How Informal Processes and Relationships Shape Gendered Careers in STEM

Jennifer Dahmen-Adkins & Dr. Andrea Wolffram
in cooperation with Astrid Schulz, Matthias Dorgeist, Christoph Heckwolf and Anne Göttgens

Institute for Sociology
RWTH Aachen University, Germany

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The Initial Problem and Outline of the Presentation

- *Leaky Pipeline* in STEM sciences

➢ Network's relevance for science careers

➢ Reflection of actor-oriented equality policies
  - 2 case studies

National Project "Gender bias of women's career paths engineering and information technology through informal support relationships and networks"
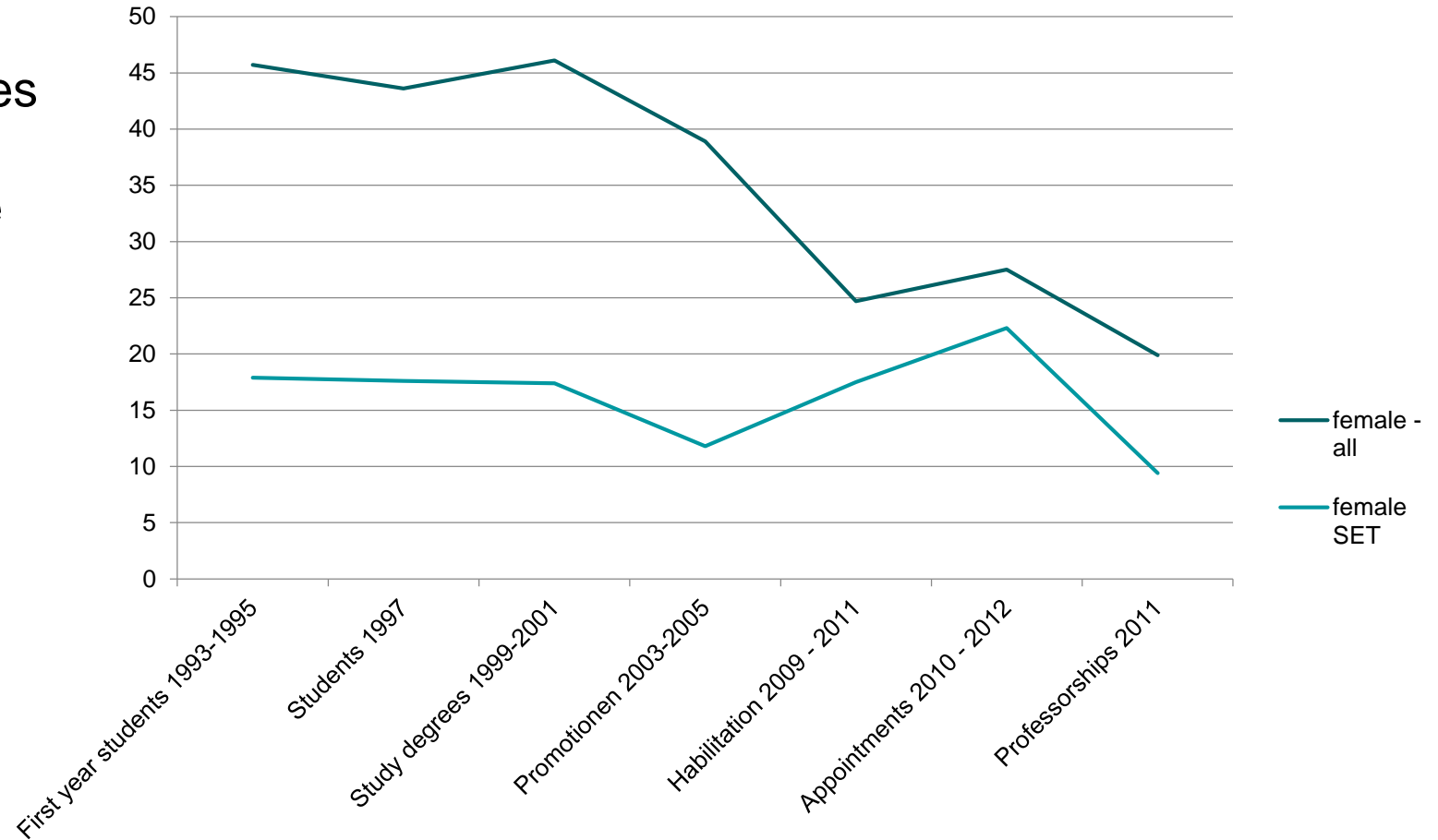
Fig. 1: Cumulative scientific career paths, in percent (GWK 2014, BLK 2007, BLK 2000, own calculation)

Why are networks relevant for science careers?

