Learning by Sharing
How global communities cultivate skills and capacity through peer-production of knowledge
Wikipedia is not merely an encyclopedia. It is the result of unprecedented collaborative learning on a global scale. Wikipedia aptly demonstrates that knowledge can be acquired through various means and that it flourishes via an open, social-media driven web. More and more individuals are compelled to showcase their expertise. This fluid body of information is powerful because it is durable, flexible and globally accessible for all as a “knowledge commons”.

Open sharing of knowledge and ideas revolutionizes the way in which global communities cooperate and learn. Learning can be organized in peer production based on open licensing and a decentralized, collaborative and non-proprietary process of global knowledge co-creation. This joint learning propels transformation processes and capacity development across borders.

Global knowledge peer production and open innovation allows for exactly the scaling up of technical and social innovations that is currently much debated and needed in the international development cooperation world. It also allows striking a balance between respecting the intellectual property of corporations and institutions and giving communities access to advanced knowledge, in a bid to create fair and just conditions for everyone.

The vision is a self-organized and connected peer-to-peer learning for sustainable human development worldwide, turning learning by sharing into a game changer in development cooperation.
3. More self-sustainability of learning systems: The open source sharing of resources and the co-creation of outputs contributes to a self-sustainable peer-production system. In this system, new learners drive innovative production of commons goods and thereby stabilize the learning system. Future learners are guaranteed standardized open (and low cost) access to the learning process and outputs produced, as the “knowledge commons” cannot be privatized or otherwise misappropriated.

4. More motivation to learn: The joy of contributing to a ‘public or commons good’ enhances the intrinsic motivations of learners, a core ingredient of education (see also Table 1).

But what are specific examples of commons-based peer-to-peer learning? Let us look at Agnes, a 13-year-old from Norway, Zuizui, a 17-year-old student from Vietnam, and Nadjetey, a Ghanaian computer-science graduate. All three are jointly learning how to build a website at the “School of Webcraft”, offered by the peer-to-peer university (P2PU). P2PU is arguably the most radical peer-to-peer experiment to date. It is strictly peer oriented, with no formal instructor heading the courses. They seem to live by their motto:

A Wikipedia article is an organic text produced by hundreds of ‘peers’. This free text is not controlled by one formal editor-in-chief, but is, instead, a unifying construct. The document might be conceptualized by a student in Germany, revised by a farmer in Bolivia, and fine-tuned by a professor in South Africa. The article is ruled by a commons-based license. This means that the end product of this co-production is, in turn, available to readers and additional editors through an open license, ensuring that all future versions can be shared, traced back to the author and further improved.

Learning is, in fact, the core of commons-based peer-production (Schmidt 2009) and is most participants’ primary motivator (Ghosh et al. 2002: 45).

How Learning Propels Commons-Based Peer-Production

1. More freedom to know: Open collaboration drives large-scale learning: commons-based peer-production widens the dissemination of existing codified knowledge. It also opens up the production and innovation process itself – enhancing the freedom to learn and to know (Schmidt 2009; Wikimedia Deutschland e.V. 2011).

2. More appropriation of tacit knowledge: Open peer-production is “learning by doing and making” in an enhanced version: It furnishes a rare and valuable appropriation of implicit, tacit knowledge of the unspoken practices and norms of established practitioners in a given profession. Thereby it enables “learning to be a full participant in the field” (Brown/Adler 2008).

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“We are all teachers and learners”. At the “School of Webcraft”, no one is paid to tutor Agnes, Zuizui, and Nadjetey. They support one another through the various trials and “challenges”. With over 3,000 participants in the School of Webcraft alone (as of June 2013), there is always someone who can help. Nadjetey is one of over 50 participants who act as tutors, or “peers who have offered their help”. This university does away with the traditional hierarchy between professor and students, but instead puts emphasis on “open exploration and transparency”, according to education writer Audrey Watters:

”(THE POINT IS TO) PUT OUT IDEAS THAT ARE HALF BAKED... (AND) BUILD THEM THROUGH A NETWORK OF PEOPLE.”

