Title:
[Music opens and fades rapidly during this opening.]

Good afternoon. This is Sandra Stark in Milwaukee, WI, USA.

I would like to explore with you the implications of the major differences between Computer Science and Social Informatics at the pre university level. As my examples I'll use two subjects offered in the International Baccalaureate Diploma programme: Information Technology in a Global Society (hereafter Social Informatics) and Computer Science.

The music introducing the screencast is there for a reason, so stay tuned.

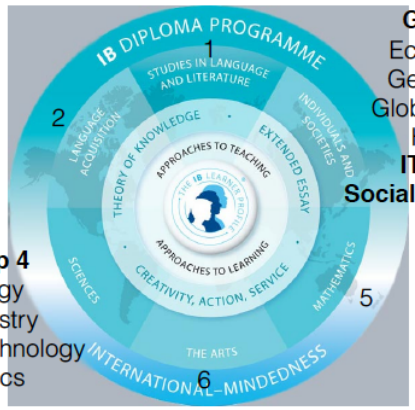
The placement of the subjects ITGS and Computer Science within the IB program helps to illustrate their different approaches to digital wisdom. All subjects in the Diploma Programme are grouped into 6 subject areas.

Note: cursor will move around the circle to illustrate the point.

Group 3
Economics
Geography
Global politics
History

Group 3
Economics
Geography
Global politics
History
ITGS i.e.
Social Informatics

ith ICT, but the clear distinction between the two is Group 3, the study of individuals and society is where we find



Group 3
Economics
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Global politics
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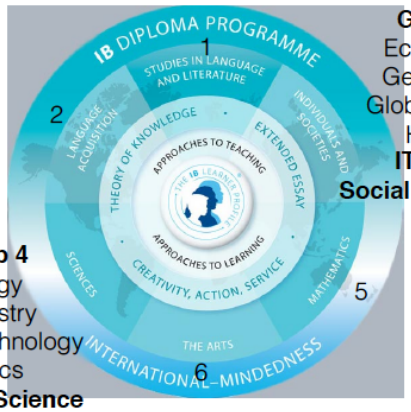
ITGS i.e.
Social Informatics

Group 4
Biology
Chemistry
Design technology
Physics

, the sciences.



Group 3
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Group 4
Biology
Chemistry
Design technology
Physics
Computer Science

So how do the two subjects compare?
I'd like to quote the previous Chief examiner of computer science, who was the driving force behind the development of the current curriculum, here:
"Broadly speaking, Computer Science is the study of information processes. It is concerned with the inherent structure and organization of information, how that data can be transformed into different kinds of knowledge, and how and to what extent those transformations can be automated….[the] outcomes [of computer science are] developing our student's ability to solve problems through algorithmic processes that they develop through a scientific methodology."

The content of Computer Science as shown in this table clearly supports such an interpretation as do the

	Comp. Sci. - Informatics Group 4 Sciences
Content (SL/HL Core)	• System fundamentals • Computer organization • Networks • Computational thinking, problem solving & programming
Major Emphases	• problem solving • algorithmic thinking • computational thinking • technical knowledge of ICT systems

while the major emphases of ITGS, situated in Individuals and Societies, are on the relationships between human beings and the ICT they use, the ethics of that use, and the policies and practices associate with that use.

	Comp. Sci. - Informatics Group 4 Sciences	Social Informatics Group 3 Individuals & Society
Content (SL/HL Core)	• System fundamentals • Computer organization • Networks • Computational thinking, problem solving & programming	• Social & ethical significance • Application to specified scenarios • IT systems
Major Emphases	• problem solving • algorithmic thinking • computational thinking • technical knowledge of ICT systems	• relationships between human beings & the ICT they use • ethics of ICT use • evaluation of policies & practices associated with the use of ICT • technical knowledge as it supports the above

Clearly these two distinct approaches to ICT will attract very different students highlighting the importance of access to both for pre-university students. Here's a quick look at those two kinds of students.
Students who are interested in Computer Science like understanding how things work, what's inside the black box.. A look at the IB Computer Science curriculum reveals that it can take this kind of student beyond the realm of coding and into the concepts that give coding its power.

But most students don't see ICT this way. They are enthusiastic users, but the inner workings of the machine hold no attraction for them at all. Let's hear from one of those students, meet Garrett, a 16 year old pre-university student here in Milwaukee.

[Insert 15-30 second video of Garrett expressing his point of view.]

Digital wisdom clearly needs to be addressed very differently in these very different subjects.

Digital Wisdom

Comp.Sci. - Informatics	Social Informatics
• **Goal =** development of ethical **practitioners** • **Focus =** the **creation** of digital solutions • **Ethical issues** dealt with in direct relation to **development of solutions** • **Social issues** dealt with as **general discussion topics**	• **Goal =** development of **informed citizens/decision makers** • **Focus =** the study of the consequences, **intended and unintended,** once solutions are **implemented** • **Ethical issues** examined in detail with reference to a **specific social context** • **Social issues** explored in detail with reference to a **specific social context**

Source of Example: BMJ *2014*;348:g3725

At this point I'd like to zero in on Social Informatics as a pre-university subject. The majority of students are not likely to study Computer Science but many will become decision makers who require an understanding of ICT and its effects on the individual and society and all will be citizens in an

increasingly digital world. A course that focuses on the consequences, both intended and unintended of digital solutions to problems is a necessity at the secondary level.

A quick look at the kind of topic that might be studied in a Social Informatics will illustrate my point.

Evidence based medicine utilizes checklists that are generated by algorithms, the goal being improving the quality of care. And they do work, but there are unanswered questions about their accuracy and unintended consequences involved in their use. For example what is the quality and provenance of the evidence used by the algorithm (how much of the research was done by drug companies?). What is the basis for health policies embedded in the checklists? What is the effect of over reliance of algorithmic thinking on patient care? What might be missed because it's not in the checklist? How does using the "one size fits all" checklists account for individual differences? How does it affect the relationship between the patient and the clinician? How can evidence based medicine be supportive of practitioner expertise without undermining it?

In-depth exploration of a topic like this is the province of Social Informatics but is well beyond the scope of an introductory Computer Science class.

To conclude, while all students need digital wisdom, Social Informatics and Computer Science afford two different, but complementary, ways to enable different groups students to understand and apply principles of digital wisdom. Thank you.

[rolling credits **underscored by music**, not a slide, part of the screencast]
Music: composed by Emmy a algorithm created by David Cope
Did you enjoy it?
Do we want, need music composed by algorithm?
What about human composers?
What is the wise approach

Technical assistance: Tim Goss

Garrett: Garrett Yokes

727 words without Garrett.