For careers in general, different influences of networks have been scientifically investigated, where sometimes gender-specific considerations have already been taken into account :

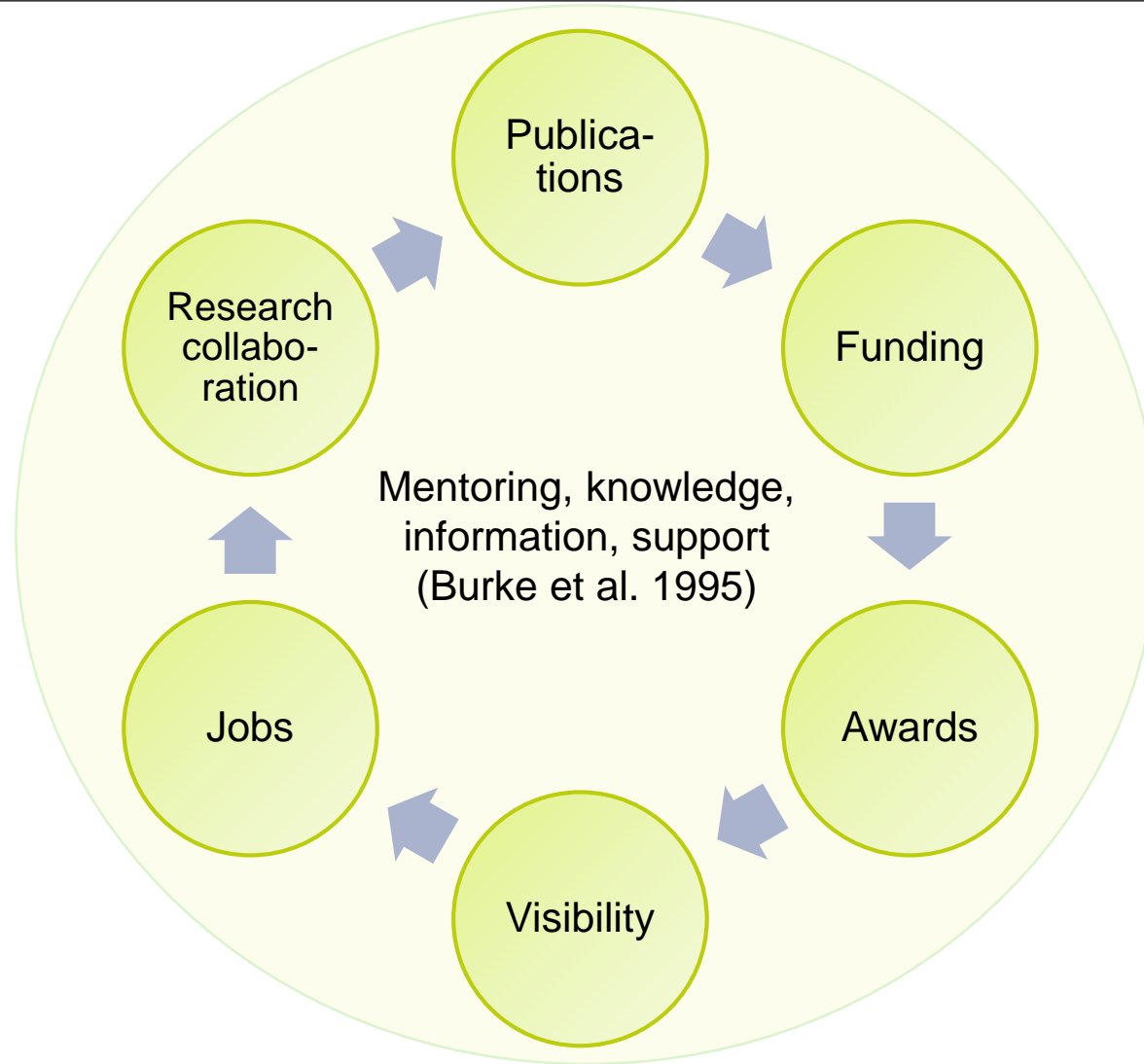- ○ Contacts as resource for information (e.g. Granovetter 1973)

- ○ Mentor relationships (e.g. Burke et al. 1995)

- ○ Developmental networks (e.g. Barthauer et al. 2016)

- ○ Influence (e.g. Ibarra 1993, McGuire 2002)

- ○ Implicit knowledge, resp. get to know the field and it's specific logic (Durbin 2011)

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Networks' relevance for science careers

- And further, following Gruhlich (2016) and Hendrix et al. (2016), relationships in science generally

  - ...serves to open up new research fields,

  - ...help to increase the publication rate,

  - ...facilitate scientific exchange,

  - ...help to acquire partners or third-party funding

  - and are thus an important career capital.