This example shows that self-guided peer-to-peer learning processes are working on a global scale. They are the result of a radical paradigm shift that requires new pedagogical methods, the availability of technologies and concepts that are free enough to allow commons-based peer production.

But why does Nadjetey from Ghana want to help Agnes from Norway build a website? Research suggests that there is a whole set of motivations that makes people share their knowledge, a mixture between altruistic and self-serving motives summed up in the following table:

| 14 Reasons Why Peers Help Peers to Learn: Why Do They Share Their Knowledge? (Table 1) |
|---|---|
| 1. | Because you learn yourself through co-production and tutoring |
| 2. | Because you win recognition and prestige from your peers |
| 3. | Because you might further your own interests through the co-production of knowledge, such as testing new solutions, benchmarking, mastering a technology, etc. |
| 4. | Because you can solve a problem that you can only solve by collaborating with others |
| 5. | Because you might gain power of persuasion within your organisation, network, or peer group |
| 6. | Because you are proud to co-own a tangible “product” |
| 7. | Because you have the freedom to co-create knowledge or goods, which increases autonomy and self-direction, and thereby motivation |
| 8. | Because you build emotional bonds with people and things |
| 9. | Because you feel “meaningful” by supporting the community, giving back through reciprocity (putting values such as fairness, solidarity, and altruism into practice) |
| 10. | Because you know that the result of your commons-based peer activities will be available to others over time, and cannot be monopolized or privatized |
| 11. | Because you feel good being associated with a trendy and innovative community |
| 12. | Because you get continued access to knowledge, news and services |
| 13. | Because you enlarge your personal and professional networks |
| 14. | Because you can freely choose topics according to your interests |


In the field of online sharing and learning, the “Massive Open Online Course” (“MOOC”) has received a lot of attention. Many are enthusiastic about what elite universities such as the Massachusetts Institute of Technology and the University of Harvard are piloting. The two schools have offered joint online courses that have attracted well over 100,000 students. Much is also written about the start-up ventures Udacity and Coursera, which managed to enroll over two million students in just one year. These ventures provide a forum to some of the world’s best professors to host their lectures online. The students are then encouraged to participate through online forums that help build a joint learning community. They typically do not offer academic credit aside from, in some cases, a statement of completion. But they also do not charge tuition. There are estimates that only about ten percent of students who sign up for courses actually follow them until the end. And it still remains to be seen whether mass distribution of centralized online lectures will ultimately be incorporated into the formal educational system or whether they are just briefly hyped by universities and venture capitalists searching for new revenue sources and recognition.

This article will, therefore, go beyond the
MOOC. It will dwell, instead, upon the original pedagogical model that lies at the heart of the MOOC experience, which was co-shaped by two Canadian learning specialists: George Siemens of Athabasca University and Stephen Downes.

The relationship between work experience, communal learning, and knowledge is at the heart of connectivism – as is expressed in ‘connectivity’. Accordingly, “to teach is to model and demonstrate, to learn is to practice and reflect” (Downes 2007). Thereby, connectivism builds on earlier practice- and community-oriented pedagogical frameworks and theories such as constructivism, social learning, distributed cognition or Albert Bandura’s social cognitive theory. Some of the theories around online community learning trace their roots all the way back to the early notion of “Bildung” that sees education as the process of shaping oneself and the world as put forth by German writers and thinkers Wilhelm von Humboldt and Friedrich Schiller in the late 18th and early 19th century (Deimann et al.: 2013).

The learning concept of connectivism understands learning according to the following eight principles:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes, or information sources.
- Learning may reside in non-human appliances: learning can rest in a community, a network, or a database.
- Learning is more critical than knowing.
- Maintaining and nurturing connections is needed to facilitate continual learning.
- Perceiving connections between fields, ideas and concepts is a core skill.
- Currency – as accurate, up-to-date knowledge – is the intent of learning activities.
- Decision-making is in itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality.

