

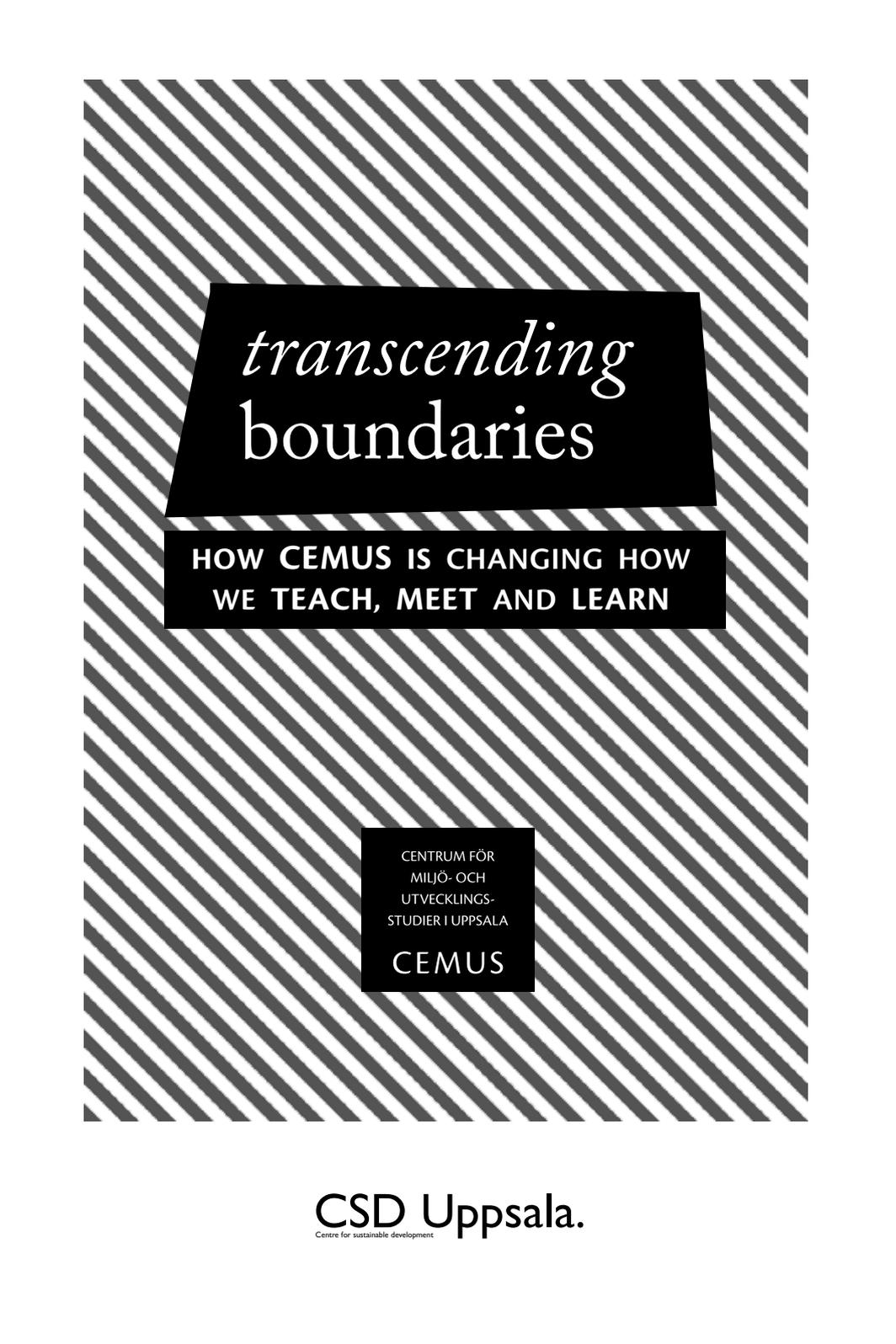
transcending boundaries

HOW **CEMUS**
IS CHANGING HOW
WE TEACH, MEET
AND LEARN



UPPSALA
UNIVERSITET





transcending
boundaries

**HOW CEMUS IS CHANGING HOW
WE TEACH, MEET AND LEARN**

CENTRUM FÖR
MILJÖ- OCH
UTVECKLINGS-
STUDIER I UPPSALA

CEMUS

CSD Uppsala.