- Engineering scientists in particular benefit from contacts when they want to switch between science and industry in order to obtain professorships. (Leemann 2013)

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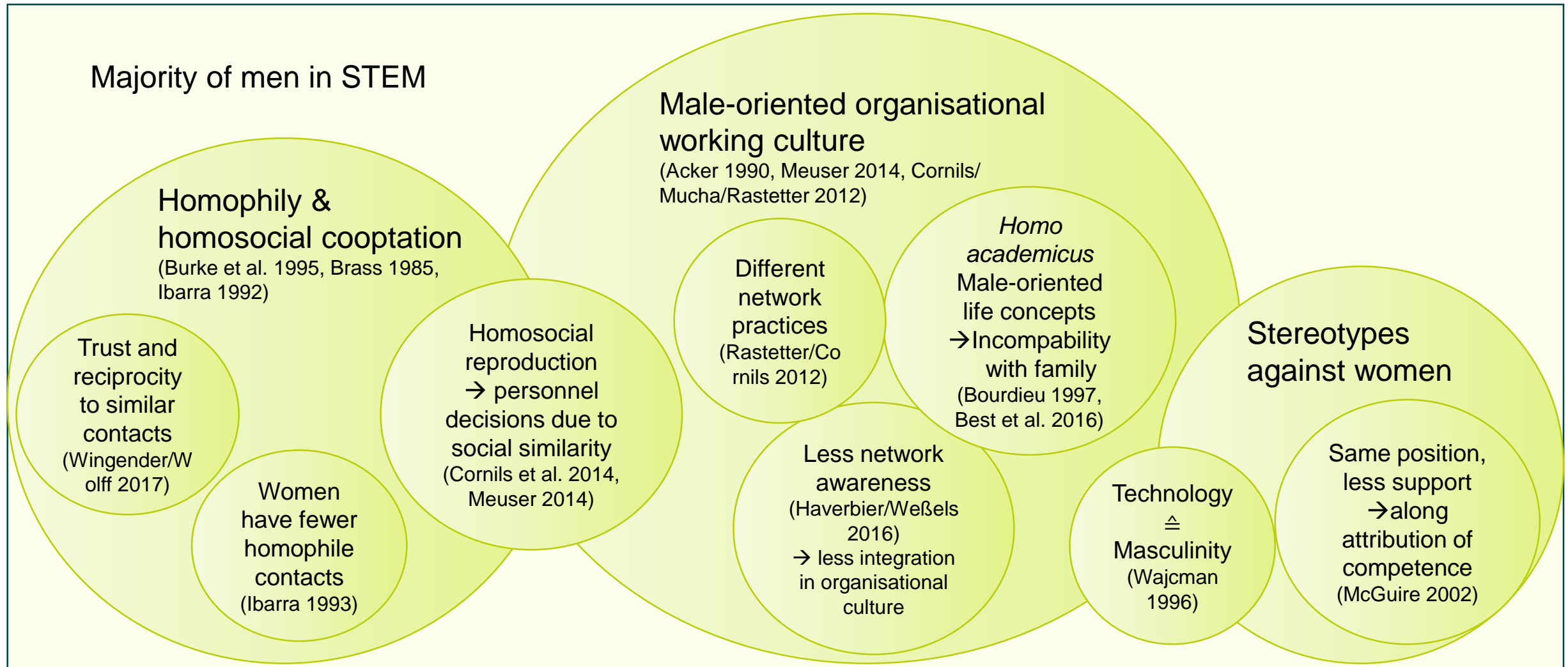
Relevance of networks for science careers

Women's limited networks restrcits their possibilities to do research, to publish, to be cited – i.e. to show the marks of status and performance in science (Fox 2010)

Publica-tions

Funding

Research collabo-ration

Mentoring, knowledge, information, support (Burke et al. 1995)

