Supplement - Social Capital and Women in Computing: A Comparative Study Between Sweden and Bangladesh

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1 Introduction

This document provides the research instrument for the following publication:


For this publication, we developed a semi-structured interview instrument to study how social capital influences participation in computing education among women. Social capital refers to social networks and relationships that individuals have access to which can be used to leverage advantage within specific fields [2]. In the field of computing education, social capital is said to relate to participation in computing education, for instance through supportive environments and access to computing people and role models [3], but also through influence from friends and family [4]. The study presented here investigated female students from Bangladesh and Sweden ($n = 12$), underscoring the significance of family support in Bangladesh, particularly about career prospects, whereas Swedish families demonstrated a favourable perception of education. Friendships have a substantial impact in both groups, affecting the degree of support and discouragement. In addition, the students reflect on external influences, such as teachers and role models, in shaping their decision of studying computing. Acknowledging sample size limitations, the study offers insights into how access to social capital influences women’s educational choices in computing in Sweden and Bangladesh.

This document contains a detailed presentation of the semi-structured interview guide developed, including recommendations for using the research instrument.
2 Research instrument guidelines

Format
The semi-structured interview approach is particularly suited when the themes of interest are defined beforehand, while allowing for unexpected insights to emerge during the research process [5]. In the context of this study, it meant that the focus of the interviews was on family, friends, and other social connections which can influence an individual to study computing. The questions were few and open to allow room for personal interpretation but included potential sub-questions in the case where an interviewee did not fully answer the questions. This format also meant that if an earlier question answered a later question, the latter could be excluded from the interview or potentially used as a point for further discussion. Before conducting the interviews, consent was obtained from the participating students by e-mailing them a consent form. The interviews were conducted through Zoom video conversations and in person, and lasted between 15 to 20 minutes.

Research design considerations
For the theme Family, we differentiate between close family relations and extended ones. Previous research shows that family has a “spillover effect” on choice of study, and that this effect is stronger for close family members, such as parents or siblings [6]. In addition, we ask if the family members are interested in computing, as we wish to understand the stance of the family members on computing, and if this supports the choice of study. For the final questions, we ask the students how they plan on finding a job, in order to understand if the social network plays a role in this.

Data analysis
A step-by-step procedure for analysing the data is described in the original publication. The researchers recommend a thematic analysis approach in which the main themes are defined beforehand, while allowing other themes to emerge during the coding process [7].
3 Research instrument

The non-italic, non-bold questions are the main questions. The questions listed in italics are leading questions to get more information. The bolded sections including Background and motivation, Family, Friends, and External influences are the predefined themes of interest. For some questions, the keywords in parentheses can be used to prompt the interviewee further.

Background and motivation

What study programme do you attend?

What year of your study programme are you in?

When did you decide to study [study programme], and why?

Family

Do you have a family member who has studied computing?

Is it a close family relation? (e.g. father, mother, sister)? or extended? Do you know what they studied?

Do you have a family member that is working in the computing field?

Is it a close family relation? Did this person study computing?

Are your family members interested in computing?

Did your family encourage you to apply for your programme?

IF YES

Was it the family members who have studied/worked in computing? (IF earlier questions were yes.) Do you know why they encouraged you? (e.g., job opportunities, status, money.)

IF NO

If they did not encourage you, did they discourage your choice? Was it the family member who has studied/worked in computing? (IF earlier questions were yes.) If so, do you know why? (e.g., gender, status, money.)

Friends

Do you have a friend who has studied, or is studying, computing?

Is it a close friend or an acquaintance? Do you know what they studied/are studying?

Do you have a friend who is working in the computing field?

Is it a close friend or acquaintance? Did this person study computing?
Are your friends interested in computing?

Did your friends encourage you to apply for your study programme?

IF YES
Was it the friend who has studied/worked in computing? (IF earlier questions were yes.) Do you know why they encouraged you? (e.g. job opportunities, status, money.)

IF NO
If they did not encourage you, did they discourage your choice? Was it the friend who has studied/worked in computing? If so do you know why? (e.g., gender, status, money.)

External influences

Outside of friends and family, is there anyone who has had an impact on you and your decision to study computing?
Who was this person? How did you hear of them? (e.g. friend of a friend, celebrity.) Did they encourage you to choose or were you influenced by hearing of them?

Other questions

When you need help with your studies, is there anyone in your direct environment who can help you?
Who is this person(s)?

Once you finish your studies, what profession would you like to have?
How do you plan on finding a job?

Is there something else you want to tell us?
References