Centre for sustainable development

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PREFACE

Carl Lindberg

Universities have a special role and a special responsibility in confronting these challenges of climate change and sustainability. Universities are charged to look beyond the immediate and beyond the local, to take the long view and the broad view. Climate change requires just such an approach for it is not about the next quarter, or even the next year, but about our obligations to generations to come; it is not just about our city or state or nation, but about the whole interconnected world.

Drew Gilpin Faust, president at Harvard University

When he got on the bus, he was more enthusiastic than usual; more eager to say what he had to say. “You see,” he said, “it is the students themselves who choose the lecturers, who after their lectures have to be prepared to defend their claims. And the students pose a lot of critical questions. They then write evaluations of the lecture, which are published.”

This is how I first encountered the embryo to Cemus, through the evening course *Humanity and Nature*, that my friend and professor told me about on our bus rides together northward over the Uppland plains during a few late evenings in the early 1990s.

A university consists of students and their teachers, I was told by a Minister of Education, formerly Chairman of the United Student Unions of Sweden. A former Vice-Chancellor of Uppsala University observed that the students are wielding their influence in

8 | the University Council in an impressively knowledgeable and engaged manner. The significance of student influence has often been a theme in my speeches, nationally as well as internationally. The powerful student influence in Sweden has always attracted interest, and particularly Cemus has done so as a unique institution.

Cemus is definitely a precursor within education and teaching for sustainable development. Already in the years following the Earth Summit on the topic of sustainable development in Rio de Janeiro in 1992, the center was created by students and faculty who shared a strong sense of responsibility. But without the solid support of reflective university leaders, Cemus would probably have encountered difficulties in developing the way it has, since it challenged the traditional university structure. Since February 1, 2006, there is also support in the Higher Education Act of universities' responsibilities to promote sustainable development—a clause that the current government is now also backing.

Today we find ourselves in the middle of the UN Decade, 2005-2014, of Education for Sustainable Development dedicated by the United Nations General Assembly. The Bonn Declaration of Education for Sustainable Development, which was accepted in the middle of the decade by Ministers and Secretaries of Education and other representatives from 150 nations, emphasizes the great responsibility that education and universities have to contribute to sustainable development.

Cemus is nowadays a part of the foresighted entity called the Uppsala Center for Sustainable Development, CSD Uppsala, with Uppsala University and the Swedish University of Agricultural Sciences as its two main agents. Also a part of CSD Uppsala is the Baltic University Programme, the important and extensive university collaboration based in sustainable development.

Cemus and CSD Uppsala have unique possibilities to inspire our two universities to set examples as “Universities for a Sustainable Future.” But beyond that, I have the high hope that our universities, through Cemus and CSD Uppsala, will strengthen their contribu-

tions in their collaboration with the educational system of our region as well as with the surrounding community and its economy, so as to create, according to the model of the United Nations University, a so-called “Regional Center of Expertise” in support of education for sustainable development.

I am convinced that my hopes will be realized.

CARL LINDBERG is a member of the Board of Uppsala Center for Sustainable Development, CSD Uppsala. He is also a member of UNESCO's high-level group for the UN Decade of Education for Sustainable Development, as well as a special advisor to the Swedish UNESCO Council.

WHY A TRANSLATION?

Markus Nyström

Över gränserna, usually called “the Cemus book,” was first published in the spring of 2010. The idea of documenting the history of Cemus, as seen through the eyes of some of its key figures, had been around for quite some time. But to say that *Över gränserna* was only a historical documentation is misleading. It was as much an analytical, speculative and reflective look at, and into, this young, changing, thought-provoking, and in some sense revolutionizing entity known as the Center for Environment and Development Studies at Uppsala’s two universities.

A year later, the English translation you are now reading is published. As coordinator of the translation, I see three important reasons for having this anthology translated.

The first reason is that the number of international students taking courses at Cemus has increased in the last few years. In response to this, the number of courses offered in English has increased as well. In other words, there are many students taking courses at Cemus who may be unfamiliar with its history, organization and basic ideas. To them, we hope, this translation will be of great value.

