COViQUiTY :Has pedagogical continuity improved female teachers' digital skills and confidence?

"The relationship between female teachers and digital technology has seen improvement since the pandemic, particularly due to the prevalence of home schooling. However, they still express a lack of confidence in their technological competence."

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Abstract

In Europe, women constitute less than 15% of students in higher IT studies. Teachers have long been recognized as catalysts for change in this domain, but their association with digital technology has historically been marked by conflict. This dynamic is also influenced by gender, with male teachers tending to be more technically inclined, while female teachers are often more cautious.

The pandemic, by imposing the widespread use of digital tools in classrooms, has compelled all teachers to integrate digital skills into their daily practices urgently. Has this period of containment altered the perspectives of female teachers on digital tools, and what enduring impact has it had on the methods they developed?

We conducted an analysis of 1,500 questionnaires as part of the EDiCOViD research project, focusing on pedagogical continuity among primary and secondary school teachers in French-speaking Switzerland and France. This was followed by 20 semi-structured interviews.

The questionnaire results indicate that only the female teachers reported an improvement in their skills and a more positive relationship with digital education after the period of confinement. However, this sense of improvement is not sustained over time. Few practices were retained post-containment. In the interviews, despite demonstrating proficiency, female teachers continued to face challenges in adopting a confident discourse on digital technology.

Context

In Europe, women constitute less than 15% of students in higher IT studies. Currently, the digital transition is predominantly steered by a homogenous demographic of white men from higher socio-professional categories. This not only presents an inequitable situation for women but also poses challenges for the development of an inclusive and responsible digital industry. The increasing demand for skilled personnel in the digital professions has prompted several Western countries to implement proactive policies aimed at enhancing the representation of women in IT sectors and professions (Craig & al. 2009).

However, flagship measures such as combating stereotypes, providing role models, and implementing specific support initiatives (such as scholarships and prizes) have demonstrated limited temporal and/or geographical impact (Collet, 2019).

Early European Union studies addressing the position of women in IT studies identified teachers as pivotal agents for change in this domain (Valenduc et al., 2004). However, the historical relationship between teachers and digital technology has been characterized by conflict in France and Switzerland (Baron & Bruillard, 1996; Fassa, 2006).

Despite the absence of a gendered gap in skills when it comes to the usage of technologies (Valenduc et al., 2004), teachers' attitudes toward the digital remain influenced by gender (Ferrière & Collet, 2016; Fassa & Lamamra, 2005). Research indicates that male teachers with a more technical orientation exhibit a more favorable disposition toward the integration of digital technology in the classroom. They perceive proficiency with digital tools as a valuable skill that should be imparted through education. On the contrary, female teachers tend to approach digital adoption cautiously, requiring evidence of its added value to learning before considering implementation. Furthermore, male teachers are often presumed to possess computer skills, even when they assert otherwise.

By imposing the use of digital tools in the classroom as a matter of urgency, the pandemic has achieved what no institutional plan for educational technology has ever been able to achieve. All teachers, at all levels of education, used digital tools to teach in a very specific context of distance learning.

Given the totally unanticipated nature of this widespread experiment in the use of digital tools, we might well ask what remains of the results cited above.

Numerous studies have been conducted on teachers' practices during distance learning. Teachers say they have become aware of the importance of digital technology in teaching and the possibilities it offers. They have been able to measure their own shortcomings or, on the contrary, their skills in relation to digital technology. Confronted with the practical realities, these teachers also came to the realization of their students' limited proficiency. This revelation shattered a dual myth: the notion of digital natives (Prensky, 2001; Frau-Meigs, 2014), implying students are inherently adept with technology, and conversely, the stereotype of outdated teachers whose sole responsibility is to caution students about the risks of digital technology.

Teachers were obliged to mobilize digital tools that had been little explored or never encountered before, and to deal with unprecedented situations for which digital tools could provide a helping hand. While there has been extensive discussion on the newfound awareness and shifts in the utilization of digital technology in educational settings, the role of gender has been underutilized in explaining the variations in perception or usage.

