30,490 --> 00:39:26,539

about women probably the same thing

886

00:39:33,880 --> 00:39:30,500

applies to underrepresented minorities

887

00:39:36,819 --> 00:39:33,890

too should we fix the women to fit into

888

00:39:39,700 --> 00:39:36,829

the existing system or should we reform

889

00:39:42,069 --> 00:39:39,710

the system to be better and of course

890

00:39:45,579 --> 00:39:42,079

the correct answer is we should fix the

891

00:39:52,509 --> 00:39:45,589

system right every everybody says so I

892

00:39:55,390 --> 00:39:52,519

but I while I agree I want to point out

893

00:40:01,359 --> 00:39:55,400

or my take on this is this is not a

894

00:40:04,029 --> 00:40:01,369

dichotomy you don't choose fixing the

895

00:40:07,569 --> 00:40:04,039

system or fixing the women and and the

896

00:40:10,140 --> 00:40:07,579

reason is time scale the time scale of a

897

00:40:12,460 --> 00:40:10,150

individual career is measured in years

898

00:40:15,720 --> 00:40:12,470

like you're graduating you need a job

899

00:40:18,460 --> 00:40:15,730

this year next year the time scale of

900

00:40:21,720 --> 00:40:18,470

institutions its institutional changes

901
00:40:24,609 --> 00:40:21,730
measured maybe in five years ten years

902
00:40:27,160 --> 00:40:24,619
so so there might be a situation where

903
00:40:29,470 --> 00:40:27,170
you have to be pragmatic you have to

904
00:40:33,789 --> 00:40:29,480
tell the minority or the woman how to

905
00:40:35,769 --> 00:40:33,799
survive in in an unfixed system because

906
00:40:39,509 --> 00:40:35,779
the alternative would be to have to

907
00:40:46,150 --> 00:40:39,519
leave so I think these things both have

908
00:40:50,349 --> 00:40:48,980
now there's a thing where women are

909
00:40:53,660 --> 00:40:50,359
different from underrepresented

910
00:40:55,400 --> 00:40:53,670
minorities one is critical mass' women

911
00:40:58,430 --> 00:40:55,410
occur naturally in the population at

912
00:41:03,220 --> 00:40:58,440
about 50 percent so that means it's easy

913
00:41:06,440 --> 00:41:03,230

for them to to be well represented and

914

00:41:08,180 --> 00:41:06,450

in sociology we know that the perception

915

00:41:11,599 --> 00:41:08,190

of a group changes depending on the

916

00:41:14,839 --> 00:41:11,609

proportion of of the membership so at

917

00:41:18,950 --> 00:41:14,849

some point people accept a group as

918

00:41:21,980 --> 00:41:18,960

mixed and and it's not quite clear where

919

00:41:26,930 --> 00:41:21,990

this percentages some studies say it's

920

00:41:30,559 --> 00:41:26,940

as low as 10% other go up to 25 30 % but

921

00:41:32,420 --> 00:41:30,569

it's this perceptual switch to say who

922

00:41:35,210 --> 00:41:32,430

there's a woman what's the woman doing

923

00:41:35,960 --> 00:41:35,220

here - yeah that's women now all over

924

00:41:38,630 --> 00:41:35,970

here

925

00:41:40,279 --> 00:41:38,640

that we're we're a mixed group and and

926

00:41:42,339 --> 00:41:40,289

that's of course easier for women to

927

00:41:46,940 --> 00:41:42,349

achieve then then for underrepresented

928

00:41:48,950 --> 00:41:46,950

minority so the the flip side is family

929

00:41:51,740 --> 00:41:48,960

obligations that's of course something

930

00:41:54,130 --> 00:41:51,750

that is more connected to to the women

931

00:42:01,250 --> 00:41:54,140

then and then to underrepresented

932

00:42:04,190 --> 00:42:01,260

minorities and this is a there's a clear

933

00:42:06,319 --> 00:42:04,200

perception that having children or

934

00:42:10,279 --> 00:42:06,329

family obligation is something that

935

00:42:12,769 --> 00:42:10,289

holds women back so some extent research

936

00:42:16,220 --> 00:42:12,779

has supported that but not as clearly as

937

00:42:18,829 --> 00:42:16,230

as the urban myth says and and we

938

00:42:22,279 --> 00:42:18,839

actually haven't found it to that extent

939

00:42:24,799 --> 00:42:22,289

and that was a study where we asked I

940

00:42:26,839 --> 00:42:24,809

think the right question it was an

941

00:42:30,019 --> 00:42:26,849

interview study and we didn't ask how

942

00:42:32,720 --> 00:42:30,029

how did having children or being married

943

00:42:36,589 --> 00:42:32,730

hold you back in your science career but

944

00:42:38,839 --> 00:42:36,599

we asked what effects did being married

945

00:42:41,210 --> 00:42:38,849

and having children have on your science

946

00:42:43,730 --> 00:42:41,220

career and then we got very complicated

947

00:42:48,349 --> 00:42:43,740

stories from both the men and the women

948

00:42:50,450 --> 00:42:48,359

and the the obstacles connected to

949

00:42:52,549 --> 00:42:50,460

family obligations are so obviously have

950

00:42:54,799 --> 00:42:52,559

to do with time and energy that you have

951
00:42:55,730 --> 00:42:54,809
to kind of take care of the kids and so

952
00:42:57,740 --> 00:42:55,740
there that that's a

953
00:42:59,690 --> 00:42:57,750
for ground but then the stories you get

954
00:43:03,320 --> 00:42:59,700
about the benefits are more

955
00:43:05,180 --> 00:43:03,330
socio-emotional like people feel happier

956
00:43:09,800 --> 00:43:05,190
and that's that's harder to measure then

957
00:43:13,910 --> 00:43:09,810
then the time that is spent on on family

958
00:43:16,880 --> 00:43:13,920
obligation so it's it's unless family

959
00:43:19,520 --> 00:43:16,890
obligations are a problem but they are

960
00:43:23,210 --> 00:43:19,530
not the whole problem and family

961
00:43:25,780 --> 00:43:23,220
obligations cannot be blamed for the

962
00:43:27,890 --> 00:43:25,790
lack of diversity in inner science

963
00:43:32,440 --> 00:43:27,900

because that's that's the easy way out

964

00:43:34,520 --> 00:43:32,450

if you say well women have children so

965

00:43:36,920 --> 00:43:34,530

they can't be that successful as

966

00:43:39,859 --> 00:43:36,930

scientists it's our fault it's just the

967

00:43:43,850 --> 00:43:39,869

way the world works so if you look at

968

00:43:46,580 --> 00:43:43,860

unmarried women if you look at women

969

00:43:48,920 --> 00:43:46,590

without children I mean that they're not

970

00:43:57,440 --> 00:43:48,930

doing perfectly well either so it's not

971

00:44:01,760 --> 00:43:57,450

just that issue of family obligations so

972

00:44:04,940 --> 00:44:01,770

this is the one point of advice I want

973

00:44:09,260 --> 00:44:04,950

to give you in astrobiology and that's

974

00:44:11,180 --> 00:44:09,270

based on studies in graduate school that

975

00:44:14,150 --> 00:44:11,190

by calling Mary Frank Fox at Georgia

976

00:44:16,940 --> 00:44:14,160

Tech did and my own case study that I

977

00:44:21,680 --> 00:44:16,950

did about a large research institution

978

00:44:24,740 --> 00:44:21,690

in stem and that is clear and explicit

979

00:44:28,450 --> 00:44:24,750

criteria help that's to do with a

980

00:44:32,540 --> 00:44:28,460

stranger you have to know the rules and

981

00:44:35,120 --> 00:44:32,550

signs of course is not something that

982

00:44:37,310 --> 00:44:35,130

does routine work a lot I mean it's

983

00:44:39,859 --> 00:44:37,320

almost by definition science does

984

00:44:42,859 --> 00:44:39,869

unexpected things does new things so it

985

00:44:48,910 --> 00:44:42,869

has to be flexibility so so what what

986

00:44:52,580 --> 00:44:48,920

comes up is a culture of deal-making and

987

00:44:54,710 --> 00:44:52,590

if you are an if you're an outsider you

988

00:44:57,500 --> 00:44:54,720

don't ask you don't make the deals you

989

00:45:02,180 --> 00:44:57,510

just don't do anything so so if there's

990

00:45:03,980 --> 00:45:02,190

flexibility it's really add it really

991

00:45:06,230 --> 00:45:03,990

helps the natives who know how to ask

992

00:45:08,540 --> 00:45:06,240

who know out how to ask for exceptions

993

00:45:08,990 --> 00:45:08,550

who knows who say well I know we usually