The second reason is that Cemus has, and has always had, many English speaking guest lecturers come visit or lecture over the internet. Many of these lecturers, especially when getting in contact with Cemus for the first time, realize that Cemus is something unusual, maybe even extraordinary, in the academic context. Through this book, they get a chance to get to know Cemus a little better.

But the third, and I think most important reason for translating *Över gränserna*, is that the experiences gained and the lessons learned from starting up, running and developing Cemus are important to share. Cemus has, from the very beginning, been a successful experiment in student empowerment, and has helped to put important sustainability issues—largely defined by the students—onto the agenda of the university. This kind of empowerment could turn out to be essential for education for sustainable development, for truly innovative thinking, and for the capability of young people around the world to face the enormous challenges ahead with confidence. Spreading knowledge about how this has been done at Cemus can help inspire students, as well as senior scholars, to create similar platforms and organizations at their home universities. And through this translation, we hope this can take place not only at Swedish universities, but at universities around the world.

MARKUS NYSTRÖM *is the coordinator of this translation. He has BA in literature and is currently coordinating two courses at Cemus, Man and the Machine and The Global Economy. He is also responsible for Cemus' publications.*

SPECIAL THANKS *to Josefine Rännbäck, who translated this anthology into English, and to Sue Glover Frykman who helped with some of the language editing. Thanks also to Isak Stoddard, Daniel Mossberg and Jakob Grandin for their contributions to this edition.*

A BOOK ABOUT CEMUS

Matilda Hald

The Center for Environment and Development Studies, Cemus, is unusual in that it is a student initiated and student-run university center with the expressed ambition of contributing to a sustainable and more equitable world. For over 15 years, Cemus has offered interdisciplinary courses and a creative forum for undergraduates, PhD students, researchers and teachers at Uppsala's two universities.

This anthology describes Cemus' origin, development, basic ideas, challenges and future prospects. Besides providing an historical documentation of an exceptional initiative, the book primarily aims to inspire and stimulate those who are currently involved with Cemus, and those with an interest in education for sustainable development, to reflect on the Cemus model.

The intention is not to give a complete picture of Cemus—Cemus is a diverse, boundary-crossing and continually changing undertaking that is not easily captured. The contributing authors rather provide their own perspectives of the center's importance, nature and function. They have been asked to reflect freely on Cemus on the basis of their own experience. In addition to allowing for contradictory and overlapping accounts, this approach also generates interesting, first-hand insights into the role of Cemus within the university and in society and for the understanding of sustainability issues.

The book begins and ends with chapters written by two people who have been involved since the start—Niclas Hällström, one of the students who twenty years ago initiated an inspiring and interdisciplinary course on global issues in reaction to the lack of such education, and Bengt Gustafsson, the senior researcher who supported the students' initiative and became their mentor. In their contributions, they reflect on the history and future of Cemus.

Jonas Forsberg and Gustav Rydeman represent those students who complement their regular studies with a term at Cemus and continue their education enriched by new perspectives, while Jakob Grandin and Sara Andersson are among those students who opt to engage with the center and develop its activities further. Together, their chapters outline the education that Cemus offers and its commitment to collaboration from the perspective of students and course coordinators.

Cemus' educational model is further analysed by Robert Österbergh and David Olsson Kronlid, both of whom have been deeply involved with Cemus as course coordinators and course developers. In their chapter "Crossing boundaries," they emphasize the boundary-transcending aspect as one of Cemus' main characteristics.

From their experience in leadership positions and as senior co-workers within the organization, Anders Öckerman, Eva Friman, David Olsson Kronlid and I reflect on the development of Cemus' research school and the variety of challenges the center faces. Ulrich Nitsch and Sverker Gustavsson, two professors who have been active at Cemus as lecturers and as workgroup members, have chosen to discuss two themes that are central to the center's activities: the combination of engagement and science, and of innovation and renewal in the academic context.

The subtitle of the Swedish edition—"Education for Change"—attempts to highlight something that is of central importance to many of the authors' line of reasoning, namely, Cemus' ambition and ability to inspire change. As several of the chapters show, one of Cemus' fundamental starting-points is engagement in global sustainability issues and the insight that the university should take its

responsibility to contribute to solving environment and development problems seriously—by equipping students with the wherewithal to address the issues and to act decisively in a changing world, and by actively collaborating with society at large in order to stimulate well-grounded and innovative solutions. Such a task requires a renewal of the university and its education. The genesis of Cemus is a fascinating example of how inventive students can change and challenge well established university structures in a creative and constructive way. This was necessary in the early 1990s and is still necessary today.