We can, however, mention a report from the Institut français de l'éducation in Lyon, highlighting the fact that female teachers do not consider their digital skills and distance learning to be more difficult for them than for male teachers. We should also mention the report by the Canopé, which indicates that women report a slight increase in their digital practices.

Has the pandemic changed female teachers' relationship with digital technology, particularly in terms of gender? Can they become role model for students? That's the question COViQUiTY Research set out to answer.

Method

To conduct this research program, COViQUiTY utilized a questionnaire-based survey (EDiCOViD) of primary and secondary school teachers conducted under the supervision of Marie-France Carnus, of the University of Toulouse Jean Jaurès. Its aim was to identify, understand and support teaching practices arising from the need for pedagogical continuity during periods of confinement. The questionnaire was administered online in the summer of 2020, and completed by 3125 teachers (1594 in France and 233 in Switzerland, mainly in the Valais region).

Our analysis focused on 199 questionnaires from French-speaking Switzerland, predominantly in Valais, and 1,290 questionnaires from France, exploring three key dimensions: emotions, the relationship with digital technology, and the evolution of the relationship with digital technology, categorized by respondents' gender and educational level (primary/secondary). The analysis was carried out in R by applying the chi2 test (<0.05) to each crossover between the independent variable (gender) and the dependent variables. We then carried out MCAs between the gender variable and the variables indicating a change in relationship to digital technology, in order to establish respondent profiles.

We also conducted 24 semi-structured interviews with primary and secondary school teachers in France and French-speaking Switzerland, who declared that the implementation of pedagogical continuity during confinement had changed their relationship with digital technology, in proportions representative of the parent population.

Through these interviews, we aim to:
- measure the evolution of teachers' relationship with digital technology
- uncover new practices retained by teachers
- put into perspective the digital practices that can help mitigate the extraordinary situation currently being experienced.

These interviews were analyzed with IRAMUTEQ.

Results of the quantitative survey

Preliminary findings regarding the gender variable (Périsset and Ruppen, 2021) indicate a notable shift in the relationship with digital technology. Women, in particular, exhibit significantly greater serenity compared to men in their approach to digital usage in education. We wanted to refine this counter-intuitive result to better understand its components. Therefore, we recombined the questionnaire items to identify different variables.

Degree of connection

- At the onset of the lockdown, men tended to identify themselves as "very connected" or "relatively connected," whereas women were more inclined to characterize themselves as "not very connected" or "never connected."
- For primary school teachers, this pattern remained largely unchanged throughout the confinement, with their inclinations and aversions toward these categories persisting, albeit with slightly diminished intensity.
- Conversely, a notable shift occurred in the demographic of secondary school teachers. The stark dichotomy between "never connected" and "very connected" dissipated, giving way to a more nuanced spectrum of responses for women and sharper distinctions for men. Women were more prone to transitioning from "not very connected" to "relatively connected," while men maintained a higher likelihood of progressing from "not very connected" to "very connected." It is essential to highlight that although the polarization diminished, it did not vanish entirely. Men still exhibited a greater likelihood of categorizing themselves as "very connected" rather than "never connected," while women leaned toward characterizing themselves as "relatively unconnected."

Degree of appreciation of digital technology

- Again, we see a polarization between men and women. At the start of their confinement, women seem to declare that they "don't like digital technology" or even that they "hate digital technology", whereas men declare that they "like digital technology" or even that they "love digital technology".
- Regarding the evolution of this perception post-confinement, women tend to express a positive shift in their relationship with digital technology. In contrast, men often refrain from responding to the questions, possibly indicating a perception of irrelevance, or they assert no change in their assessment of digital technology.