994

00:45:11,510 --> 00:45:09,000

don't

995

00:45:14,480 --> 00:45:11,520

do that but please do that for me and if

996

00:45:16,310 --> 00:45:14,490

you tell women and minorities exactly

997

00:45:18,860 --> 00:45:16,320

what's expected at graduate school this

998

00:45:21,320 --> 00:45:18,870

is what you need to do then they can do

999

00:45:26,650 --> 00:45:21,330

it just don't think they will figure

1000

00:45:29,480 --> 00:45:26,660

that figure it out by themselves so the

1001

00:45:32,480 --> 00:45:29,490

the point is not turning people away

1002

00:45:36,860 --> 00:45:32,490

actively from a science doesn't mean you

1003

00:45:39,290 --> 00:45:36,870

attract them so we asked what what what

1004

00:45:42,260 --> 00:45:39,300

makes people choose the careers they

1005

00:45:44,720 --> 00:45:42,270

want to have and so we did a study on a

1006

00:45:47,240 --> 00:45:44,730

kind of a rating study on what some

1007

00:45:52,370 --> 00:45:47,250

career outcomes what's important for you

1008

00:45:54,740 --> 00:45:52,380

in a career and these are all items that

1009

00:45:57,260 --> 00:45:54,750

that people could rate an importance

1010

00:46:00,470 --> 00:45:57,270

time for family time for myself and so

1011

00:46:05,180 --> 00:46:00,480

on and we classified them into four

1012

00:46:07,760 --> 00:46:05,190

different factors the work-life balance

1013

00:46:10,430 --> 00:46:07,770

factor the extrinsic factor that's like

1014

00:46:12,830 --> 00:46:10,440

Fame money and so on the pioneering

1015

00:46:14,960 --> 00:46:12,840

factor and the people related factor

1016

00:46:18,680 --> 00:46:14,970

working with people and helping other

1017

00:46:21,700 --> 00:46:18,690

people and and this is what what

1018

00:46:25,190 --> 00:46:21,710

happened are these the red dots are the

1019

00:46:31,280 --> 00:46:25,200

OD the axes are not shown so the the

1020

00:46:34,460 --> 00:46:31,290

y-axis is Fame money and status so the

1021

00:46:37,400 --> 00:46:34,470

higher it is the more fame status and

1022

00:46:40,670 --> 00:46:37,410

money people want and and the x-axis is

1023

00:46:44,150 --> 00:46:40,680

working with other people so all all the

1024

00:46:46,070 --> 00:46:44,160

men are on on the upper level they want

1025

00:46:49,930 --> 00:46:46,080

more money they want more Fame they want

1026
00:46:52,520 --> 00:46:49,940
most status in the women just true and

1027
00:46:54,710 --> 00:46:52,530
in terms of working with other people

1028
00:47:01,150 --> 00:46:54,720
there's a difference and the difference

1029
00:47:04,600 --> 00:47:01,160
is predictable by intended career so the

1030
00:47:08,030 --> 00:47:04,610
engineers sorry

1031
00:47:11,480 --> 00:47:08,040
the engineers very little interested in

1032
00:47:15,430 --> 00:47:11,490
other people these are the these are the

1033
00:47:20,289 --> 00:47:17,920
the female engineers a little more and

1034
00:47:22,120 --> 00:47:20,299
it's always to the right and down for

1035
00:47:25,660 --> 00:47:22,130
each profession so in each profession

1036
00:47:29,789 --> 00:47:25,670
the the young women want more want one

1037
00:47:32,200 --> 00:47:29,799
to help other people more than the males

1038
00:47:36,839 --> 00:47:32,210

interesting what happens with the race

1039

00:47:39,220 --> 00:47:36,849

ethnicity and and this is these are

1040

00:47:43,839 --> 00:47:39,230

coefficients for multivariate regression

1041

00:47:46,240 --> 00:47:43,849

and we found that black students and

1042

00:47:48,660 --> 00:47:46,250

Hispanic students wanted to have more of

1043

00:47:55,390 --> 00:47:53,559

so we normalized it in we took out the

1044

00:47:57,190 --> 00:47:55,400

the mean ratings because they always

1045

00:48:00,160 --> 00:47:57,200

kind of on the paper go to the right

1046

00:48:03,010 --> 00:48:00,170

side and if you take out the mean

1047

00:48:07,900 --> 00:48:03,020

differences all the differences go away

1048

00:48:10,539 --> 00:48:07,910

so there is if you if you subtract the

1049

00:48:12,400 --> 00:48:10,549

main the mean difference of like wanting

1050

00:48:16,480 --> 00:48:12,410

everything more then there's no

1051
00:48:18,789 --> 00:48:16,490
difference by race so this is like how

1052
00:48:23,319 --> 00:48:18,799
it starts and we go back to the origins

1053
00:48:27,720 --> 00:48:23,329
like I guess you like to do our origin

1054
00:48:30,640 --> 00:48:27,730
is middle school so this is what what

1055
00:48:32,349 --> 00:48:30,650
minority what students were interested

1056
00:48:36,180 --> 00:48:32,359
in middle school beginning high school

1057
00:48:39,460 --> 00:48:36,190
end of high school and beginning college

1058
00:48:41,140 --> 00:48:39,470
black students at the bottom asian

1059
00:48:43,839 --> 00:48:41,150
students at the top interestingly

1060
00:48:47,950 --> 00:48:43,849
Hispanics Hispanics were very interested

1061
00:48:51,250 --> 00:48:47,960
in stem and at middle school but then

1062
00:48:55,740 --> 00:48:51,260
they lose interest this is what happens

1063
00:48:58,200 --> 00:48:55,750

in biology also a general decline

1064

00:49:01,829 --> 00:48:58,210

Hispanics very strong in middle school

1065

00:49:05,680 --> 00:49:01,839

declined black students consistently

1066

00:49:08,890 --> 00:49:05,690

least interested that's what happens in

1067

00:49:11,740 --> 00:49:08,900

astronomy and and this is to show you

1068

00:49:15,039 --> 00:49:11,750

that the astronomy is one of the STEM

1069

00:49:18,730 --> 00:49:15,049

disciplines that crashes the most from

1070

00:49:24,010 --> 00:49:18,740

middle school to to beginning college so

1071

00:49:26,019 --> 00:49:24,020

this is remarkable how how how strongly

1072

00:49:28,269 --> 00:49:26,029

kids are interested in astronomy in

1073

00:49:28,839 --> 00:49:28,279

middle school and then how it declines

1074

00:49:30,789 --> 00:49:28,849

you

1075

00:49:33,339 --> 00:49:30,799

might say this is a good thing because

1076

00:49:40,109 --> 00:49:33,349

there are not enough jobs but but still

1077

00:49:44,469 --> 00:49:40,119

it's it's it's interesting how how the

1078

00:49:50,259 --> 00:49:44,479

what happens in astronomy the the silver

1079

00:49:53,670 --> 00:49:50,269

lining is that as tirana me is kind of

1080

00:49:57,849 --> 00:49:53,680

the gateway drug into other STEM

1081

00:50:00,819 --> 00:49:57,859

disciplines we found that people who

1082

00:50:03,609 --> 00:50:00,829

move out of who move out of astronomy

1083

00:50:05,819 --> 00:50:03,619

the larger part moves into an other STEM

1084

00:50:08,920 --> 00:50:05,829

disciplines so you could say okay

1085

00:50:12,009 --> 00:50:08,930

astronomy is not something that's a big

1086

00:50:14,589 --> 00:50:12,019

discipline but it serves as the gateway

1087

00:50:17,469 --> 00:50:14,599

for kids to go into other STEM

1088

00:50:20,769 --> 00:50:17,479

disciplines in which they then have can

1089

00:50:30,099 --> 00:50:20,779

have careers okay with that I think I'm

1090

00:50:33,309 --> 00:50:30,109

done thank you very much thank you

1091

00:50:35,979 --> 00:50:33,319

Gerhard and our last speaker this

1092

00:50:38,259 --> 00:50:35,989

morning is dr. Victoria plough who is a

1093

00:50:40,959 --> 00:50:38,269

social psychologist and a professor of

1094

00:50:42,910 --> 00:50:40,969

law and social science at the University

1095

00:50:45,640 --> 00:50:42,920

of California Berkeley School of the

1096

00:50:48,309 --> 00:50:45,650

University of California School of Law

1097

00:50:50,499 --> 00:50:48,319

and is the associate dean for equity and

1098

00:50:52,180 --> 00:50:50,509

inclusion so some of her research

1099

00:50:56,470 --> 00:50:52,190

interests include diversity and

1100

00:51:03,400 --> 00:50:56,480

inclusion science welcome dr. plough

1101
00:51:06,560 --> 00:51:03,410
[Applause]