In the end, global challenges require creative, active and devoted individuals who dare to question societal structures and norms and at the same time are able to reflect on their own role in society. Individuals who think holistically and can cooperate and listen to others, but who are independent and self-confident enough to dare to make a difference. At Cemus, students are encouraged to become that kind of individuals, partly through an inspiring and participatory pedagogical approach, but more importantly by running the courses themselves.

I came to Cemus towards the end of my studies, and over the course of a few years went from being a student to assuming the role of a course coordinator to becoming the Director of Studies for undergraduate education—a journey that reveals a lot about the organization itself. For me, Cemus was a unique place for learning, being inspired and developing. Here, young people and the fate of our planet are taken seriously—a liberating counterbalance to the university and to society at large. An awareness of the need for change agents in society became rooted in me, as well as the insight that the future of this world is my responsibility just as much as anybody else's. I am certainly not the only person to have passed through Cemus' doors who still allows commitment to guide my choices in life.

Cemus naturally has its weaknesses and limitations, and the intention of this book is not to glorify or market the center's activities. But there is no doubt that Cemus is a special place. Here there are

lessons to be learned and experiences to build on. Read, reflect, and take part in the discussion about Cemus, the university, and our common future!

SPECIAL THANKS to Isak Stoddard, Eva Friman, Daniel Mossberg, Ashok Swain, Mattias Lason and Niclas Hällström for their comments during the editing process.

WHAT IS EDUCATION FOR?

The History of Cemus

Niclas Hällström

I do not believe in neutrality. Neutrality is just another word for accepting the status quo as universal law. Either you choose to go along with the way things are or else you reject the status quo.

Myles Horton¹

“Maybe you can write an introductory chapter about how it all started, since you were there from the very beginning,” suggests Matilda, who has taken on the role of editor for this book about Cemus. “Why did you get started? What lines were you thinking along? What really happened? And, reflecting after all those years, what are your reactions as to how it is all developing? Is Cemus still relevant? Is Cemus holding up in a changing world?”

Well, what to say? Of course the story needs to be told, even though it will of necessity be subjective, fragmented, and far too entrenched in one person’s fleeting memories. But, in conjunction with the many other overlapping contributions—which in many cases document the authors’ own subjective experiences—we might together provide the reader with a reasonable chance to critically construct and complement his or her own image of this oddity called Cemus—quite in harmony with its overall pedagogical approach. So, here’s an attempt.

¹ Horton, *The Long Haul*, New York, Teachers College Press, 1998.

It is the fall of 1988. Classes are starting for Biology majors at Uppsala University. Fifty freshmen, full of expectation and a little bit nervous, are seated in the “The Svedberg Hall”; in the old, worn premises of the Chemistry Department where scents and stenches from Organic Chemistry find their way through labyrinthine corridors and mazes. Finally, I am here, where all the action is supposed to be; at the center of thinking and change—the university.

My images of the university were so vivid and clear: frenetic activity and enthusiasm; continuous debates and discussions; students with an unquenchable thirst for knowledge, who attend lectures beyond their fields of study according to interest rather than course plans and requirements; idealism and the power to bring about change coupled with knowledge and thoughtfulness; demonstrations, actions, and protests; the courage to challenge and change the status quo. The core of social change and the triumph of reason over the follies of the world.

Where did I get these images? I don’t know—but they were certainly very real. And thus the disappointment and frustration at the reality that confronted me was just as real. A sense of disillusionment. Was this it? Was I missing something? Where was the dedication to causes and the ability to bring about change?

After searching intensively over the course of the first semester, I had to face the fact that my illusory university did not seem to exist. I found myself in an enormous, static machine where students focused primarily on exams and fraternity and sorority life; where teaching was narrow, non-applied and aimed at research; and where student activism and dedication was either nonexistent or at best reduced to the student union playground for the next generation of career politicians, where official doctrine dictated that issues with broader social implications were irrelevant.

