<p style="text-align: center;">**'Return to Gender: gender, ICT and education'**</p>

Response to the background paper

The paper provides an excellent overview of some of the main research issues pertaining to gender and ICT / computing in schools and out of schools. It identifies significant gaps in the literature, which could helpfully frame a research agenda. It also highlights contradictions and inconsistencies in the literature, as well as significant cultural differences across OECD countries.

The questions which the paper raises are:

1) **What is the 'problem' of gender in relation to ICT?** Is it a numerical problem about the numbers of girls and boys using computing technology, different confidence levels, different statements of preferences / attitudes? What would be the indicators of a society which had no 'gender gap': would it be equal numbers of men and women using the same technology, equal numbers of girls and boys in the ICT-related professions? This is a question about the aims of policy in this domain; what ideals it should be working towards. I would suggest gender equality is not reducible to equal numbers, but to having a much greater range of opportunities for being gendered, and for enabling greater levels of self-determination for all genders. With respect to ICT, it should not only be about equal numbers of men and women using technology, but using it purposefully, meaningfully and productively, in ways which enhance individual well-being as well as democracy. Gender equality should perhaps be conceptualized in terms of a different, more equal distribution of power, rather than simply in terms of equal numbers of men and women across domains of social life.

2) **How should we understand the relationship then between power and ICT, or between the 'gender gap' and ICT?** What is the power of ICT to remedy the 'gender gap'? Why does/should it matter that men and women have different ways of using ICT? Is the aim to encourage men and women to use ICT in the same ways, or to develop ICT which cater for specifically 'gendered preferences'? These questions, which seem to underpin the report, effectively raise the substantive and complex issue about how ICT might offer

ways of tackling power inequalities. It need hardly be said that focusing on ICT as a way of tackling inequality is not likely to generate significant results. People's opportunities in life are affected by more significant constraints than their ICT competences. This is not so say that social inequality, as it manifests itself in technological domains, should not be tackled – but it is important to situate the ICT practices of individuals within a broader social context. Although it is suggested for example that patterns of usage at school help to explain why girls do not choose careers in scientific and technological sectors, there is little evidence to substantiate beliefs that greater ICT usage by girls will encourage them to enter these sectors. The reasons why women do not choose to enter these sectors, or choose to leave them, are more complex and substantive than their ICT preferences and skills. Attempts to cater to 'gendered preferences' in the design of ICT products, therefore, turn women into the 'problem', isolating their ICT usage from broader social factors which shape their social opportunities and social identities. Historically, such attempts have also reinscribed power inequalities (for example, by associating domesticity and nurture with femininity – as seen in certain 'girl-friendly' computer games.)

Perhaps the emphasis should therefore be on trying to avoid ways of reproducing inequities in schools rather than using schools (and their ICT usage) as instruments of gender policy and workforce equity in society more widely – for this, further measures are required.

3) **What can education do to tackle the 'gender gap', and inequality in general?** What is the power of education to affect/resolve inequality, and specifically here, education on and about ICT? The research evidence quoted in the report is perhaps a bit contradictory. For example, although boys are said to make greater use of ICT, they also appear – at the same time – to do less well academically than girls. So is the gender gap to be tackled by addressing disparities in achievement (in which case, ICT usage would appear to be somewhat problematic, since it appears to have no or limited impact on achievement – a finding corroborated in other studies on ICT and educational attainment)? Or is it about creating opportunities which children – irrespective of gender – might not have outside of

school? The report seems to suggest that one way of tackling the gender gap is in responding to students' preferences with respect to ICT – for example using games to improve boys' motivation. There are many good reasons for incorporating and studying children's culture within schools, rather than ignoring it; but if this is framed in terms of 'interest' or 'preferences', it can reinforce inequality, precisely because socialization processes are strongly gendered, and because it can appear simply as a sop to students' interests rather than a valid educational intervention. The wider literature on education, inequality and questions of social justice needs to be taken into account here, to trace historically how far education has been successful in remediating inequality, and if so, by what means. There is for example significant literature on interventions to address women's professional development and lack of ICT skills, and the extent to which these have been successful.