1102
00:51:08,450 --> 00:51:06,570
thank you so much I want to thank the

1103
00:51:10,460 --> 00:51:08,460
organizing committee for inviting me and

1104
00:51:12,500 --> 00:51:10,470
all of us I've already learned so much

1105
00:51:14,780 --> 00:51:12,510
this morning and I think my comments

1106
00:51:18,590 --> 00:51:14,790
will complement what's already been said

1107
00:51:22,880 --> 00:51:18,600
in the previous presentations to kind of

1108
00:51:28,310 --> 00:51:22,890
honor dr. Pitts comments about I've

1109
00:51:31,820 --> 00:51:28,320
gained identity prominence I am Victoria

1110
00:51:39,730 --> 00:51:31,830
plout and I am a social psychologist I

1111
00:51:41,810 --> 00:51:39,740
think that to start to start I'd like to

1112
00:51:43,730 --> 00:51:41,820
well just to give you an idea of the

1113
00:51:45,200 --> 00:51:43,740

road map for the next 15 minutes so

1114

00:51:48,400 --> 00:51:45,210

we're going to start by looking briefly

1115

00:51:51,710 --> 00:51:48,410

at a graph that shows us who populates

1116

00:51:54,770 --> 00:51:51,720

not necessarily astrobiology but science

1117

00:51:55,910 --> 00:51:54,780

and engineering PhDs globally and then

1118

00:51:58,940 --> 00:51:55,920

I'd like to talk a little bit about

1119

00:52:01,550 --> 00:51:58,950

three assumptions that get in the way of

1120

00:52:07,790 --> 00:52:01,560

trying to rectify some major imbalances

1121

00:52:11,060 --> 00:52:07,800

so in terms of the global PhD so these

1122

00:52:13,790 --> 00:52:11,070

are PhD percentages of women and men

1123

00:52:17,600 --> 00:52:13,800

completing PhDs in science and

1124

00:52:20,120 --> 00:52:17,610

engineering in 56 countries that the NSF

1125

00:52:23,720 --> 00:52:20,130

was able to collect information from on

1126

00:52:27,140 --> 00:52:23,730

the x axis and on the y axis is the

1127

00:52:28,430 --> 00:52:27,150

percent of total PhDs granted in that

1128

00:52:32,330 --> 00:52:28,440

country

1129

00:52:36,230 --> 00:52:32,340

the women are in peel and the men in

1130

00:52:38,480 --> 00:52:36,240

orange and the solid circles or science

1131

00:52:41,000 --> 00:52:38,490

and engine engineering PhDs the other

1132

00:52:44,270 --> 00:52:41,010

circles are non science and engineering

1133

00:52:47,380 --> 00:52:44,280

PhDs so I know that these are probably

1134

00:52:50,120 --> 00:52:47,390

too small to read for much of the room

1135

00:52:56,570 --> 00:52:50,130

but I just wanted to point out where the

1136

00:52:58,450 --> 00:52:56,580

u.s. is right here I'll let you take

1137

00:53:02,060 --> 00:52:58,460

that in for a minute

1138

00:53:05,870 --> 00:53:02,070

yep it's the one it's the only one that

1139

00:53:11,030 --> 00:53:05,880

stands out that has an outline right

1140

00:53:14,510 --> 00:53:11,040

there okay so for all of these to the

1141

00:53:17,030 --> 00:53:14,520

left of the Ukraine which is at parity

1142

00:53:20,090 --> 00:53:17,040

there's a gender imbalance with more men

1143

00:53:21,980 --> 00:53:20,100

getting science nudging engineering PhDs

1144

00:53:24,140 --> 00:53:21,990

and to the right there are more women in

1145

00:53:26,690 --> 00:53:24,150

those countries getting science and

1146

00:53:28,490 --> 00:53:26,700

engineering PhDs and one reason I wanted

1147

00:53:31,760 --> 00:53:28,500

to show you this is just to kind of

1148

00:53:35,600 --> 00:53:31,770

remind us what we're up against but also

1149

00:53:37,730 --> 00:53:35,610

I think the graph shows that the this

1150

00:53:41,930 --> 00:53:37,740

imbalance is not inevitable because

1151
00:53:44,440 --> 00:53:41,940
clearly some countries are experiencing

1152
00:53:47,180 --> 00:53:44,450
the imbalance in in the other direction

1153
00:53:50,030 --> 00:53:47,190
we could also look at rates of

1154
00:53:52,040 --> 00:53:50,040
participation by racial groups within

1155
00:53:53,720 --> 00:53:52,050
the u.s. a lot of other countries don't

1156
00:53:56,450 --> 00:53:53,730
collect that information South Africa

1157
00:53:58,070 --> 00:53:56,460
does disability is another one in social

1158
00:54:04,870 --> 00:53:58,080
economic status but in the interest of

1159
00:54:10,460 --> 00:54:04,880
time I'm going to move on and tell folks

1160
00:54:15,710 --> 00:54:14,000
okay so there are numerous reasons for

1161
00:54:18,500 --> 00:54:15,720
these imbalances and we're not going to

1162
00:54:20,900 --> 00:54:18,510
get into them today but given the

1163
00:54:23,390 --> 00:54:20,910

interest that's been generated in terms

1164

00:54:25,730 --> 00:54:23,400

of trying to correct some of these and

1165

00:54:27,290 --> 00:54:25,740

address some of these imbalances I want

1166

00:54:29,450 --> 00:54:27,300

to take you three through three

1167

00:54:33,050 --> 00:54:29,460

assumptions and social psychological

1168

00:54:36,800 --> 00:54:33,060

work that that shows three assumptions

1169

00:54:38,359 --> 00:54:36,810

of how diversity and inclusion how

1170

00:54:40,670 --> 00:54:38,369

diversity and inclusion assumptions can

1171

00:54:43,700 --> 00:54:40,680

often get in the way of correcting those

1172

00:54:46,550 --> 00:54:43,710

assumptions so the first assumption is

1173

00:54:50,329 --> 00:54:46,560

that the best way to be fair and

1174

00:54:51,980 --> 00:54:50,339

inclusive is to ignore differences and

1175

00:54:52,970 --> 00:54:51,990

this goes back to something that dr.