Jobs

Awards

Visibility

Women academics engage less in international research collaborations than men (Uhly et al. 2015),

Mentoring relationships differ between women and men (Kauffeld 2017)

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Barriers for women in STEM through informal networks

Majority of men in STEM

Homophily & homosocial cooptation
(Burke et al. 1995, Brass 1985, Ibarra 1992)

Trust and reciprocity to similar contacts
(Wingender/Wolff 2017)

Women have fewer homophile contacts
(Ibarra 1993)

Homosocial reproduction → personnel decisions due to social similarity
(Cornils et al. 2014, Meuser 2014)

Male-oriented organisational working culture
(Acker 1990, Meuser 2014, Cornils/ Mucha/Rastetter 2012)

Different network practices
(Rastetter/Cornils 2012)

Homo academicus Male-oriented life concepts → Incompability with family
(Bourdieu 1997, Best et al. 2016)

Less network awareness
(Haverbier/Weßels 2016) → less integration in organisational culture

Technology ≙ Masculinity
(Wajcman 1996)

Stereotypes against women

Same position, less support → along attribution of competence
(McGuire 2002)

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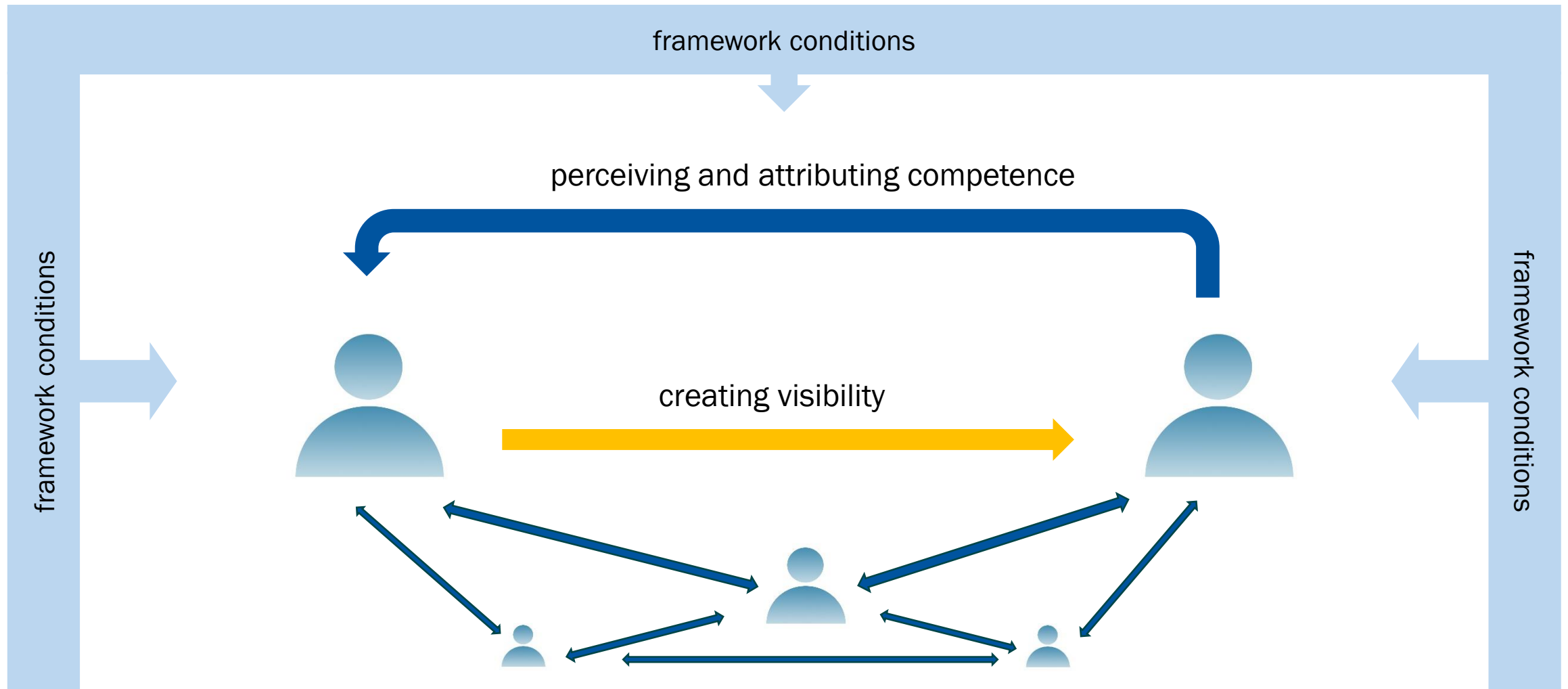
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Critical view on actor-oriented equality policies