Here, every year, thousands of students appeared to flow through the system without ever having been compelled to place their education in a broader context; without having been forced to challenge themselves and their educational and career choices in relation the

major issues of global survival which should reasonably be of concern to everyone, regardless of discipline. Could it even be the case that I had ended up in a place that turned out to be a fundamental part of the problem—the great environmental problems and the global injustices that troubled not only me, but also a growing part of the world (this was during the years between the Brundtland Commission and the Rio Conference)?

Independent study and long discussions with Magnus Tuvendal, the one biology major who seemed to think along similar lines, drew us toward an increasingly existential angst; the future of the world was threatened and nobody seemed to do anything about it—at least not here, where wisdom and knowledge should be more concentrated than in any other place.

An essay by David Orr, titled “What is Education For?”—originally a speech to the graduating class of 1990 at Arkansas College—crystallized our thoughts but also ignited a spark to act. It was the first of several formative and deeply inspiring factors on the road to what would become *Cemus*. “The truth is that many things on which your future health and prosperity depend are in dire jeopardy: climactic stability, the resilience and productivity of natural systems, the beauty of the natural world, and biological diversity,” Orr stated, and concluded, “It is worth noting that this is not the work of ignorant people. It is, rather, largely the result of work by people with BAs, BSs, LLBs, MBAs, and PhDs.” In other words, the university is indeed a big part of the problem. Orr continued, “My point is simply that education is no guarantee of decency, prudence, or wisdom. More of the same kind of education will only compound the problems. This is not an argument for ignorance, but rather a statement that the worth of education must now be measured against the standards of decency and human survival—the issues now looming so large before us in the decade of the 1990s and beyond. It is not education that will save us, but education of a certain kind.”²

2 Orr, “What is Education for?: Six myths about the foundations of modern education, and six new principles to replace them”, *Annals of Earth*, Vol. VIII, No.2, 1990.

And Orr debunked several myths. We should not believe that it is possible to manage planet earth in any precise manner; rather, we must learn how to manage ourselves and our social systems. New knowledge does not automatically yield good values, and the amount of total knowledge hardly increases—in reality, we lose a large share of ecological and site-specific knowledge that is of great importance to helping us live well and in a sustainable manner. An increased amount of disciplinary and reductionistic teaching and research will not provide the holistic and integrated understanding of the world that we need the most. Education should not primarily be a career tool. And finally, Western culture is not some kind of apex in world development, but is rather, in many ways, the opposite.

At last a voice with the dedication, passion, and commitment, but also the wisdom, that we had sought and were able to identify with. The importance of these moments of “homecoming,” of making connections with people and thoughts that strengthen your own possibly unformulated but deep insights, but which also challenge you and stretches your imagination, should not be underestimated. In fact, that is probably a foundational elements of Cemus’ origination as well as an important dimension of its pedagogical approach. The merging of dammed-up frustration and moments of constructive inspiration can yield unexpected results!

Yet another important point of departure: the Stanford Biologist Paul Ehrlich visits Uppsala University in 1989 after receiving a prestigious prize at the Academy of Science. His lecture is dazzling. He ties together all the major issues; the sheer mass of knowledge is impressive, but the passion even more distinctive. And the conclusion is challenging: which university will be first in the world to require an introductory, cross-disciplinary semester in matters of global survival for all students? And which university will be the first to allow—and to expect—everyone, regardless of discipline, to set aside at least 10% of their time to get involved in exactly these kinds of issues?

There are only 20 persons in the lecture hall, listening to a world-class lecture that nobody can reasonably leave without having been changed a bit. Imagine a lecture series, a course, an introductory semester with only lectures like this; lectures which affect you and which force you to contemplate, to converse and discuss matters over an entire week until, in the following week, an even more challenging lecturer arrives. The seed for the course *Humanity and Nature* was planted—and the vision of another, different university became a little bit more concrete.

A third departure point: An entire wall of empty tea cans inside the old stone house in the Observatory Garden. Facing us, the Astronomy Professor that so many people have told us we simply had to meet. Our idea: an interdisciplinary course aimed at all students, which takes on the great issues of global survival. A model for a required introductory course inspired by Ehrlich's challenge. Over the course of one semester, we have been experimenting and thinking about a course design. Maybe it is primarily some kind of therapy, rather than a genuine belief that it would actually be possible to realize—a way to transform the frustration to at least challenge the university colossus: "Look—a course plan so well thought through, so detailed and realistic that a 'nay' can only mean a lack of interest and concerns for these issues; and if so, then at least we have forced you to show your true colors."