4) **What are the key research questions in this field?** The report focuses extensively on self-reported attitudes, preferences and interests and the gender differences between them. There are a number of problems with this type of question as well as this type of methodology. This type of question assumes a causal link between stated attitude and actual behavior, a link which has shown in some studies to be weak and also highly differentiated by different factors, including gender. In other words, preferences and interests may be differentiated by gender because of the different ways people have of accounting for themselves as social beings, rather than because they necessarily behave differently outside of the research situation. Also, this type of question looks for gender differences; it is not surprising it therefore finds them. However, other factors may be just as, or more, significant in terms of social differentiation, including socio-economic status, ethnicity, and so on. Third, there is a tendency to treat preferences as reflections of sexual identity, rather than as the expression of cultural norms and history, as they apply to gender. It is therefore not surprising that more boys play games than girls, since games have largely been marketed to a male audience and bought by fathers for their sons. It is implausible to separate 'preference' from historical patterns of access, which are strongly gendered. If girls state they 'prefer' communicating rather than playing, this is more likely

to be because of differences in the way products are marketed, bought and sold, used and paid for – rather than an internal expression of sexual difference.

There are many more interesting, more intellectually rigorous ways of researching gender, which focus on the relationship between individual activity and social norms, differences in power with respect to autonomy and self-determination, initiatives for addressing these, and the production of a gendered identity over time and across space. This research can incorporate both qualitative and quantitative methods – the issue indeed is not the research paradigm, but the quality of the research design and data analysis.

Gender and the argument for media literacy

In the rest of this paper, I would like to describe one approach taken to address inequality with respect to ICT usage. This approach is usually labeled 'media education' or 'media literacy', and is concerned with equipping students with both conceptual and practical skills to engage more productively, in a more participative way, in contemporary digital culture. Media education is different from some approaches to learning about ICT in schools; classes dedicated to teaching and learning ICT often focus on a range of relatively simple applications, such as word processing and spreadsheets. In many cases, however, students make more sophisticated use of ICT outside of school than ICT lessons allow for. Media education is not primarily concerned with learning to use ICT as an end point in itself, but learning how digital media shape communication and interaction, and consequently, how to use digital media to communicate and interact with these new channels. The rationale for this approach is that ICT is not only a technical medium but a cultural practice, which is highly significant in contemporary society, and which people can potentially engage in more productively by studying it at school.

Studying the media at school is often justified in terms of making the curriculum relevant to children's lives. This, however, need not be framed in terms of simply catering to students' interests but instead, in terms of equipping them with the skills and understanding to make

sense of, and contribute to, contemporary forms of communication and representation. Media education is also inherently polemic, arguing that the cultural materials that young people engage with outside of school, such as games or television, warrant investigation. In this respect, then, media education challenges the hierarchy of cultural forms which have traditionally existed within school curricula, and which tend to marginalize children's own cultural practices, as well as popular cultural practices more generally.

Studying the media has in recent years been described in terms of acquiring a form of literacy, designed to enable students be fluent in different media languages. This complements recent developments in literacy research, which emphasise that, with the spread of modern technologies, verbal language is no longer the primary symbolic system. Contemporary texts, from newspapers to internet web pages, increasingly combine verbal language with visual images, sound, and graphics. Being literate today, therefore, means understanding and applying the social grammars of different modes and media, and not just alphabetic writing.