- Idea of the individuals responsibility for arranging the network

- Different equality policies draw on the necessity for women to learn the competencies of successful networking

- targeted support and coaching offers for women

- Goal: Promoting women's networking competence

→ overemphasis on the ability to shape career paths on one's own responsibility

→ women in a position of justification and delegate to them the responsibility of 'improving' their professional networks in a targeted manner

→ **neglect the complexity of gender specific barriers in and through informal networks**

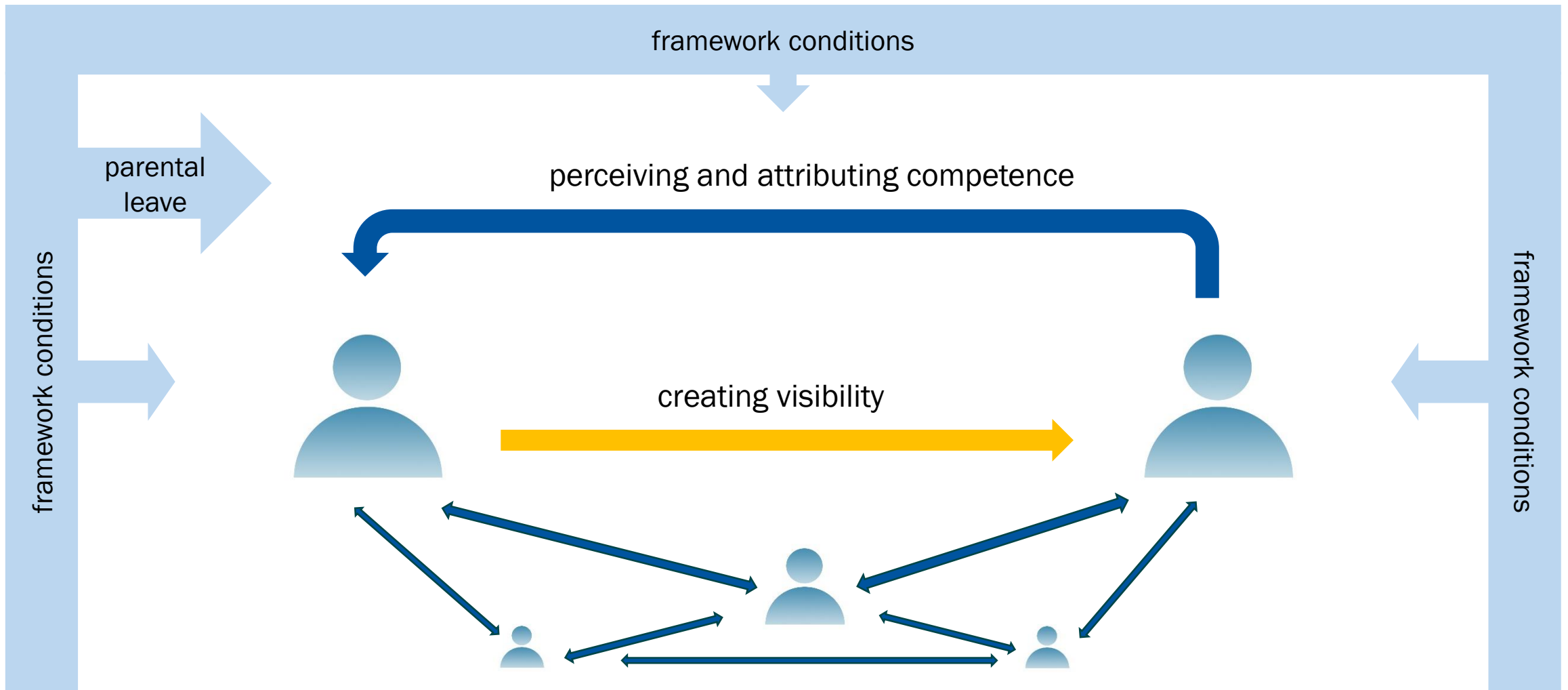**How Informal Processes and Relationships Shape Gendered Careers in STEM**
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Framework conditions of Networking