1176

00:54:56,240 --> 00:54:52,980

Pitt was saying earlier about

1177

00:54:58,550 --> 00:54:56,250

colorblindness so earlier in my career I

1178

00:55:01,430 --> 00:54:58,560

conducted some interviews in a large

1179

00:55:03,770 --> 00:55:01,440

multinational Bank and in particular was

1180

00:55:06,079 --> 00:55:03,780

interviewing a manager who was in charge

1181

00:55:09,230 --> 00:55:06,089

of a large international department with

1182

00:55:11,000 --> 00:55:09,240

50 countries represented the people in

1183

00:55:13,040 --> 00:55:11,010

that department spoke 25 different

1184

00:55:15,829 --> 00:55:13,050

languages and the project was on

1185

00:55:17,630 --> 00:55:15,839

diversity in a particular diversity in

1186

00:55:20,180 --> 00:55:17,640

Compton different ways of approaching

1187

00:55:22,069 --> 00:55:20,190

conflict so the manager walked into the

1188

00:55:25,370 --> 00:55:22,079

room where we interviewers were sitting

1189

00:55:27,319 --> 00:55:25,380

and he put our proposal down on the

1190

00:55:29,720 --> 00:55:27,329

table quite forcefully and he sat down

1191

00:55:32,420 --> 00:55:29,730

and he said you know what this is great

1192

00:55:36,380 --> 00:55:32,430

but I don't have any conflict in my

1193

00:55:37,880 --> 00:55:36,390

department and we thought hmm okay well

1194

00:55:39,650 --> 00:55:37,890

interview over you know we should just

1195

00:55:42,650 --> 00:55:39,660

leave and this was in New York we could

1196

00:55:45,319 --> 00:55:42,660

go back to California but we thought

1197

00:55:46,940 --> 00:55:45,329

well gee you know there's 50 different

1198

00:55:48,770 --> 00:55:46,950

countries represented in this department

1199

00:55:50,540 --> 00:55:48,780

huge diverse gotta be some conflict

1200

00:55:52,309 --> 00:55:50,550

somewhere what's going on here so we we

1201

00:55:54,530 --> 00:55:52,319

pressed a little we Sifl that's very

1202

00:55:56,839 --> 00:55:54,540

interesting why why is that the case and

1203

00:55:58,880 --> 00:55:56,849

he says people are people

1204

00:56:01,099 --> 00:55:58,890

weld if were different but similar I

1205

00:56:03,079 --> 00:56:01,109

don't see a person as being from this

1206

00:56:05,359 --> 00:56:03,089

culture or that culture instead I see

1207

00:56:07,819 --> 00:56:05,369

them for who they really are and then he

1208

00:56:10,730 --> 00:56:07,829

went on and explained that he was raised

1209

00:56:12,109 --> 00:56:10,740

to be colorblind and that he believes

1210

00:56:15,319 --> 00:56:12,119

that people are all the same and that's

1211

00:56:18,829 --> 00:56:15,329

how you should treat people so then they

1212

00:56:20,329 --> 00:56:18,839

brought in some of his subordinates who

1213

00:56:22,460 --> 00:56:20,339

came from different backgrounds so one

1214

00:56:23,020 --> 00:56:22,470

of them was black another one was Asian

1215

00:56:25,930 --> 00:56:23,030

America

1216

00:56:28,450 --> 00:56:25,940

another one was Latino and they had very

1217

00:56:30,940 --> 00:56:28,460

different things to say about diversity

1218

00:56:34,120 --> 00:56:30,950

and conflict in their department the

1219

00:56:38,830 --> 00:56:34,130

black woman spoke about how the fact

1220

00:56:40,870 --> 00:56:38,840

that race wasn't raised as a topic or

1221

00:56:43,330 --> 00:56:40,880

was taboo as a topic meant that

1222

00:56:45,930 --> 00:56:43,340

discrimination get got swept under the

1223

00:56:49,480 --> 00:56:45,940

rug was unrecognized and unacknowledged

1224

00:56:51,640 --> 00:56:49,490

the Latino spoke about how he really

1225

00:56:54,100 --> 00:56:51,650

wished he could be himself more at work

1226
00:56:55,390 --> 00:56:54,110
and the asian-american woman talked

1227
00:56:56,830 --> 00:56:55,400
about different work styles and

1228
00:57:01,570 --> 00:56:56,840
different management styles that she

1229
00:57:03,280 --> 00:57:01,580
felt weren't appreciated so the the

1230
00:57:05,230 --> 00:57:03,290
point is that some people make the

1231
00:57:07,480 --> 00:57:05,240
assumption that you should treat people

1232
00:57:09,430 --> 00:57:07,490
as if difference doesn't matter while

1233
00:57:17,050 --> 00:57:09,440
others see things very differently now

1234
00:57:18,970 --> 00:57:17,060
does this have implications the my

1235
00:57:20,710 --> 00:57:18,980
colleagues and I can conducted a study

1236
00:57:22,570 --> 00:57:20,720
in a large healthcare organization that

1237
00:57:23,380 --> 00:57:22,580
consisted of scientists and doctors and

1238
00:57:25,810 --> 00:57:23,390

nurses and other health care

1239

00:57:27,310 --> 00:57:25,820

professionals and we conducted a survey

1240

00:57:28,810 --> 00:57:27,320

where we asked people a variety of

1241

00:57:30,490 --> 00:57:28,820

questions including what they thought

1242

00:57:32,230 --> 00:57:30,500

about diversity did they take a more

1243

00:57:33,640 --> 00:57:32,240

colorblind stance towards diversity did

1244

00:57:36,280 --> 00:57:33,650

they believe that diversity should not

1245

00:57:38,320 --> 00:57:36,290

should be ignored or did they take a

1246

00:57:40,210 --> 00:57:38,330

more different acknowledged approach to

1247

00:57:41,980 --> 00:57:40,220

diversity and felt that pause that

1248

00:57:44,980 --> 00:57:41,990

differences should be positively

1249

00:57:47,230 --> 00:57:44,990

acknowledged in organizational diversity

1250

00:57:49,780 --> 00:57:47,240

efforts we also collected information

1251
00:57:50,980 --> 00:57:49,790
about the psychological engagement of

1252
00:57:53,380 --> 00:57:50,990
the employees because we know that

1253
00:57:55,750 --> 00:57:53,390
psychological engagement predicts things

1254
00:57:58,630 --> 00:57:55,760
like absenteeism and productivity and

1255
00:58:00,580 --> 00:57:58,640
turnover and then what we did was we

1256
00:58:03,310 --> 00:58:00,590
looked within the departments and we

1257
00:58:05,860 --> 00:58:03,320
aggregated the attitudes that the

1258
00:58:07,810 --> 00:58:05,870
dominant group held the white group held

1259
00:58:10,450 --> 00:58:07,820
in the in the departments and we

1260
00:58:12,160 --> 00:58:10,460
aggregated so we aggregated their

1261
00:58:13,720 --> 00:58:12,170
