

## Multi-Item Scale for Project:

Pretesting of special module on ICT at work, working conditions & learning digital skills  
(English Version)

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### Question Text:

English version: In the last 12 months, did the usage of computers, laptops, smartphones, or other computerised equipment at work increase or reduce any of the following job characteristics, if any?

German version: Haben sich in den letzten 12 Monaten bei der Arbeit durch die Nutzung von Computern, Laptops, Smartphones und anderer computergesteuerter Ausstattung die folgenden Stellenmerkmale erhöht oder verringert, wenn überhaupt?

### Instruction:

English version: *Please tick all that apply*

German version: *Bitte kreuzen Sie alle relevanten Punkte an*

### Answer Categories:

English version:

Increase

Decrease

No relevant change

German version:

Zunahme

Abnahme

Keine relevante Veränderung

### Findings for Multi-Item Scale:

Probe 11 indirectly assessed whether respondents understand the question wording of question 10. Since the number of probes that can be asked in an online-pretest is limited, it is impossible to assess all items of this item battery. Instead, the last item of this item battery was selected to test whether respondents understand question 10 correctly. If responses to Probe 11 are meaningful, it is possible to conclude that the overall question was sufficiently understood.

Question 10 asked respondents whether the usage of computers, laptops, smartphones, or other computerised equipment at work increased or reduced a number of job characteristic in the last 12 months. The item battery consisted of eight items that covered the job characteristics of spending time on repetitive and routine tasks, opportunities to be creative, freedom and independence in organising own tasks, monitoring of own performance at work, the need to learn new things, the collaboration and cooperation with colleagues or business partners, and the amount of irregular working hours (night, weekend, shift work). Respondents could choose between the answer categories "Increase," "Decrease," and "No relevant change." All categories were exclusive categories and, therefore, percentages add up to 100 percent.

Only respondents that selected the response "Yes" at 3 and "Yes" at either Q3a or Q3b (question Q3 was not tested in this pretest, for its phrasing and frequency distribution please refer to the attached PDF document) received the question 10. As a consequence, 54 British respondents and 49 German respondents could provide an answer to question 10. As a consequence, 42 respondents did not receive this question (21 British respondents and 21 German respondents).

For a more detailed breakdown of the respondents' answers please refer to the tables in the attached PDF document.

## **Recommendations for Multi-Item Scale:**

Question: The respondents seem to understand this question. However, we would like to recommend changing the syntax of the German version. In order to clarify the focus of the question for the respondents, it is necessary to ask the main question in the question stem:

"Haben sich in den letzten 12 Monaten durch die Nutzung von Computern, Laptops, Smartphones und anderer computergesteuerter Ausstattung die folgenden Stellenmerkmale bei ihrer Arbeit erhöht, verringert, oder sind sie unverändert geblieben?"

In addition, we recommend replacing the term "Stellenmerkmale" with "Arbeitsplatzmerkmale." This term is more appropriate and it has the benefit that the phrase "bei der Arbeit" [at work] is no longer necessary:

"Haben sich in den letzten 12 Monaten durch die Nutzung von Computern, Laptops, Smartphones und anderer computergesteuerter Ausstattung die folgenden Arbeitsplatzmerkmale erhöht, verringert, oder sind sie unverändert geblieben?"

Answer categories: No changes recommended.

## **Cognitive Techniques:**

Category Selection Probing.

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## All Items for Question(Question Text):

English version: In the last 12 months, did the usage of computers, laptops, smartphones, or other computerised equipment at work increase or reduce any of the following job characteristics, if any?

German version: Haben sich in den letzten 12 Monaten bei der Arbeit durch die Nutzung von Computern, Laptops, Smartphones und anderer computergesteuerter Ausstattung die folgenden Stellenmerkmale erhöht oder verringert, wenn überhaupt?

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### -> Tested Items:

#### Item Text:

English version:

- i) The amount of irregular working hours (night, weekend, shift work)

German version:

- i) Die Höhe der unregelmäßigen Arbeitszeiten (Nacht-/ Wochenend-/ Schichtarbeit)

#### Recommendations:

No changes recommended.