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Insights of two case studies

framework conditions

framework conditions

framework conditions

perceiving and attributing competence

creating visibility

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"I've been to the institute regularly. And I always asked what's up. I simply believe that by the time you are no longer there, when you are no longer present at the institute daily and, uhm, can't draw attention to yourself or can say 'it looks like this and that', you are going out of focus a bit"
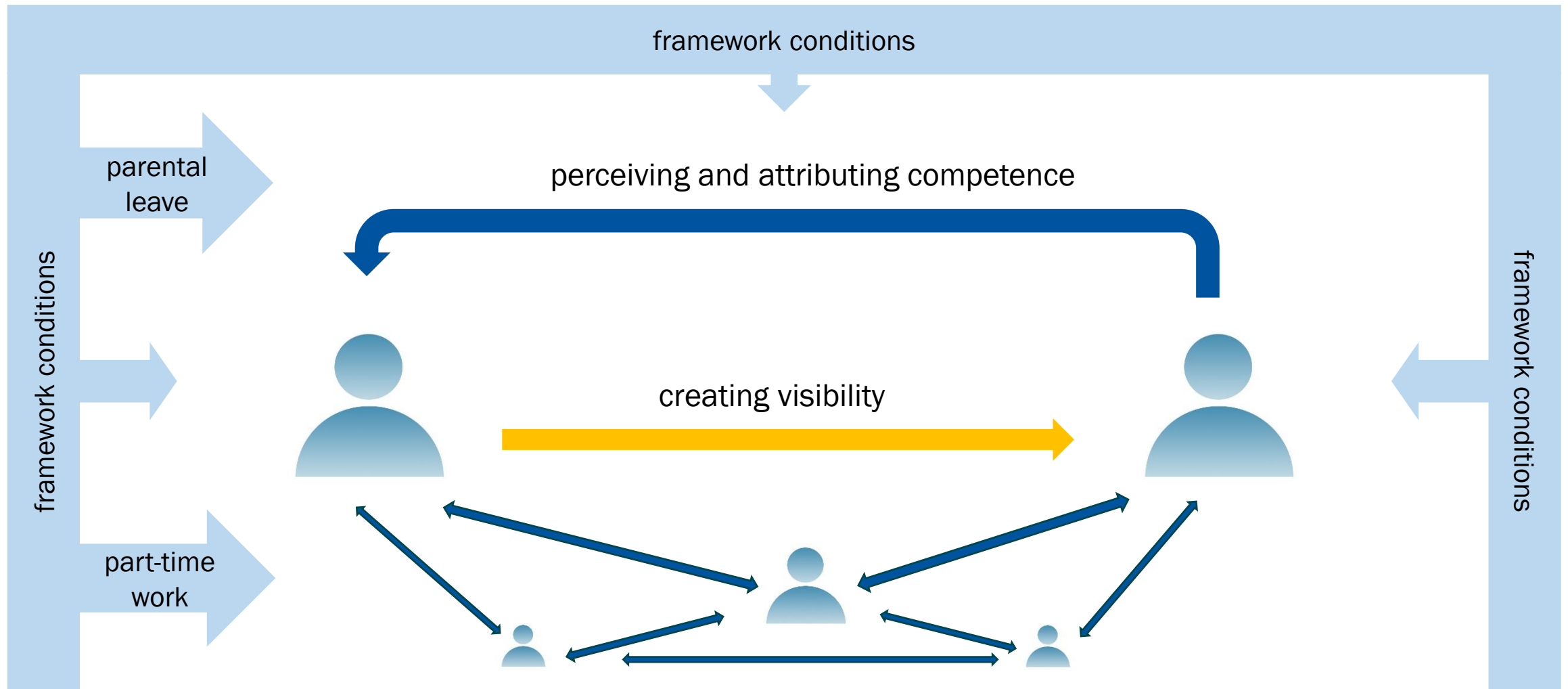(P1, 267-273)