attitudes towards diversity whether they

1262
00:58:15,490 --> 00:58:13,730
took a colorblind or a more different

1263
00:58:17,560 --> 00:58:15,500

acknowledging approach and then we

1264

00:58:19,750 --> 00:58:17,570

aggregated the engagement store scores

1265

00:58:20,890 --> 00:58:19,760

for the employees of color and we look

1266

00:58:25,510 --> 00:58:20,900

to see whether there was a relationship

1267

00:58:27,550 --> 00:58:25,520

and it turns out that there was the more

1268

00:58:29,860 --> 00:58:27,560

that whites and a Department held

1269

00:58:32,290 --> 00:58:29,870

colorblind attitudes the less engaged

1270

00:58:34,210 --> 00:58:32,300

the employees of color were the more

1271

00:58:36,760 --> 00:58:34,220

whites in a department held more

1272

00:58:38,770 --> 00:58:36,770

difference acknowledging attitudes the

1273

00:58:41,650 --> 00:58:38,780

more engaged the employees of color were

1274

00:58:43,630 --> 00:58:41,660

and we found that this was mediated by

1275

00:58:45,370 --> 00:58:43,640

perceptions of bias for example in the

1276
00:58:47,950 --> 00:58:45,380
colorblind more colorblind departments

1277
00:58:49,750 --> 00:58:47,960
the employees of color felt that there

1278
00:58:52,360 --> 00:58:49,760
was more bias now this is a

1279
00:58:54,210 --> 00:58:52,370
correlational study but several studies

1280
00:58:57,070 --> 00:58:54,220
that other people suggest possible

1281
00:58:59,460 --> 00:58:57,080
mechanisms and they suggest that

1282
00:59:02,170 --> 00:58:59,470
unconscious bias which dr. sonner

1283
00:59:08,320 --> 00:59:02,180
brought up earlier and conscious biases

1284
00:59:10,120 --> 00:59:08,330
may be at play so for example in one

1285
00:59:11,800 --> 00:59:10,130
study white college students read

1286
00:59:14,980 --> 00:59:11,810
materials arguing for either a

1287
00:59:16,720 --> 00:59:14,990
colorblind stance or a more

1288
00:59:18,790 --> 00:59:16,730

multicultural stance on trying to

1289

00:59:21,340 --> 00:59:18,800

improve racial harmony now they didn't

1290

00:59:22,870 --> 00:59:21,350

read it while lying on the graph I just

1291

00:59:26,430 --> 00:59:22,880

thought that this was a fun picture to

1292

00:59:28,720 --> 00:59:26,440

show and then they gave them an implicit

1293

00:59:31,330 --> 00:59:28,730

association test to measure their

1294

00:59:36,100 --> 00:59:31,340

implicit biases and and then they also

1295

00:59:38,020 --> 00:59:36,110

gave them a self-report measure of

1296

00:59:40,180 --> 00:59:38,030

prejudice and what they found was that

1297

00:59:42,580 --> 00:59:40,190

those given the colorblind material

1298

00:59:45,850 --> 00:59:42,590

beforehand expressed more implicit

1299

00:59:47,530 --> 00:59:45,860

biases and explicit biases in a

1300

00:59:51,930 --> 00:59:47,540

pro-white direction

1301
00:59:54,460 --> 00:59:51,940
other studies oops

1302
00:59:57,030 --> 00:59:54,470
other studies suggest that this

1303
00:59:58,300 --> 00:59:57,040
prescription to avoid or ignore

1304
01:00:01,000 --> 00:59:58,310
difference

1305
01:00:03,700 --> 01:00:01,010
ironically increases both nonverbal and

1306
01:00:05,350 --> 01:00:03,710
verbal prejudicial behavior and in one

1307
01:00:07,150 --> 01:00:05,360
study the directive to white

1308
01:00:08,890 --> 01:00:07,160
interviewers to ignore difference

1309
01:00:11,350 --> 01:00:08,900
actually caused the white interviewers

1310
01:00:15,070 --> 01:00:11,360
to sit further away from black

1311
01:00:16,840 --> 01:00:15,080
interviewees in another study they gave

1312
01:00:18,490 --> 01:00:16,850
people this prescription of a color

1313
01:00:21,280 --> 01:00:18,500

blind versus difference acknowledged

1314

01:00:23,800 --> 01:00:21,290

approach to diversity and then measure

1315

01:00:26,440 --> 01:00:23,810

the cognitive depletion or cognitive

1316

01:00:28,270 --> 01:00:26,450

exhaustion of the students of color who

1317

01:00:29,890 --> 01:00:28,280

were interacting with those students

1318

01:00:31,750 --> 01:00:29,900

with the white students who got the

1319

01:00:34,120 --> 01:00:31,760

colorblind or difference acknowledge

1320

01:00:35,710 --> 01:00:34,130

instructions in that particular study

1321

01:00:37,750 --> 01:00:35,720

which was conducted at Princeton these

1322

01:00:40,750 --> 01:00:37,760

were African American and Asian American

1323

01:00:43,390 --> 01:00:40,760

students and it turns out that the

1324

01:00:45,520 --> 01:00:43,400

students were there we go that the

1325

01:00:47,950 --> 01:00:45,530

students of color were more cognitively

1326

01:00:49,870 --> 01:00:47,960

exhausted after conversing with white

1327

01:00:50,560 --> 01:00:49,880

students who had been based who had been

1328

01:00:54,940 --> 01:00:50,570

told to be

1329

01:00:59,580 --> 01:00:54,950

or blind okay so that's a lot of

1330

01:01:02,290 --> 01:00:59,590

research that suggests that a focus on

1331

01:01:04,350 --> 01:01:02,300

colorblindness can have ironic

1332

01:01:07,150 --> 01:01:04,360

consequences that we need to be aware of

1333

01:01:10,120 --> 01:01:07,160

so is the answer to just focus on

1334

01:01:13,090 --> 01:01:10,130

difference no and I want to be very

1335

01:01:15,490 --> 01:01:13,100

clear about that for some of the reasons

1336

01:01:18,520 --> 01:01:15,500

that were actually enumerated earlier by

1337

01:01:20,620 --> 01:01:18,530

my colleagues it's important to create

1338

01:01:23,920 --> 01:01:20,630

conditions where people feel like they

1339

01:01:26,320 --> 01:01:23,930

can be themselves and treated fairly and

1340

01:01:28,300 --> 01:01:26,330

where it's okay to talk about difference

1341

01:01:30,520 --> 01:01:28,310

and where race and other differences are

1342

01:01:32,500 --> 01:01:30,530

on the table but it's not okay to

1343

01:01:34,720 --> 01:01:32,510

pigeonhole people or stereotype people

1344

01:01:37,240 --> 01:01:34,730

and there's research that suggests that

1345

01:01:39,100 --> 01:01:37,250

if suggest that if diversity messaging

1346

01:01:41,770 --> 01:01:39,110

makes people think that they're only

1347

01:01:45,730 --> 01:01:41,780

there they've only been selected because

1348

01:01:47,890 --> 01:01:45,740

they add to diversity then that harms