What does this mean for the connectivist Open Online Courses? Four methods have been identified and summed up by the peer-producers of the Wikipedia article on connectivism as follows: “1) Aggregation: […] a starting point for content to be produced in different places online, which is later aggregated and accessible to participants on a regular basis. 2) Remixing: Learners associate materials created within the course with one another, and with materials elsewhere. 3) Re-purposing: Aggregated and remixed materials are to be re-purposed to suit the goals of each participant. Finally, 4) Feeding forward: the sharing of re-purposed ideas and content with others and the rest of the world.”

These modes of operation form an integral part of a peer-learning oriented pedagogy. The “open learning layer” (Seibold 2009:264) includes:

- the open licensing of content as spearheaded by the “Open Educational Resources” (OER) movement (Wiley 2009),
- the focus on ‘self-empowering’ study groups of self-organized peers (peeragogy.org 2013)
- the open structure and learning goals

In a connectivist world, learning by sharing is the only sustainable way of learning. This moves the Cartesian dictum of “I think, therefore I am”, to a “We participate, therefore we are”, as John Brown and Richard Adler nicely (Brown/Adler 2008: 18) nicely put it.
EMPOWERING AFRICAN IT COMPANIES

Frank Tilugulilwa is an IT trainer in Tanzania. He teaches local IT companies how to build services and revenues around so-called “Free and Open Source Software”. Such software can be copied and modified by every company and every individual client. Frank has written a training manual with over 80 other IT trainers and experts throughout Africa (and from elsewhere in the world) in an example of a community-generated learning content. His experience with commons-based peer production started back in 2008 when almost no training materials rooted in an African context were available. Frank and other African IT and business experts developed over 250 pages of practical, open-licensed, modular training material. This has also resulted in a vibrant community of trainers who have a strong sense of ownership of their subjects and who know and trust each other. They are sharing their knowledge amongst themselves and their trainees, local IT companies across the continent. Again, we see the power of peer-to-peer learning centered around a knowledge commons: the process began as a capacity building program called ICT@innovation launched by German development agency GIZ. The project aimed at creating business and learning opportunities with free and open source software in Africa. Now it is a community of more than 1,200 co-learners, co-producers and businesses (UNCTAD 2012: 65f).

This example can serve as a starting point to provide good practice measures on how initiatives can structure learning around peer-production processes. The following points are guidelines for those who wish to initiate or participate in cross-border commons-based learning communities – incorporating own experiences, recommendations of the “Peeragogy Handbook” of 2013 and other sources. It looks at how community empowerment managers can foster global “participatory cultures”, as media scholar Henry Jenkins has put it.

**Good Practices of Organizing Learning in Peer-Production Across Borders (Table 2)**

**Participation and self-governance:**
- Let peers handle the co-facilitation of learning
- Foster self-election of roles based on merit or other community values
- Support different commitment levels that accommodate newcomers and facilitate the ‘migration to more demanding roles’
- Value and respect mentorship and meritocratic leadership, give it visibility
- Gear self-governance and infrastructure governance towards openness, freedom and autonomy
- Document participation and self-governance processes and provide them as step-by-step guides
- Focus on communication, provide explicit discussion prompts, build feedback loops
- Set only a minimum of rules to let room for emergent behavior
- Provide a thoughtful sequence of learning events and spaces
- Address quality and certification issues through learner created assessments and badges

**Motivation and cross-border trust**
- Make it fun to contribute
- Encourage, reward and recognize contributions
- Stay close to real-world practical knowledge of contributors: turn their working environment into the learning environment
- Create relatedness, empathy and trust across boundaries
- Break language barriers through accurate translation
- Address cultural differences in collaboration styles, recognition systems, norms
- Provide for multiple perspectives on common problems and challenges
- Use an open license, which is in line with the business or non-market goals of participants