Self-assessment of digital skills

- At the start of their confinement, women are more likely to declare themselves "not a digital specialist" or, to a lesser extent, "relatively not a specialist", while men are more likely to declare themselves "specialists" and then "relatively specialists".
- This self-assessment changes at the end of the confinement period. Women tend to report an increase in their skills, while men still report no change.

To conclude, these findings do not indicate an equality in the perception of skills between male and female teachers; rather, they suggest a convergence. In summary, our analyses reveal a subtle yet statistically significant positive shift in the digital representations of female teachers in our survey.

Results of the qualitative survey

Before confinement

Broadly speaking, primary school teachers have been found to have limited engagement with digital technology in the classroom prior to the advent of Covid. They exhibited few practices, possessed minimal skills, and displayed limited interest in integrating digital tools.

In secondary schools, teachers reported employing basic and ad hoc practices, often neglecting personal investigation and development in this domain.

Notably, there appears to be a gender disparity, with women generally lagging behind in adopting and incorporating digital technology in educational settings.

> Ah, well, yes; me, clearly. I mean, I knew I wasn't very, very uh...not very good [laughs] (F 51-60 years)
> It was clear that we weren't at the top of our game in terms of numbers - that's for sure (F 41-50 years old)

With a resurgence of belief in the need to be digital native:

> I wasn't born with it - so I know I have to use other biases to help me (F 41-50)

Among men, there is a clearer interest: they already declare themselves competent.

> I was also in charge of IT in...in establishments (M 31-40 years)
> I was already, in fact, creating a few small applications. (H 41-50 years old)
> Well, I don't think there are three hundred thousand teachers with YouTube channels. So I'm pretty digital (H 31-40)

One of them declared himself "not much of a user", not out of incompetence, but out of "idleness" (H 31-40 years old).

After confinement

The women share experiences that indicate an increase in competence; however, they refrain from acknowledging their own competency, and it appears that we may not fully recognize this competence.

> And there are lots of things - creating documents or things like that, teaching support - that I've had to improve and adapt to (F493 aged 31-40)
> I learned a lot. So I looked for lots of resources, I read a lot, um... So I've, of course, um... improved (F2574 41-50 years old)
> But, from time to time, when there's a little problem, it's true that they come to me, saying: "Well, you're used to it...". (F 51-60 years old)

In the way they present their practices, one gets the impression that they have acquired their skills by dint of repeating tasks. They fail to declare themselves experts, even when they serve as resources for their colleagues.

Is it about competence or a perceived sense of competence?

Upon examining the practices described by both men and women, there isn't a notable distinction in what is being done. The shift to distance learning during the pandemic compelled teachers to urgently embrace digital technology, achieving what no public policy had previously initiated. Notably, female teachers capitalized on this moment. Many of them eventually expressing an improved relationship with digital technology and engaging in numerous practices. However, the manner in which they articulate this—marked by uncertainty and hesitation—contrasts with the skills declared in the questionnaire. Is this ultimately rooted in a low sense of competence? Or does it reflect a gendered socialization that impedes women from being assertive, especially in technical matters? Interviewees might cast doubt on the digital skills of female teachers simply because their expression differs from that of their male counterparts.

In conducting this research, we had anticipated that these female teachers would integrate digital technology more extensively into their educational practices or collaborate with students on topics related to their recent experience of remote teaching. Instead, there's an impression that they wish to swiftly forget everything and return to pre-confinement teaching, with little to no retention from this period.

Conclusion and recommendations

This research suggests that the gender gap in digital technology is more tied to representation and discourse than actual capabilities. While training courses can reinforce acquired skills, it is crucial to bring attention to them. Therefore, it is in the institution's best interest to highlight the expertise of female teachers, such as appointing them as references or digital referee for schools. They are notably underrepresented in these roles, particularly within Digital Education Departments. Official recognition of female teachers' expertise could help neutralize the gender bias in the digital environment and emphasize the skills acquired during distance learning. Additionally, having more female IT advisors could contribute to embodying digital skills in a more gender-inclusive way with students.

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