FAQ 32: What's the best way to ask about digital skills?

What's the issue?

Children's digital skills are no longer just about clicking the right buttons – they are increasingly related to the social character of the activities children perform online, and the content they may produce and upload themselves. An important pitfall to avoid is measuring skills in a too limited or too narrow way, which does not take into consideration the different aspects of digital skills.

Common practice

Skills are characterized by different dimensions, which should be surveyed by several items per dimension. Broadly, skills are divided into three dimensions (van Deursen & van Dijk, 2010):

- Instrumental or operational skills: the ability to use computer technology and the internet (e.g. being able to install programmes and click the right buttons).
- Structural/information skills: these contain, on the one hand, formal internet skills or the competency to navigate on the web (with its hyperlinks and dynamic information) and, on the other hand, informational or evaluation skills, the ability to evaluate the reliability of information found on websites and to cross-reference to information correctly.
- Strategic skills: the capacity of applying skills in everyday life by proactively searching for information and basing decisions on this information (e.g. benefiting financially from comparing products online or saving time after checking timetables online).

In addition to these dimensions, questions can be included about children's *social skills* with the increasingly social character of children's internet use due to the popularity of social networking sites (such as Facebook, Twitter, etc.). These online social skills mainly concern communication, self-disclosure, and privacy. For example, children need to be aware of current "netiquette" rules, such as which personal information they can publish online and for whom (i.e., on a public website or a private profile).

Another type of skill that has become increasingly important to ask about is children's creative and productive skills. Due to the innovations of Web 2.0, children can produce and upload user-generated content that may be visible to a wide public online. It is therefore important to include questions about their skills and knowledge to create, produce, and upload content.

Pitfalls to avoid

Children are often considered as internet-savvy, emphasizing the quite natural capability of the younger generation to use and cope with an increasingly digitalized world. They are seen as the "net generation" (Tapscott, 1998), "digital natives" (Prensky, 2001) or "homo zappiens" (Veen & Vrakking, 2006). However, research into children's internet skills, for example, shows that they often lack the required evaluative or strategic skills, that is, they do not know how to evaluate the usefulness and reliability of internet information (e.g. Walraven, Brand-Gruwel, & Boshuizen, 2009; Kuiper, Volman, & Terwel, 2008). Hence, it is important to measure children's skills in surveys by a range of items for the different skill dimensions.

Example of a study measuring skills

The most valid way to measure skills are performance tests (e.g. van Deursen & van Dijk, 2010), as these are a direct observation of children's abilities. When lacking the ability to perform such tests, especially in large-scale surveys, it is important to take into account the different dimensions of digital skills. A good example can be found at http://alexandervandeursen.nl/serendipity5/uploads/pubs/IJHCI_DeursenDijkPeters_2012.pdf

References and further resources

Kuiper, E., Volman, M., & Terwel, J. (2008). Integrating critical web skills and content knowledge: Development and evaluation of a 5th grade educational program. *Computers in Human Behaviour, 24*(3), 666–692.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1–6.

Sonck, N., Kuiper, E., & de Haan, J. (2012). Digital skills in the context of media literacy. In S. Livingstone, L. Haddon and A. Görzig (eds) *Children, risk and safety online: Research and policy challenges in comparative* perspective (pp. 87–98). Bristol: The Policy Press.

Tapscott, D. (1998). *Growing up digital: The rise of the net generation.* New York: McGraw-Hill.

van Deursen, A. J. A. M. & van Dijk, J. A. G. M. (2010). Measuring internet skills. *International Journal of Human-Computer Interaction, 26*(10), 891–916.

van Deursen, A. J. A. M., van Dijk, J. A. G. M., & Peters, O. (2012). Proposing a survey instrument for measuring operational, formal, information and strategic Internet skills. *International Journal of Human-Computer Interaction, 28*(12), 827–837.

Veen, W. & Vrakking, B. (2006). *Homo Zappiens, Growing up in a Digital Age.* London, Network Continuum Education.

Walraven, A., Brand-Gruwel, S., & Boshuizen, H. P. A. (2009). How students evaluate information and sources when searching the World Wide Web for information. *Computers & Education, 52*(1) 234–246.