1349

01:01:52,450 --> 01:01:47,900

their engagement especially in low

1350

01:01:54,400 --> 01:01:52,460

representation environments so in some

1351

01:01:56,860 --> 01:01:54,410

attending to diversity is complicated

1352

01:01:58,660 --> 01:01:56,870

but avoiding it altogether is not the

1353

01:02:02,640 --> 01:01:58,670

way to go okay

1354

01:02:05,380 --> 01:02:02,650

assumption number two everyone

1355

01:02:08,800 --> 01:02:05,390

experiences settings like educational

1356

01:02:10,960 --> 01:02:08,810

settings in the same way we look at the

1357

01:02:13,630 --> 01:02:10,970

classroom we assume that people are

1358

01:02:15,640 --> 01:02:13,640

experiencing us say as professors in the

1359

01:02:17,140 --> 01:02:15,650

same way and they are not and they are

1360

01:02:19,300 --> 01:02:17,150

not experiencing each other

1361

01:02:21,700 --> 01:02:19,310

in the same way either for

1362

01:02:23,830 --> 01:02:21,710

underrepresented students belonging is a

1363

01:02:26,860 --> 01:02:23,840

key driver of participation and

1364

01:02:34,330 --> 01:02:26,870

sometimes even performance so in one

1365

01:02:36,430 --> 01:02:34,340

study in one study the experimenters

1366

01:02:38,740 --> 01:02:36,440

randomly assigned african-american and

1367

01:02:41,620 --> 01:02:38,750

white first-year college students to

1368

01:02:44,740 --> 01:02:41,630

read testimonials from older students

1369

01:02:46,810 --> 01:02:44,750

about having felt that they didn't

1370

01:02:49,990 --> 01:02:46,820

belong when they started college but now

1371

01:02:51,940 --> 01:02:50,000

that they were older they felt like they

1372

01:02:53,770 --> 01:02:51,950

had belong they had grown confidence in

1373

01:02:56,200 --> 01:02:53,780

their feelings of belonging note this

1374

01:02:58,420 --> 01:02:56,210

wasn't about academic skill it was about

1375

01:03:01,330 --> 01:02:58,430

social belonging in the control group

1376

01:03:03,100 --> 01:03:01,340

they just read other material it was

1377

01:03:05,230 --> 01:03:03,110

unrelated material

1378

01:03:07,660 --> 01:03:05,240

and what they found was this one-hour

1379

01:03:10,660 --> 01:03:07,670

reading of these testimonials just as

1380

01:03:13,300 --> 01:03:10,670

one-hour manipulation reduce the racial

1381

01:03:21,930 --> 01:03:13,310

achievement gap over the course of three

1382

01:03:26,260 --> 01:03:24,670

another issue that is related to

1383

01:03:29,290 --> 01:03:26,270

belonging is the existence of

1384

01:03:32,710 --> 01:03:29,300

stereotypes about science so what are

1385

01:03:35,650 --> 01:03:32,720

some stereotypes about scientists any

1386

01:03:39,150 --> 01:03:35,660

ideas from the audience white males very

1387

01:03:42,360 --> 01:03:39,160

good yes there's a picture white males

1388

01:03:45,910 --> 01:03:42,370

geeky always working alone

1389

01:03:48,580 --> 01:03:45,920

not necessarily solving not necessarily

1390

01:03:49,780 --> 01:03:48,590

solving problems just doing science for

1391

01:03:53,070 --> 01:03:49,790

the sake of science as one of the

1392

01:03:56,620 --> 01:03:53,080

earlier quote said so we in our research

1393

01:03:58,420 --> 01:03:56,630

we wanted to examine in particular the

1394

01:04:02,140 --> 01:03:58,430

stereotype that computer science is

1395

01:04:04,060 --> 01:04:02,150

geeky and students came to the computer

1396

01:04:06,160 --> 01:04:04,070

science building and they completed a

1397

01:04:08,800 --> 01:04:06,170

test in a questionnaire in a room that

1398

01:04:11,080 --> 01:04:08,810

we had decorated either with objects

1399

01:04:13,060 --> 01:04:11,090

that were pre tested as stereotypical or

1400

01:04:17,890 --> 01:04:13,070

non stereotypical and I'm going to show

1401

01:04:21,480 --> 01:04:17,900

you what that means in a moment okay so

1402

01:04:29,680 --> 01:04:24,490

Star Trek poster sci-fi books

1403

01:04:33,490 --> 01:04:29,690

coke cans and here's the non

1404

01:04:35,950 --> 01:04:33,500

stereotypical room nature poster neutral

1405

01:04:37,900 --> 01:04:35,960

books and water bottles note that some

1406

01:04:42,540 --> 01:04:37,910

of these items came from my house but I

1407

01:04:48,910 --> 01:04:45,220

so they took the the questionnaire and

1408

01:04:50,170 --> 01:04:48,920

the test in this room and what we won

1409

01:04:52,180 --> 01:04:50,180

things we asked them about was their

1410

01:04:56,790 --> 01:04:52,190

motivation to pursue computer science as

1411

01:04:59,260 --> 01:04:56,800

a major and what we found was that for

1412

01:05:02,349 --> 01:04:59,270

men there wasn't much of a difference in

1413

01:05:04,390 --> 01:05:02,359

this study but for women it did make a

1414

01:05:07,120 --> 01:05:04,400

difference they were much more motivated

1415

01:05:09,670 --> 01:05:07,130

in the more neutral or non stereotypical

1416

01:05:11,770 --> 01:05:09,680

room note not feminine room but neutral

1417

01:05:13,540 --> 01:05:11,780

or non stereotypical room than in the

1418

01:05:16,960 --> 01:05:13,550

stereotypical room and we replicated

1419

01:05:18,270 --> 01:05:16,970

this many times with other not majors

1420

01:05:20,319 --> 01:05:18,280

but with teams and companies

1421

01:05:23,859 --> 01:05:20,329

organizations and different types of

1422

01:05:27,460 --> 01:05:23,869

groups the main mediator that we have

1423

01:05:29,950 --> 01:05:27,470

found for this has been feelings of fit

1424

01:05:32,470 --> 01:05:29,960

and belonging again echoing the earlier

1425

01:05:35,140 --> 01:05:32,480

presentations it turns out the feeling

1426

01:05:38,950 --> 01:05:35,150

that you fit with your product typical

1427

01:05:41,349 --> 01:05:38,960

image of what a field is or who

1428

01:05:42,940 --> 01:05:41,359

populates that field is very important

1429

01:05:48,760 --> 01:05:42,950

in motivating interest in participating

1430

01:05:50,950 --> 01:05:48,770

in that field other studies have found

1431

01:05:52,630 --> 01:05:50,960

that there are stereotypes that

1432

01:06:02,079 --> 01:05:52,640

scientists don't collaborate and that

1433

01:06:04,450 --> 01:06:02,089

that can affect women and whoops and and

1434

01:06:06,039 --> 01:06:04,460