Sources: peeragogy.org (2013: 31ff, 53ff); Fischer (2011: 46, 52); Bacon (2012: 126, 151ff); Hagemann/Seibold 2013; Ahn et al. 2013; Jenkins 2006; Faster Morell 2010; Zhang et al. 2012; Wenger et al. 2011; and Preece/Shneiderman 2009
Some critics argue that commons-based peer production and learning only apply in the digital, non-real world (“building websites”, “building online training material”). The concept, they say, is therefore less of interest to international and development cooperation, which focuses on non-digital environments and “hard” topics such as health, energy or agriculture.

Jaime from Bolivia and John from Rwanda are not in the business of building websites. They are in the business of building tube digesters to support local biogas production in rural Bolivia and in rural Rwanda. They live 6,515 miles apart, but they both use the same manual to build the tank. It is one of 822 open online articles packed with practical production knowledge on the knowledge commons platform energypedia. The platform’s vision is “a world of free knowledge exchange and mutual learning on renewable energies in which everyone has access to sustainable energy sources.”

Building a tube digester based on specific needs of local communities is a concept that dates back to the “appropriate technologies” movement. But now, global and open peer-learning can be unleashed on top of it. Anyone, including Jaime, John, and numerous others, can tinker with and improve the designs of tube digesters. This is only possible, however, if the instruction on how to build a tube digester is available as a shared resource. Therefore many of the fledgling peer production platforms, such as energypedia, appropedia, opensourceecology, Howtopedia, knowable, or Fabwiki have deliberately chosen open models and ‘open source’ licenses that enable “commons-based peer production” as envisioned by Yochai Benkler. Only ‘open source’ licensing can spur open learning, invention, and innovation processes that come with it.

Hubs for commons-based peer production for sustainable human development

- Appropedia
- Energypedia
- Fabwiki
- Global Innovation Commons
- Global Village Construction Set/opensourceecology
- Howtopedia

More examples of hubs with a focus on “production”, on “peer-driven production” and on “commons-based initiatives” for human development are listed and described online at 10innovations.net. All those chosen above focus on open learning and practical improvement on a community-level; nevertheless, many of them have a global reach. This is, in fact, what makes commons-based peer production and learning so relevant in the context of current debates in international development cooperation.

International development cooperation tries to trigger and support sustainable human development by catalyzing transformation processes worldwide. This is often described as “capacity...
development”. Capacity development is defined by the Organisation for Economic Co-operation and Development (OECD) as “the process whereby people, organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time”.

Hence, sustainable learning and transformation is at the core of sustainable capacity development. This is what the learning processes around commons-based peer production are all about. Here we “find evidence of learning in collective action and/or behavioral change in groups rather than a psychological process in individuals” (peeragogy.org 2013: 73).

Such a step-up from simply increasing the knowledge of individuals to action and sustained behavioral change on the level of communities and organizations is one of the thorniest issues inherent in both adult education and capacity development. Learning modes and principles of open, commons-based peer-production theretofore have the potential to provide the “gold standard” of enhancing future skills, competencies, connections, capacities of people and their organisations on a global scale. In short: peer-to-peer learning around open, commons-based peer-production is a game changer in international development cooperation.

This becomes clear when looking at the principles of implementing capacity development, which are empowerment, local adaptability, ownership, participation, value creation, scalability, decentralization and sustainability. Here are some of the reasons why commons-based peer learning and peer-production has the potential to become a key tool to advance core principles of sustainable capacity development:

**Empowerment and local adaptability:** Learners can fully shape and control their learning process, setting and resources, which allows for further change as well as for easy adaption to local circumstances. Producers control their joint production systems. For example, a school IT admin in Uganda is able to localise learning software and learning material and provide it in local language.