So what is the relationship between media education and gender? There are three main ways in which media education can help address gendered inequalities. The **first** is by giving access to media technologies at school, and thereby addressing, in part at least, some of the inequalities in access in students' homes. Access here should not simply be understood in terms of simply using a computer or video camera, but learning to 'read' and 'write' digital texts in order to participate in digital culture as a fully literate person. Becoming literate means not only learning the practical techniques of using digital technology, but also learning about the aesthetics, genres, narrative structures, representations, and values associated with a particular media form, such as video or web sites. It also means learning about the users of digital technology, how digital technology reaches and targets audiences, the pleasures derived from using technology, the way people make sense of different media, and the role of socio-economic factors such as gender or class. Finally, it also means situating digital technology within a broader economic and institutional framework, which clarifies the conditions under which digital technologies emerge, circulate in society, and dominate or disappear in any particular

5

market. In other words, 'access' is about understanding the social role of digital technology, how and why it is used in the way it is, and how young people can themselves learn to participate in these cultural practices as well as adapt them to their own circumstances. If 'access' - in this broad sense - to technology is differentiated by gender, then equalizing this access in schools can begin to address the inequalities which exist outside of school.

The **second** way in which media education can address certain inequalities is by making them the very subject of discussion and study in class. For example, games can be studied in terms of how they are marketed and advertised, and how game companies target and also create audiences for their products. They can also be analysed in terms of how their representations and mechanics of play draw on older forms of play as well as indicators of masculinity. The pleasures they afford can also be subject to discussion, as can the variety of types of play and types of players – including women players. This approach can indeed be used to highlight female actors in what might be perceived as predominantly male domains of activity. This type of analysis creates opportunities for students to understand better the socialization processes which shape their identity and their values, and to recognize the social functions which a particular technology allows them to achieve. The socially constructed nature of gender identity and gender norms can thus be made apparent. This does not necessary change gendered social norms, but it gives create opportunity for students to recognize their power and purpose, and to alter them in their own lives.

A **third** way is by giving young people the opportunity to become media producers, and so develop their experiences as media consumers. Some researchers have argued that young people are 'digital natives', inherently 'media literate' and able to navigate the perils and pleasures of virtual reality much more adeptly than their elders, and participating in media culture more fully and productively than was ever possible before. It is certainly the case that with the advent of easy-to-use production technologies (such as iMovie or GarageBand) and user-generated content on the web, including social software, there are more opportunities than ever for people to produce their own media content rather than simply consume ready-

made products. The phenomenal growth of YouTube, blogging, Facebook and MySpace is testament to this. But the extent to which people actually produce media relates largely to their social circumstances; many young people have little access to the social contexts that enable and motivate media production. Buckingham and Sefton-Green, for example, argue that the creative and critical use which young people are assumed to make of digital technologies is often over-estimated. For many young people, creative and participative uses of technology are limited by issues of access, knowledge and power (for example with respect to reaching an audience). In the case of games, for example, few players have the social motivation, institutional connections and practical tools to learn with and about games by producing their own. Schools often play a vital role in giving young people access to high quality computing technology as well as high bandwidth. There is therefore a case for capitalizing on the spread of production technologies by teaching and learning about media production, and becoming a media producer. Although this is increasingly happening in popular culture and informal settings, there is a strong argument for enabling students to become better producers, as well as addressing inequalities in opportunities to produce, by teaching media production in schools. Making a video, for instance, involves more than simply knowing how to use a video camera; it also involves knowing conventions of editing, creating a satisfying audio track, developing a workable storyboard and so on. These skills are not equally distributed socially and are often not simply acquired by using technology – they are taught and learned in social settings, and can therefore be taught in schools to ensure a wider distribution of opportunities to become 'media literate'.

The argument for media education is essentially one which is about developing forms of education and social situations that enable young people's interactions with digital technology to be more productive than they might otherwise be. Whilst acknowledging their existing abilities, one can also argue that young people can be provided with material, cognitive and social resources to move beyond them. This argument has implications for addressing inequalities with respect to digital technology. Education is a space in which to think about the consequences and implications of inequality, and begin to address them practically. One should

not overstate the power of education to redress gendered inequalities – these extend far beyond schooling. But education can begin to equalize access – in this broad sense – to the significant means of communication and interaction in contemporary society, including digital technology.