that emphasizing the ways in which the

1435

01:06:08,410 --> 01:06:06,049

pursuit of science is a collaborative

1436

01:06:10,270 --> 01:06:08,420

effort and instead of just a solitary

1437

01:06:13,089 --> 01:06:10,280

one actually boosts women's inclination

1438

01:06:15,309 --> 01:06:13,099

to pursue a scientific career so going

1439

01:06:17,799 --> 01:06:15,319

back to something that dr. Pitt said

1440

01:06:19,690 --> 01:06:17,809

earlier I think it behooves us to make

1441

01:06:23,559 --> 01:06:19,700

an effort to understand what people's

1442

01:06:27,940 --> 01:06:23,569

perceptions and stereotypes are of us as

1443

01:06:30,760 --> 01:06:27,950

faculty but also of our field and of our

1444

01:06:32,289 --> 01:06:30,770

department and of our classes how many

1445

01:06:33,670 --> 01:06:32,299

times do you think about the posters

1446

01:06:35,200 --> 01:06:33,680

that you put up in your off

1447

01:06:37,089 --> 01:06:35,210

or the pictures that you put up in your

1448

01:06:38,920 --> 01:06:37,099

office right what are you communicating

1449

01:06:41,769 --> 01:06:38,930

about who you are and what your field is

1450

01:06:45,849 --> 01:06:41,779

and who populates your field with these

1451

01:06:49,210 --> 01:06:45,859

subtle cues okay the third one is going

1452

01:06:51,730 --> 01:06:49,220

to be my closing the third assumption is

1453

01:06:53,950 --> 01:06:51,740

that these problems are too entrenched

1454

01:06:58,089 --> 01:06:53,960

these imbalances are too entrenched or

1455

01:07:00,460 --> 01:06:58,099

too difficult to do anything about and

1456

01:07:03,309 --> 01:07:00,470

here I would say don't think about what

1457

01:07:09,690 --> 01:07:03,319

you can't do think about what you can do

1458

01:07:12,099 --> 01:07:09,700

and then go and do it so some general

1459

01:07:14,620 --> 01:07:12,109

issues to think about the first one is

1460

01:07:16,839 --> 01:07:14,630

that leadership matters there's research

1461

01:07:19,260 --> 01:07:16,849

suggesting that leaders with a diversity

1462

01:07:22,180 --> 01:07:19,270

worldview who are sensitive to diversity

1463

01:07:23,980 --> 01:07:22,190

positively affect averse teams and one

1464

01:07:26,049 --> 01:07:23,990

thing that leaders can do is make

1465

01:07:29,200 --> 01:07:26,059

diversity and inclusion a priority and

1466

01:07:31,870 --> 01:07:29,210

create a sense of accountability and

1467

01:07:34,980 --> 01:07:31,880

also value the organizational innovators

1468

01:07:40,870 --> 01:07:34,990

as dr. sonner said who do this work

1469

01:07:43,930 --> 01:07:40,880

another one is to assign a person to be

1470

01:07:47,200 --> 01:07:43,940

responsible for diversity within your

1471

01:07:50,079 --> 01:07:47,210

say department or a committee to do so

1472

01:07:53,200 --> 01:07:50,089

so that you can do things like track

1473

01:07:55,539 --> 01:07:53,210

belonging our people network are they

1474

01:07:57,609 --> 01:07:55,549

being mentored are they having the

1475

01:07:59,769 --> 01:07:57,619

opportunities they need for success or

1476

01:08:01,569 --> 01:07:59,779

recents to just out study from a

1477

01:08:04,329 --> 01:08:01,579

colleague of mine at Berkeley suggests

1478

01:08:08,529 --> 01:08:04,339

that in the first year of graduate

1479

01:08:11,230 --> 01:08:08,539

school in STEM fields students of color

1480

01:08:15,190 --> 01:08:11,240

and women are not publishing as much as

1481

01:08:17,559 --> 01:08:15,200

their white male counterparts or the

1482

01:08:19,840 --> 01:08:17,569

organizational sociology research

1483

01:08:21,160 --> 01:08:19,850

suggests that these factors things like

1484

01:08:26,729 --> 01:08:21,170

creating a sense of accountability

1485

01:08:31,390 --> 01:08:29,439

enforcing some kind of or creating some

1486

01:08:35,649 --> 01:08:31,400

kind of individual or committee

1487

01:08:39,280 --> 01:08:35,659

responsibility for diversity and things

1488

01:08:45,789 --> 01:08:39,290

like mentorship are the most effective

1489

01:08:47,050 --> 01:08:45,799

in creating diversity the next one is to

1490

01:08:49,450 --> 01:08:47,060

collect an exam

1491

01:08:52,240 --> 01:08:49,460

and data look at where the problems are

1492

01:08:54,040 --> 01:08:52,250

are the issues with outreach are they

1493

01:08:55,900 --> 01:08:54,050

with participation in these high school

1494

01:08:57,820 --> 01:08:55,910

and college programs that dr. Pitts were

1495

01:08:59,410 --> 01:08:57,830

mentioning are they in the application

1496

01:09:01,300 --> 01:08:59,420

process are they in the recruitment

1497

01:09:04,390 --> 01:09:01,310

process are they end hiring are they in

1498

01:09:08,500 --> 01:09:04,400

promotion are they in retention and then

1499

01:09:11,380 --> 01:09:08,510

finally take action Harvey Mudd tripled

1500

01:09:13,900 --> 01:09:11,390

its number of female computer science

1501

01:09:17,890 --> 01:09:13,910

majors while that major while numbers of

1502

01:09:20,170 --> 01:09:17,900

women were declining nationwide and they

1503

01:09:21,730 --> 01:09:20,180

credit research based practices so for

1504

01:09:24,460 --> 01:09:21,740

example they redesigned their gateway

1505

01:09:26,829 --> 01:09:24,470

course to present more breadth and more

1506

01:09:29,440 --> 01:09:26,839

basics they presented mentored research

1507

01:09:31,530 --> 01:09:29,450

opportunities to students early to women

1508

01:09:34,900 --> 01:09:31,540

students in particular early in their

1509

01:09:36,430 --> 01:09:34,910

undergraduate career and they started an

1510

01:09:41,070 --> 01:09:36,440

annual field trip to the great annual

1511

01:09:43,660 --> 01:09:41,080

Grace Hopper celebration so in sum

1512

01:09:45,280 --> 01:09:43,670

there's no perfect recipe there's a lot

1513

01:09:47,500 --> 01:09:45,290

of challenges and as my colleague said

1514

01:09:49,770 --> 01:09:47,510

it is difficult but armed with a deeper

1515

01:09:52,500 --> 01:09:49,780

understanding of the processes of

1516

01:09:54,360 --> 01:09:52,510

diversity and inclusion we can do better

1517

01:10:02,180 --> 01:09:54,370

thank you

1518

01:10:05,189 --> 01:10:02,190

[Applause]