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Insights of two case studies

framework conditions

parental leave

framework conditions

perceiving and attributing competence

creating visibility

framework conditions

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"I think the difference between a part-time job and a full-time job is that in a full-time job you have a great amount of time to stand somewhere in a coffee break and say 'I already did that'. To pat oneself on the back (...) to show up everywhere and say 'boa, what have I done great again today'. (...), everyone does that. (...) But you don't have time for that in a part-time position anymore.'"
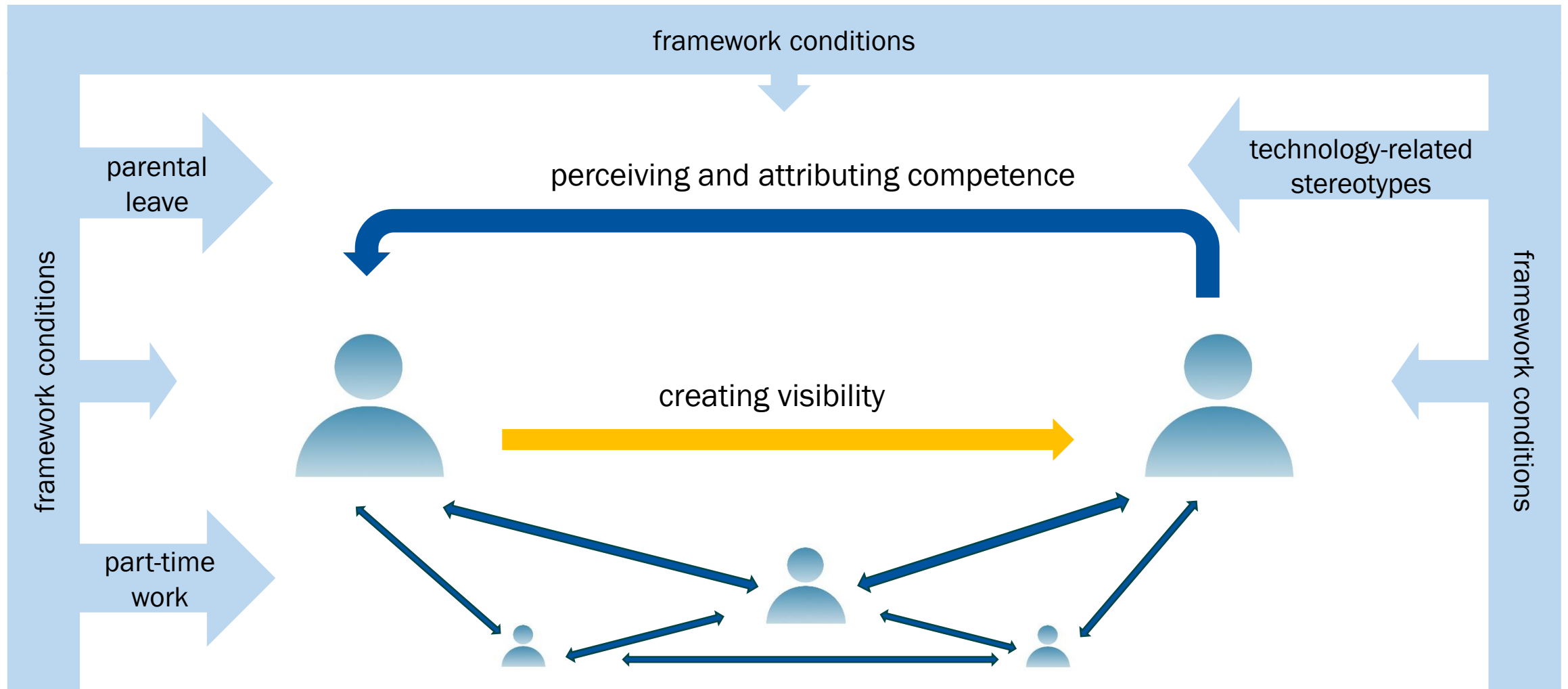
(P1, 752-767)

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Insights of two case studies

framework conditions

parental leave

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perceiving and attributing competence

creating visibility

part-time work

framework conditions

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"I think it is rather that she is very advantaged. I don't mean that negatively, but um, I mean it's a male domain. If there is a woman every male fellow student is somehow/ ((laughs)) has a great interest in helping her to explain certain things"
(P2, 759-764).

