



**Brief Inventory of Technology Self-Efficacy (BITS)
and
Brief Inventory of Technology Self-Efficacy – Short Form (BITS-SF)
Manual**

By Arne Weigold, Ph.D.

email@bitssurvey.com

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The BITS, the BITS-SF, and this manual are free to download and use non-commercially from www.bitssurvey.com.

The BITS

The Brief Inventory of Technology Self-Efficacy (BITS) and Brief Inventory of Technology Self-Efficacy – Short Form (BITS-SF) assess computer self-efficacy (CSE). Both measures were created by Arne Weigold, Ph.D., to determine people's levels of confidence engaging in novice, advanced, and expert computer skills and are free to download and use non-commercially (Weigold & Weigold, 2021).

BITS and BITS-SF

The BITS is an 18-item measure with one score each for its three subscales (Novice, Advanced, and Expert), whereas the BITS-SF is a six-item measure with one total score that signifies where people fall on the novice to expert continuum. Both measures assess confidence across the same computer skill domains and can be used in both research and applied settings. The choice of which one to use should be based on the needs of the user. In short:

BITS

- Three scores provide detailed information about CSE
- Fast to administer
- Application example: CSE assessment for only one or two computer skill levels for potential trainees
- Application example: CSE measurement for separate computer skill levels in multivariate research

BITS-SF

- One simple total CSE score
- Even faster to administer
- Application example: CSE assessment for students or job applicants
- Application example: CSE measurement as part of demographics in research

More detailed information about the BITS and the BITS-SF can be found on their respective pages (BITS and BITS-SF) on this website, and they can be downloaded in different formats from this website's downloads page.

Languages

The BITS and BITS-SF are currently available in English (see Weigold & Weigold, 2021), Simplified Chinese, and Traditional Chinese (see Weigold et al., 2023). However, work is being done to translate them into more languages. You can check back on this page or email the author to request notification to find out when more languages are published.

If you are interested in translating and validating the BITS, it is strongly recommended to contact the author first to be provided with resources, collaborate if interested, and to make sure that no two people develop the same language in parallel.

Contact

You can contact Arne Weigold, Ph.D., at email@bitssurvey.com if you have any questions.

BITS

The BITS provides information about individuals' computer self-efficacy (CSE) for three levels of computer skills: Novice (basic computer use), Advanced (skills beyond basic use that do not typically require specialized knowledge), and Expert (skills typically requiring specific training). Each level corresponds to one subscale consisting of six items covering the same six domains of computer skills (hardware, networking, operating system, software, internet, troubleshooting).

Settings

To date, the psychometric properties of the BITS have only been established for the computerized version (Weigold & Weigold, 2021a; Weigold et al. 2023). However, studies are currently being developed to assess paper-and-pencil and interview versions, based on previous research (Weigold et al., 2013; 2018), with the expectation being that they will produce similar results.

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Scoring and Three Dimensions

Participants respond to the 18 items using a six-point Likert scale ranging from *Not at all Confident* to *Completely Confident*. The six items corresponding to each of the three sub-scales are then averaged, with higher numbers indicating higher confidence for completing novice, advanced, or expert computer skills. The three sub-scale scores should be examined separately, and a total score should not be calculated. Those with more advanced scores at a higher level are typically highly confident in their ability to engage in lower-level skills. If the goal is to obtain a single total CSE score, then the BITS-SF should be used instead of the BITS.

Psychometric Properties

The three-factor structure of the BITS was assessed using Mechanical Turk workers and confirmed in college students (Weigold & Weigold, 2021a, see also Weigold & Weigold, 2021b). The BITS showed evidence of convergent and discriminant validity in college students across 21 measures of similar (e.g., CSE) and dissimilar (e.g., personality) constructs. Additionally, college students differed significantly in their scores on the Advanced and Expert levels (but not Novice) based on their self-rated computer skill (e.g., novice, advanced) and major (e.g., education, engineering). Finally, the BITS showed evidence of strong test-retest reliability for up to eight weeks in Mechanical Turk workers. See Weigold and Weigold (2021a) for details.