1519

01:10:09,120 --> 01:10:05,199

thank you so much dr. pile well we have

1520

01:10:13,259 --> 01:10:09,130

a little time now for questions we have

1521

01:10:19,319 --> 01:10:13,269

a very few minutes for questions if

1522

01:10:23,759 --> 01:10:19,329

anybody has a question or comment sorry

1523

01:10:26,490 --> 01:10:23,769

well it's on now oh okay Windom again at

1524

01:10:28,229 --> 01:10:26,500

Rensselaer Polytechnic Institute I just

1525

01:10:31,470 --> 01:10:28,239

wanted to make a comment about fixing

1526

01:10:34,740 --> 01:10:31,480

women versus fixing the system the first

1527

01:10:37,319 --> 01:10:34,750

comment is that I always find it curious

1528

01:10:41,180 --> 01:10:37,329

that fixing the men is not included

1529

01:10:43,770 --> 01:10:41,190

there as though somehow men are not

1530

01:10:47,220 --> 01:10:43,780

responsible in any way for the system

1531

01:10:50,189 --> 01:10:47,230

but but even perhaps more importantly

1532

01:10:52,589 --> 01:10:50,199

I've been participating in these sort of

1533

01:10:55,410 --> 01:10:52,599

conversations this is not new these

1534

01:10:57,209 --> 01:10:55,420

considerations probably since the 1970s

1535

01:10:59,879 --> 01:10:57,219

so what is it like 40 or 50 years

1536

01:11:04,229 --> 01:10:59,889

I think women have been sufficiently

1537

01:11:06,899 --> 01:11:04,239

fixed or compromised or however we want

1538

01:11:09,060 --> 01:11:06,909

to put it I really think we need to

1539

01:11:12,450 --> 01:11:09,070

really focus on the system at this point

1540

01:11:14,040 --> 01:11:12,460

I think to suggest that we still have to

1541

01:11:16,649 --> 01:11:14,050

make those compromises so that our

1542

01:11:19,229 --> 01:11:16,659

careers are not suffering and I'm

1543

01:11:21,750 --> 01:11:19,239

particularly looking at junior women and

1544

01:11:23,459 --> 01:11:21,760

I suppose to some you know and I got

1545

01:11:25,109 --> 01:11:23,469

because I'm not familiar with it but I

1546

01:11:28,729 --> 01:11:25,119

suppose that this would also be relevant

1547

01:11:32,279 --> 01:11:28,739

for minorities some of whom are women

1548

01:11:33,870 --> 01:11:32,289

you know it's that's done that's done we

1549

01:11:35,609 --> 01:11:33,880

need to move forward specifically

1550

01:11:45,230 --> 01:11:35,619

address the system and stop thinking

1551

01:11:51,540 --> 01:11:48,320

yes please

1552

01:11:55,410 --> 01:11:51,550

what I wanted to say and what I still

1553

01:12:02,760 --> 01:11:55,420

say is this is not it's not a dichotomy

1554

01:12:06,800 --> 01:12:02,770

it's there are situations where really

1555

01:12:11,130 --> 01:12:06,810

one career is at stake very quickly and

1556

01:12:16,140 --> 01:12:11,140

I think in that situation you have to be

1557

01:12:19,890 --> 01:12:16,150

pragmatic and I agree with you I'm I'm

1558

01:12:23,910 --> 01:12:19,900

action advocate of fixing the system and

1559

01:12:29,610 --> 01:12:23,920

and I've done research on that but I I

1560

01:12:31,980 --> 01:12:29,620

don't think you can you should you

1561

01:12:35,040 --> 01:12:31,990

should tell a woman at that juncture in

1562

01:12:38,340 --> 01:12:35,050

their career now we need first we need

1563

01:12:41,640 --> 01:12:38,350

to fix the system because I I think it's

1564

01:12:45,390 --> 01:12:41,650

the timescale of an individual careers

1565

01:12:48,720 --> 01:12:45,400

very sensitive I completely understand

1566

01:12:51,060 --> 01:12:48,730

that I'm just it's time it's time I mean

1567

01:12:53,520 --> 01:12:51,070

how much longer how many more 5 to

1568

01:12:56,340 --> 01:12:53,530

10-year periods do we need of that it's

1569

01:13:00,900 --> 01:12:56,350

it's well past time I'm not against it

1570

01:13:03,750 --> 01:13:00,910

I've just the next question

1571

01:13:05,910 --> 01:13:03,760

so my name is Pia and I'm undergraduate

1572

01:13:09,420 --> 01:13:05,920

student actually at the University of

1573

01:13:12,450 --> 01:13:09,430

Texas we have a three percent black

1574

01:13:15,170 --> 01:13:12,460

population at my university and I've

1575

01:13:17,400 --> 01:13:15,180

noticed that especially in science

1576

01:13:21,090 --> 01:13:17,410

oftentimes women of color experience

1577

01:13:23,280 --> 01:13:21,100

things differently than white women what

1578

01:13:24,510 --> 01:13:23,290

and I think that science and the way

1579

01:13:27,150 --> 01:13:24,520

that we talk about science has a role in

1580

01:13:28,680 --> 01:13:27,160

that even like on Monday at the

1581

01:13:30,210 --> 01:13:28,690

planetary protection session we had

1582

01:13:32,010 --> 01:13:30,220

people saying that planetary protection

1583

01:13:35,640 --> 01:13:32,020

didn't matter that contamination in

1584

01:13:37,350 --> 01:13:35,650

space was okay and this was after there

1585

01:13:39,390 --> 01:13:37,360

was like an Apache hoop dance the day

1586

01:13:42,270 --> 01:13:39,400

before which I think empirically shows

1587

01:13:44,850 --> 01:13:42,280

that like colonization has been a

1588

01:13:46,590 --> 01:13:44,860

problem like we have used science to

1589

01:13:49,040 --> 01:13:46,600

support things like eugenics we've used

1590

01:13:51,720 --> 01:13:49,050

science to support things like

1591

01:13:53,640 --> 01:13:51,730

transphobia so how do you think that

1592

01:13:56,010 --> 01:13:53,650

like we can create a diverse environment

1593

01:13:56,820 --> 01:13:56,020

in science when people aren't willing to

1594

01:13:58,230 --> 01:13:56,830

question

1595

01:14:02,790 --> 01:13:58,240

ways in which we produce our knowledge

1596

01:14:09,390 --> 01:14:05,850

I apologize everybody we're over time

1597

01:14:12,390 --> 01:14:09,400

now and they need to transform the rooms

1598

01:14:15,180 --> 01:14:12,400

for the next sessions but we do have a

1599

01:14:17,190 --> 01:14:15,190

break coming up so I'd invite all of

1600

01:14:20,340 --> 01:14:17,200

those who have questions to come up and

1601
01:14:32,360 --> 01:14:20,350
perhaps discuss them with our panelists

1602
01:14:39,270 --> 01:14:36,300
yes before everybody takes off we had

1603
01:14:42,780 --> 01:14:39,280
one last thing to mention here we don't

1604
01:14:45,840 --> 01:14:42,790
want to leave on a depressing note and

1605
01:14:48,650 --> 01:14:45,850
so what I want to invite everybody to do

1606
01:14:51,720 --> 01:14:48,660
is to go back to your institutions and

1607
01:14:54,300 --> 01:14:51,730
do something take at least one small

1608
01:14:56,370 --> 01:14:54,310
action one takeaway point from our

1609
01:14:59,190 --> 01:14:56,380
speakers that you think you can make a

1610
01:15:02,100 --> 01:14:59,200
difference with and I learned this

1611
01:15:04,200 --> 01:15:02,110
myself as a parent that you don't have

1612
01:15:05,880 --> 01:15:04,210
to be a perfect parent all the time in

1613
01:15:08,760 --> 01:15:05,890

fact a colleague and child development

1614

01:15:10,860 --> 01:15:08,770

said you only have to be a good parent a

1615

01:15:12,630 --> 01:15:10,870

perfect parent five percent of the time

1616

01:15:16,080 --> 01:15:12,640

which seems like a staggering low number

1617

01:15:18,000 --> 01:15:16,090

from a professional but go out and do

1618

01:15:20,160 --> 01:15:18,010

something those little changes do make a