**Ownership:** Learners and their institutions co-own the commons-based learning setting and its resources. All of them have equal and free access to learning and support from peers. Likewise, producers own the commons-based production setting. For example, the producers of the biogas production plants mentioned above co-own the technology blueprints with the global community.

**Participation:** Learners and producers fully participate in a commons-based learning environment. For example, every author of a Wikipedia article is part of a joint and collaborative editing process.

**Value creation/Benefit creation:** Values created through peer learning and production include knowledge distribution, monetary value, recognition, trust, satisfaction and the personal and social value of the learning process itself. Learners and producers have the freedom to define and shape their metrics of such value creation or benefit creation – according to the rules of the respective commons and according to their core motivations.

**Scalability and decentralisation:** Learners and providers of peer learning as well as peer-producers have the ability to scale to the global level and at the same time decentralize the learning and production process to the local level. This can be achieved through modular designs, creation oriented methods and open licensing. One example are massive open online courses, but also the development of the Linux operating system in different flavors and languages by tens of thousands of software developers.

**Sustainability:** The availability of the learning process and learning resources as a commons for future learners is one of the key factors that adds to the sustainability of peer learning. Secondly, sustained ‘learning by doing’ in peer communities fosters durable capacities to cope with change.

Finally, commons-based models of operation have proven to be quite flexible and robust because of their open and participatory governance options (see Wikipedia). This allows for a perpetuation of decentralized learning and corresponding peer production systems.

These learning processes also fit in well with two pressing needs in international cooperation: the need to move towards scaling up of development solutions and the need to move towards knowledge sharing as part of an emerging global ethics of fairness.

**THE GLOBAL KNOWLEDGE COMMONS:**

Open innovation – often based on open licensing and commons-approaches – is changing the business models of more and more businesses and social institutions. Before the advent of open innovation, innovation was kept within the boundaries of the firm (or research institution). In contrast, “Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to markets, as the firms look to advance their technology”, scholar Henry Chesbrough, who coined the term open innovation, has put it. But what opportunities does this imply for institutions in developing countries? What are their learning opportunities?
Let’s take a look again at the global tech sector as a starting point (for more details, see Seibold 2010a). Here, the most prominent example of free and open source software development and licensing are the operating system Linux, the office suite Open Office and the web browser Firefox. Linux has shown that open-source programs can be very competitive. The reason is obvious: more people know the source code and, accordingly, can correct flaws and make other improvements. For the private sector in developing countries, such knowledge commons provide a clear opportunity, not only for low-cost access to global state-of-the-art knowledge, technology transfer, and open peer-learning on a massive scale (see Seibold 2009, Seibold 2010a, Seibold 2010b; UNCTAD 2012: 9ff), but also because they have the potential to empower local businesses and communities in developing countries. This creates truly local open innovation by appropriating elements of outside open innovations and transforming them into a product or service that is relevant to local needs.

For many decades, a group of researchers led by the late Nobel Prize winner Elinor Ostrom has looked at how communities share ‘common-pool resources’ and ‘club goods’ over time. This network has just charted the future of global knowledge commons through its ‘First International Thematic Conference on the Knowledge Commons’ held in September 2012. It covered research areas ranging from an “Open Source Drug Discovery” program in India to a massive push for Open Licensing of Plant Genetic Resources. In all of these fields, researchers inventors and businesses are looking at how a collective build-up of knowledge can help solve protracted global problems.

The exact modes of knowledge sharing are quite complex and differ from commons to commons; However, many of these knowledge commons are starting to be built around an “open source commons” with a “copyleft” approach. As a reminder, open source means that all future producers have access to the end product’s source material and the freedom to improve and change it. Under the copyleft approach, all modified and extended versions of the product have to be released and distributed with the same rights. This ensures that all versions are protected against misappropriation of the commons. For example, the open licensing of the International Treaty on Plant Genetic Resources for Food and Agriculture can prevent global plant companies to privatize knowledge on top of a commons, because the copyleft licensing requires them to share the improved versions again. In short, such an approach is a “license to innovate freely”. In the view of the author of this text, the copyleft model may turn out to be the only one, which in the long run – secures both the „freedom to innovate“ and the „automatic expansion of the knowledge commons“ for all, who participate – and for the rest of the world as well.