The Simplified Chinese and Traditional Chinese versions of the BITS showed similarly strong evidence of convergent and discriminant validity. See Weigold et al. (2023) for details.

Contact

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BITS-SF

The BITS-SF was developed to be a shorter measure of individuals' computer self-efficacy (CSE) that provides a single total CSE score representing an individual's overall level of CSE. It consists of the strongest items on the BITS, two from each of the three levels (Novice, Advanced, and Expert) and one from each of the six domains of computer skills (hardware, networking, operating system, software, internet, troubleshooting).

Settings

To date, the psychometric properties of the BITS-SF have only been established for the computerized version (Weigold & Weigold, 2021a; Weigold et al. 2023). However, studies are currently being developed to assess paper-and-pencil and interview versions, based on previous research (Weigold et al., 2013; 2018), with the expectation being that they will produce similar results.

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Scoring and Single Score

Participants respond to items using *Yes* or *No*. Responses are added, with higher numbers of *Yes* responses indicating higher levels of CSE. Numerically, total scores can range from 0 (all *No* responses) to 6 (all *Yes* responses). A score of 0 indicates negligible CSE, whereas scores of 1-2 indicate CSE for the novice computer skill level, 3 indicates CSE for the novice-to-advanced level, 4 for the advanced level, 5 for the advanced-to-expert level, and 6 for the expert level. Only a total score should be used.

Psychometric Properties

Latent class analysis in a sample of Mechanical Turk workers and college students indicated the presence of three classes underlying the BITS-SF, which correspond to the novice, advanced, and expert dimensions assessed by the BITS (Weigold & Weigold, 2021a, see also Weigold & Weigold, 2021b). These three classes had significantly different mean scores across a variety of CSE measures, with those in the novice class generally having the lowest scores and those in the expert class the highest. Overlapping scores across classes also showed evidence for novice-to-advanced and advanced-to-expert scores. The BITS-SF showed evidence of convergent and discriminant validity in college students across 21 measures of similar (e.g., CSE) and dissimilar (e.g., personality) constructs. Finally, college students differed significantly in their BITS-SF scores based on their self-rated computer skill (e.g., novice, advanced) and major (e.g., education, engineering). See Weigold and Weigold (2021a) for details.

The Simplified Chinese and Traditional Chinese versions of the BITS-SF showed similarly strong evidence of convergent and discriminant validity. See Weigold et al. (2023) for details.

Contact

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About the Author



My name is Arne Weigold, Ph.D., and I am a Full Professor of Psychology at [Kent State University | Geauga and Twinsburg Academic Center](#) in Ohio, USA.

I have published in scientific peer-reviewed journals such as [Psychological Methods](#), [Computers & Education](#), [Computers in Human Behavior](#), and [Social Science Computer Review](#).

Please feel free to download a copy of my [curriculum vitae](#) or visit me on [Google Scholar](#).

Contact

You can contact me at email@bitssurvey.com if you have any questions.

References

- Weigold, A.,** Weigold, I. K., Zhang, X., Tang, N., & Chong, Y. K. (2023). Translation and validation of the Brief Inventory of Technology Self-Efficacy (BITS): Simplified and Traditional Chinese versions. *Social Science Computer Review*. Advance online publication. <https://doi.org/10.1177/08944393231176596>
- Weigold, A.,** & Weigold, I. K. (2021a). Measuring confidence engaging in computer activities at different skill levels: Development and validation of the Brief Inventory of Technology Self-Efficacy (BITS). *Computers & Education*, *169*, 104210. <https://doi.org/10.1016/j.compedu.2021.104210>
- Weigold, A.,** & Weigold, I. K. (2021b). Traditional and modern convenience samples: An investigation of college student, Mechanical Turk, and Mechanical Turk college student samples. *Social Science Computer Review*, *40*(5), 1302-1322. <https://doi.org/10.1177/08944393211006847>
- Weigold, A.,** Weigold, I. K., & Natera, S. N. (2018). Mean scores for self-report surveys completed using paper-and-pencil and computers: A meta-analytic test of equivalence. *Computers in Human Behavior*, *86*, 153-164. <https://doi.org/10.1016/j.chb.2018.04.038>
- Weigold, A.,** Weigold, I. K., & Russell, E. J. (2013). Examination of the equivalence of self-report survey-based paper-and-pencil and Internet data collection methods. *Psychological Methods*, *18*(1), 53-70. <https://doi.org/10.1037/a0031607>

Brief Inventory of Technology Self-Efficacy (BITS)

For each of the following statements, please indicate your level of confidence that you can do the activity. There are no right or wrong answers.