#### Findings:

The pretesting study assessed the last item of this item battery in more detail ("The amount of irregular working hours (night, weekend, shift work)"). For this item, most of the respondents indicated that the usage of computers, laptops, smartphones, or other computerised equipment at work brought no relevant change with regard to the irregularity of working hours (British respondents: 72.22 percent, German respondents: 81.63 percent). Only 11.11 percent of the British respondents and 12.24 percent of the German respondent answered that the amount of irregular working hours increased and 16.67 of the British respondents and 6.12 of the German respondents reported that the number of irregular hours decreased.

All respondents that chose the answer category "Increase" or "Decrease" at item 10i) received a category selection probe that encouraged respondents to explain their answer a little further and to provide reasons for their answer selection. Depending on the previous answer selection the introductory sentence of the probe was adapted to the answer selection for item 10i) (e.g., respondents that chose "decrease" at item 10i) received the introductory sentence: "You answered that the usage of computers etc. decreased the

amount if irregular working hours.”). Given the filter condition in this questionnaire and the respondents’ answer selection at item 10i), only a small subset of all respondents received this probe (15 British respondents and 9 German respondents).

In total, 12 respondents (6 British respondents and 6 German respondents) chose the answer value "increase" for question 10i) and, thus, the probe inquired for the reason for an increase of irregular working hours. All German respondents and one British respondent pointed to an increase of their workload. For example respondent 91 explained that there was a *"greater workload as a result of more tasks"* and respondent 340 clarified that *"there have been a lot of projects recently that required more overtime than usual and, due to worse staffing, fewer employees had to cope with the tasks which arose."* Half of the British respondents remarked that the amount of irregular working hours increased because the usage of computers led to more flexibility of the working hours and constant accessibility, e.g., through the possibility *"to work from home in the evenings and weekends"* (British respondent, ID 162). One British respondent (ID 108) also pointed to the pressure to work efficiently: *"If we don't use computer properly then the working hours will increase."*

Besides respondents who provided reasons for an increase of irregular working hours, some respondents (9 British respondents, 3 German respondents) selected the answer option "Decrease" at item 10i). As a consequence, these respondents were asked for the reasons for a decrease of irregular working hours due to the usage of computers and similar devices. Two British and three German respondents mentioned the aspects of an increased flexibility and independence due to an automatization of processes that helped to switch from irregular to regular working hours. Here are two examples that fall in this category:

- "With the ability to schedule things to happen automatically without you having to be woken to set them off mean that my working hours became more normal." (British respondent, ID 377)
- "Because I know exactly when I begin and exactly when I stop and I don't have to do overtime, as I can estimate precisely when I will have completed what." (German respondent, ID 328)

Two British respondents also remarked that the usage of computers led to an increased productivity. For example, respondent 368 explained that she *"was more productive so [I] didn't have to spend longer than needed on work."* Further reasons that were mentioned (by one respondent each) were the change to tasks that are not computer related and a decreasing workload. One response was unusable and one British respondent provided a "Don't know" response.

## Question Topic:

Digitalization/ Use of digital systems

**Construct:**

Impact of ICT on job characteristics

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-> Not Tested Items:

**Item Text:**

English version:

a) The time spent on repetitive and routine tasks

German version:

a) Die Zeit, die mit Wiederholungs- und Routineaufgaben verbracht wird

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Digitalization/ Use of digital systems

**Construct:**

Impact of ICT on job characteristics

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**Item Text:**

English version:

b) My work productivity

German version:

b) Meine Arbeitsproduktivität

**Question Topic:**

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**Item Text:**

English version:

c) The opportunities to be creative

German version:

c) Meine Möglichkeit, kreativ zu sein

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**Item Text:**

English version:

d) The freedom and independence in organising my tasks

German version:

d) Die Freiheit und Selbstständigkeit bei der Organisation meiner Aufgaben

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**Item Text:**

English version:

f) The monitoring of my performance at work

German version:

f) Die Überwachung meiner Arbeitsleistung

**Question Topic:**

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**Item Text:**

English version:

g) The need to learn new things

German version:

g) Die Notwendigkeit, neue Dinge zu lernen

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**Item Text:**

English version:

h) The collaboration and cooperation with colleagues or business partners

German version:

h) Zusammenarbeit mit Kollegen oder Geschäftspartnern

**Question Topic:**

Digitalization/ Use of digital systems

**Construct:**

Impact of ICT on job characteristics