We still do not know how business models reflecting open innovation and respective ground rules of international trade will evolve globally. We also do not know how much open innovation will be centered around the commons and commons-based peer production, in which (some) intellectual property cannot be privatized and which parts will in contrast remain within the realm of companies that understand open innovation in a ‘non-open-source’ way. Their strategy is often as follows: “I ask the crowd for ideas, but then I privatize the fruits of the co-creation as my innovation”. We do, however, know that more and more entrepreneurs are finding operating models based on the knowledge commons and open source.

A McKinsey report by authors Markus Reitzig and Oliver Alexy therefore predicts that open source competition will gain traction in a number of mainstream industries, such as machinery, communication equipment, medical and optical instruments or fabricated metal. “Consider construction cranes … software runs all the drive,
calibration, safety and security systems … and some crane manufacturers have started to adopt open-source software” (Reitzig/Alexy 2012, section “Will open competition gain traction in your industry”).

A strong business model can be defined as “open everything, and let people pay for service”. More and more enterprises around the world are choosing this approach, also in Africa. The ict@ innovation programme identified a number of successful IT business models around the free and open source software commons (FOSSFA/InWEnt 2010).

Other emerging examples of such collaborative intellectual property in Africa range from informal automotive engineering in Uganda, commons-based approaches to traditional knowledge in South Africa, commons elements seemingly present in Egypt’s independent music industry to willingness to engage with open scholarship modalities in Kenya. All were just analyzed and summed up by members of the African expert network “Open AIR” in their volume “Innovation and Intellectual Property - Collaborative Dynamics in Africa”, edited by scholars Jeremy de Beer, Chris Armstrong, Chidi Oguamanam and Tobias Schonwetter (see references).

These properties in turn are starting to excite forward-looking policy makers and human capacity development experts. They have been working on the protracted problem of how to scale up development interventions to achieve more impact. They now claim that such forms of open innovation around the commons and collaborative intellectual property might be the key to a solution:

- **turn beneficiaries into co-creators**
- **move from enterprise to ecosystem**
- **master the art of gifting**
- **spark entrepreneurship inside and outside your organisation**
- **allow for mutability**

Commons-based open innovation therefor has the potential to reinforce both innovative business models and promising ways of scaling up development. Both will, in turn, reinforce and require global commons-based peer learning on a broad scale. Indeed, we are witnessing a growing relationship: “Both creative economies and open education encourage collective knowledge, which can spur individual contributions and cooperation in the production of knowledge”, authors have put it in a book on the impact of an open society on education by scholar Michael Peters and others (Peters et al. 2012).

**GLOBAL KNOWLEDGE SHARING: JUSTICE AS FAIRNESS**

What rules would you design for global knowledge sharing, if you didn’t know whether you will be born as a German with a university degree and high-speed internet or as a rural Indian without access to books?

Philosopher John Rawls posed such queries in his book “Justice as Fairness”. His question is: What do we mean by “justice”, if – as a thought experiment - “parties … know nothing about their particular abilities, tastes, and position within the social order of society. The veil of ignorance blocks off this knowledge, such that one does not know what burdens and benefits of social cooperation might fall to him/her once the veil is lifted. With this knowledge blocked, parties to the original position must decide on principles for the distribution of rights, positions and resources in their society (Wikipedia-Article).”