①

Not at all
confident

②

③

④

⑤

⑥

Completely
confident

-
- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. I can create a personal homepage. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 2. I can change a computer's volume. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 3. I can write emails. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 4. I can use programming languages to write code. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 5. I can analyze computer error log files. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 6. I can connect headphones to a computer. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 7. I can edit a computer's registry. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 8. I can browse the internet. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 9. I can use advanced functions in office software. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 10. I can connect to the internet. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 11. I can restart a computer. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 12. I can set up a router. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 13. I can use a computer's task manager. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 14. I can design professional websites. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 15. I can set up multiple computer monitors. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 16. I can troubleshoot computer problems. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 17. I can overclock a computer. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 18. I can configure a large computer network. | ① | ② | ③ | ④ | ⑤ | ⑥ |
-

Please go to the next page for scoring.

Brief Inventory of Technology Self-Efficacy (BITS)

Scoring

For each of the three subscales (Novice, Advanced, and Expert), all of the responses are averaged to arrive at the final score with a range of 1 (lowest confidence) through 6 (highest confidence).

	2	3	6	8	10	11	
Novice subscale items	_____	_____	_____	_____	_____	_____	÷ 6 = _____
	1	9	12	13	15	16	
Advanced subscale items	_____	_____	_____	_____	_____	_____	÷ 6 = _____
	4	5	7	14	17	18	
Expert subscale items	_____	_____	_____	_____	_____	_____	÷ 6 = _____

Name _____

Novice Score _____

Advanced Score _____

Expert Score _____

Please refer to the BITS Manual or www.bitssurvey.com for the interpretation of the scores.

Brief Inventory of Technology Self-Efficacy – Short Form (BITS-SF)

For each of the following statements, please indicate if you believe that you can do the activity. There are no right or wrong answers.

Yes

I believe I can do this.

No

I do not believe I can do this.

-
- | | | |
|---|---------------------------|--------------------------|
| 1. I can use a computer's task manager. | <input type="radio"/> Yes | <input type="radio"/> No |
| 2. I can restart a computer. | <input type="radio"/> Yes | <input type="radio"/> No |
| 3. I can use programming languages to write code. | <input type="radio"/> Yes | <input type="radio"/> No |
| 4. I can browse the internet. | <input type="radio"/> Yes | <input type="radio"/> No |
| 5. I can set up a router. | <input type="radio"/> Yes | <input type="radio"/> No |
| 6. I can overclock a computer. | <input type="radio"/> Yes | <input type="radio"/> No |
-

Scoring

The score is calculated by summing all Yes responses.

Name _____

Score _____

The score corresponds to the following levels:

Negligible	Novice	Novice to Advanced	Advanced	Advanced to Expert	Expert
0	1 to 2	3	4	5	6

技术自我效能简要清单
Brief Inventory of Technology Self-Efficacy – Simplified Chinese (BITS-SC)

评分

针对三个子量表（新手级别、高级和专家级）中的每一个，对所有得分取平均值，即可获得最终得分，得分范围为 1（信心度最低）到 6（信心度最高）。

新手级别子量表项	2	3	6	8	10	11	
	_____	_____	_____	_____	_____	_____	÷ 6 = _____
高级子量表项	1	9	12	13	15	16	
	_____	_____	_____	_____	_____	_____	÷ 6 = _____
专家级子量表项	4	5	7	14	17	18	
	_____	_____	_____	_____	_____	_____	÷ 6 = _____

姓名 _____

新手级得分 _____

高级得分 _____

专家级得分 _____

请参考 BITS 手册或访问 www.bitssurvey.com，了解对得分的解读。

技术自我效能简要清单 – 简表
Brief Inventory of Technology Self-Efficacy – Short Form – Simplified Chinese
(BITS-SF-SC)