"Well I mean in the end I believe - as I said, we once had female employees - I believe that also for the total atmosphere it is quite good, if this is not a pure male workplace"
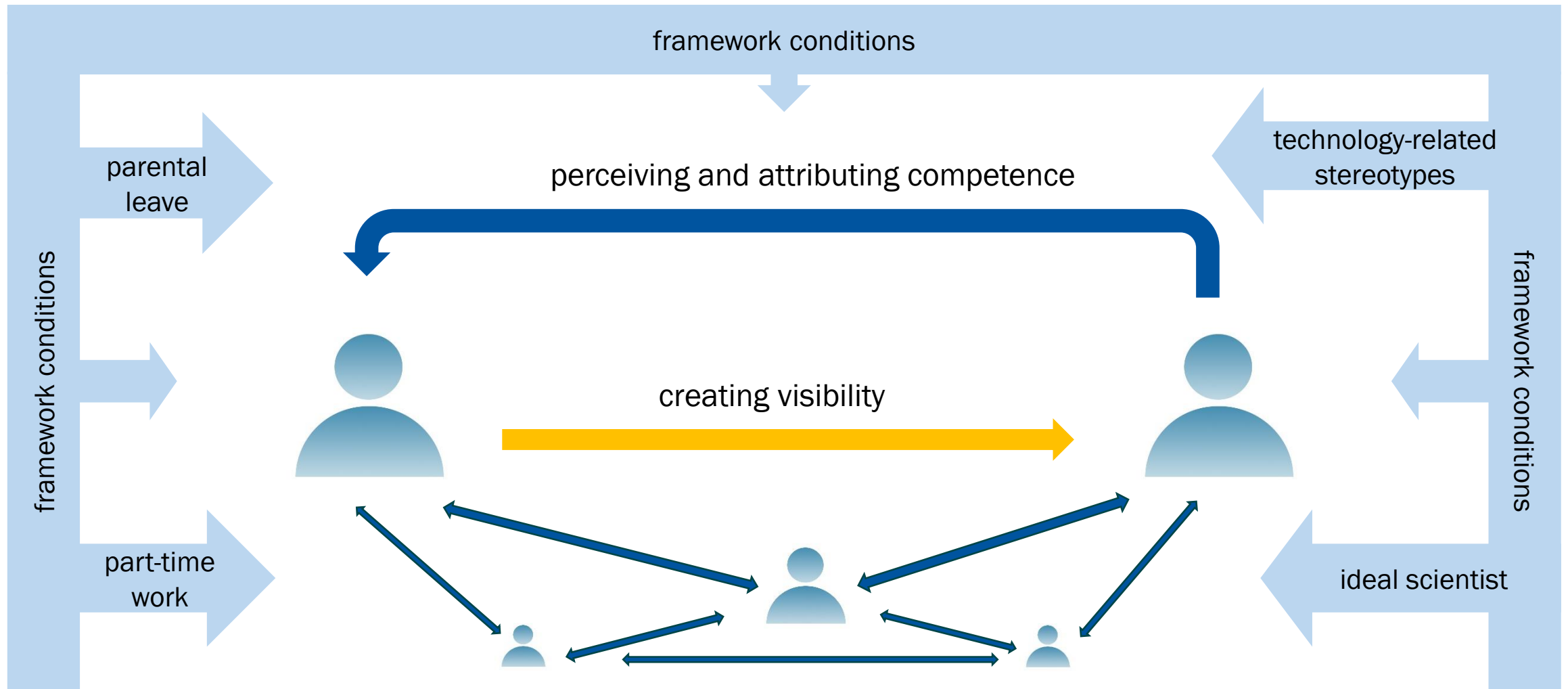(P2, 838-841)

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Insights of two case studies

framework conditions

parental leave

framework conditions

part-time work

technology-related stereotypes

framework conditions

perceiving and attributing competence

creating visibility

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"I already had to put my foot down once or twice and say 'I'm not reduced to the role of a mom here'. So someone says 'yes, you're our mum here'. #mhm# and I said 'to make one thing clear: 'I'm a post-doc here'"
(P1, 747-750)

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Insights of two case studies

framework conditions

parental leave

framework conditions

part-time work

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technology-related stereotypes

framework conditions

ideal scientist

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Issues for further research

National project

Gender bias of women's career paths engineering and information technology through informal support relationships and networks

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November 2017 - October 2020

www.gendernetz.de

Focusing on the influence of informal networks for science careers in STEM

→ Focus on higher education and industry

→ Informal exclusion mechanisms

→ Different assessments of informal networking?

→ Different (gendered) networking practices?

→ Recruitment and support practices

→ Influence of gatekeepers (informal influences)

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Jennifer Dahmen-Adkins & Dr. Andrea Wolffram

jdahmen@soziologie.rwth-aachen.de
Twitter: @jennifer.dahmen

awolffram@soziologie.rwth-aachen.de

GenderNetz team

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Thank you!

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