If we transfer this thought experiment to a global level, Rawls principles clearly leads towards an ethics of equal access and open sharing of knowledge: Unsurprisingly, corresponding claims are growing in international development cooperation. The latest communique of the “Fourth High Level Forum on Aid Effectiveness”, an international policy forum of OECD, features repeated calls for “knowledge sharing” “peer learning”, “knowledge co-creation”, and “peer-peer support” (OECD 2012) for the very first time. This policy shift was likely triggered by a range of motives, including the pragmatic search for more appropriate peer learning between countries sharing similar challenges; however, it also contains the idea of a more equal, and thereby more just, exchange and co-creation of knowledge.
knowledge sharing” on a global level (see also Seibold 2009: 262ff).

Previously, however, the antagonism between a model of private information ownership in the form of patents and copyright and the need to advance “global public goods” could not be solved by policy makers. In the binary world view of the 20th century, knowledge (and related learning) was either a proprietary good, or was considered a public good, as exhibited by the development thinker Inge Kaul, among others. Education and learning, in turn, was either seen as a private enterprise of learners and educational institutions, or as a human right as in the United Nations Universal Declaration of Human Rights and UNESCO’s “Education for All” reports.

Interestingly, commons-based peer learning and production now have the potential to reconcile some of the most acute clashes in the recent past, stemming from various ethos of ethical sharing. The “knowledge commons” can be considered a new middle ground. It offers solutions that respect global moral imperatives of fair distribution of relevant knowledge, skills and the freedom to learn, while maintaining some property-based principles such as business models, distribution models, appropriation models and sustainability models.

Recent efforts to formulate a global set of rights around open education echo such a blend of principles, be it the community-built “Cape Town Open Education Declaration” of 2007 or the “Bill of Rights and Principles for Learning in the Digital Age” of 2013.

Yochai Benkler has done a thorough job in analyzing all liberal theories of justice and applying them to “commons-based strategies for human welfare and development”. His credo clearly points us towards the need to move towards global knowledge sharing as part of efforts to make the world a place that is fairer and more just.

“Equality of opportunity to act in the face of unequal endowment is central to all liberal theories of justice … Commons-based and peer production efforts may not be a cure-all. However … these strategies can make a big contribution to quite fundamental aspects of human welfare and development. And this is where freedom and justice coexist”, Benkler wrote in his 2006 book (p. 355).

**CONCLUSION**

Sustainable human development needs solutions that scale, empower, benefit, and increase ownership. Peer-to-peer learning is a potential game changer: the trick is to build learning processes around open, commons-based peer production. Only then may one achieve more freedom to know, more appropriation of tacit knowledge, more self-sustainability of demand-driven learning systems, and more ownership. In addition, the inherent fairness of an open “knowledge commons” provides opportunities for unfettered open innovation and the scaling up of development solutions. Commons-based peer learning offers a trigger to enhance skills, competencies, connections, capacities, and the agency of people and their organisations on a global scale - from the global peer-to-peer university to the community of biogas digesters producers. It provides the freedom to learn - by sharing the world’s wealth of knowledge.
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Endnotes

1 More information on mechanisms to sustain a "knowledge commons" over time in Dulong de Rosnay / Le Crosnier 2012.


7 For more on quality assurance, measurement of accomplishment, skills, quality and certification in peer-learning, check Mozilla et al. (2013).


9 See online for a full list of topics, participants and conference papers, See also Hess / Ostrom: 2009.

10 You find more information on applying a commons approach to knowledge & the economics of open innovation in Dulong de Rosnay / Le Crosnier 2012 and Seibold 2010a.

11 As described by Clay / Paul 2012.
Balthas Seibold is an senior project manager for ‘Global Knowledge Sharing & Learning’ at GIZ, the ‘Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH’. He focuses on open knowledge cooperation to foster the freedom to learn and innovate in developing countries. Balthas has a special interest in the knowledge commons and social networks and their potential to build human capacities, link up people and foster open learning worldwide. Before 2012 he led capacity building programs with GIZ that promote the open source IT-sector in Asia and Africa such as ict@innovation. Balthas has also worked at InWEnt – Capacity Building International, UNESCO’s bureau of strategic planning, the GTZ and the UNDP.

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