请针对以下每项表述，指出你认为自己能否进行相应活动。答案没有正确或错误之分。

是

我认为自己能做到这一点。

否

我不认为自己能做到这一点。

-
- | | | |
|--------------------|---|---|
| 1. 我会使用计算机的任务管理器。 | 是 | 否 |
| 2. 我会重启计算机。 | 是 | 否 |
| 3. 我会使用多种编程语言编写代码。 | 是 | 否 |
| 4. 我会浏览互联网。 | 是 | 否 |
| 5. 我会设置路由器。 | 是 | 否 |
| 6. 我会超频使用计算机。 | 是 | 否 |
-

评分

所有回答“是”的项相加，即可计算出得分。

姓名_____

得分_____

此得分对应于以下级别：

可忽略 不计	新手级别	新手级别 到高级	高级	高级到 专家级	专家级
0	1 - 2	3	4	5	6

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簡式電腦自我效能量表

Brief Inventory of Technology Self-Efficacy – Traditional Chinese (BITS-TC)

針對以下每一項陳述，請表明您有多大信心自己能夠完成這項活動。答案沒有正確或錯誤之分。

①

毫無信心

②

③

④

⑤

⑥

信心十足

-
- | | | | | | | |
|----------------------|---|---|---|---|---|---|
| 1. 我會建立個人首頁。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 2. 我會調整電腦的音量。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 3. 我會撰寫電子郵件。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 4. 我會使用多種程式設計語言寫程式碼。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 5. 我會分析電腦錯誤日誌檔。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 6. 我會將耳機連接到電腦上。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 7. 我會編輯電腦的登錄檔。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 8. 我會瀏覽網際網路。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 9. 我會使用辦公軟體的進階功能。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 10. 我會連線到網際網路。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 11. 我會重啟電腦。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 12. 我會設置路由器。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 13. 我會使用電腦的工作管理員。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 14. 我會設計專業網站。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 15. 我會設定多個電腦顯示器。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 16. 我會排除電腦故障。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 17. 我會超頻使用電腦。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 18. 我會配置大型電腦網路。 | ① | ② | ③ | ④ | ⑤ | ⑥ |
-

請在下一頁進行計分。

簡式電腦自我效能量表

Brief Inventory of Technology Self-Efficacy – Traditional Chinese (BITS-TC)

計分

針對下列三個子量表（新手級、進階級和專家級）各別取平均得出最終得分，範圍從 1（信心程度最低）至 6（信心程度最高）。

新手級子量表項目	2	3	6	8	10	11	÷ 6 =	_____
	_____	_____	_____	_____	_____	_____		
進階級子量表項目	1	9	12	13	15	16	÷ 6 =	_____
	_____	_____	_____	_____	_____	_____		
專家級子量表項目	4	5	7	14	17	18	÷ 6 =	_____
	_____	_____	_____	_____	_____	_____		

姓名 _____

新手級得分 _____

進階級得分 _____

專家級得分 _____

有關分數的解釋，請參閱 BITS 手冊或 www.bitssurvey.com。

簡式電腦自我效能量表 – 簡短版
Brief Inventory of Technology Self-Efficacy – Short Form – Traditional Chinese
(BITS-SF-TC)

針對以下每一項陳述，請表明您是否相信自己能夠完成這項活動。答案沒有正確或錯誤之分。

是

我相信我能做到。

否

我不相信我能做到。

-
- | | | |
|----------------------|---|---|
| 1. 我會使用電腦的工作管理員。 | 是 | 否 |
| 2. 我會重啟電腦。 | 是 | 否 |
| 3. 我會使用多種程式設計語言寫程式碼。 | 是 | 否 |
| 4. 我會瀏覽網際網路。 | 是 | 否 |
| 5. 我會設置路由器。 | 是 | 否 |
| 6. 我會超頻使用電腦。 | 是 | 否 |
-

計分

將回答為「是」的各項相加，得到最後的分數。

姓名 _____

得分 _____

分數對應於以下級別：

外行級	新手級	新手級至 進階級	進階級	進階級至 專家級	專家級
0	1-2	3	4	5	6