The Professor, Bengt Gustafsson, seizes the moment and practices the crucial balancing act between active support and laid-back trust that has distinguished the entire history of the Cemus project. We are encouraged to go beyond what we thought was possible, get a boost in confidence, and, as it turns out, a fantastic mentor, but does not lose any initiative or ownership. Perhaps the foundation for a fairly uncommon model of respectful and straight-forward collaboration between young students and senior faculty is laid there in the stone house among the tea cans.

We are now four students who are wandering through the hallways of the university in search of support for the course proposal. One person leads to another, and we discover that there are in fact many people who share an interest in global issues, people with similar outlooks and a desire to bring about change. We also discover that many of them seem lonely and isolated; that some have become passive, and that a few are even bitter and disillusioned. The common meeting place and the critical mass seem to be lacking—and the disciplines reign, mirroring the situation that we as students are experiencing. Our self-confidence is strengthened as our support increases, and we even discover that we inspire these older people through this student-driven initiative—many are genuinely happy and thankful, if somewhat surprised, to see young students such as ourselves seeking them out.

This is yet another experience that seems to characterize the entire Cemus project: the key role of students in inspiring and challenging not only other students but also senior teachers and researchers by pursuing their own initiatives and defining their own questions. We are impressed by the professors' command of their own disciplines, but soon realize that nobody has the whole picture; that they, just as we, are truly grappling with the complexity of the issues. We realize that our common sense and curiosity go a long way, and that we are part of a common project of attempting to define and understand the integrated areas of environment and development, or "sustainable development." One of the significant aspects of Cemus is exactly this breaking down of exaggerated respect for authority while at the same time making active use of the senior teachers and researchers in order to construct one's own understanding of the whole—one's world-view—and to do so on one's own terms.

With the support of several senior researchers at both Uppsala University and the Swedish University of Agricultural Sciences, and with Bengt's gentle guidance, we finally manage to finish polishing the course idea and send in the proposal to the University Board. We place a lot of emphasis on the need for an interdisciplinary approach

and on the importance of the students' own active participation and their communication and interaction across disciplines, but we remain silent on the topic of who is to run the course. A few months later, we receive notice that the Vice-Chancellor Stig Strömholm has decided that the course will be offered at the university—and that they are reserving 125,000 SEK to let us develop and carry out the course in collaboration with an interdisciplinary group of senior faculty. The course is placed, as we suggested, as an unusual, free-standing entity immediately subordinated to the Vice-Chancellor and floating above all departments, but with an administrative base in the Faculty of Technology and Natural Sciences.

In retrospect, one can see that the road to Cemus was now open. Had the Vice-Chancellor, however, chosen to offer the course through a traditional department and have it taught by established teachers, Cemus probably never would have come into existence. The student-run basis of Cemus was not an explicit requirement at first, but became from the very beginning a defining characteristic—thanks to an unusually brave university leadership.

The course proposal was an expression of frustration at the university's nonexistent interdisciplinary course offerings about issues of global survival, but just as much an expression of disappointment in poor pedagogical methods and uninspired teaching. Developing the course was a way of reflecting on what gives real knowledge and deepened insight—and what triggers the joy of discovery and exploration. The course development became a relieving experience and great fun—we were fully absorbed in the work and nothing seemed to limit us. We pondered and experimented with new interdisciplinary constellations; with modes of examination in which the writing of group papers across disciplines also became a continuous dialog with the lecturer; we made sure we always ate dinner with the lecturer before the evening's lecture in order both to build relationships and to provide a context for the lecturer; and we developed detailed, ongoing course evaluations as an explicit, pedagogical tool.

In the full-time follow-up course, *Humanity and Nature II*,³ we had the opportunity to experiment even further because we were no longer limited by the large lecture hall format, and the course was offered exclusively to advanced students with at least two years of study. I had the privilege of planning the new course on a half time basis during a whole year, with frequent creative course development meetings with Bengt and Professor Carl-Reinhold Bråkenheim. Can one imagine anything more creative than having the opportunity to develop and realize the course of one's dreams? The now numerous Cemus students who over the years have received the same opportunity would probably agree. The most highly qualified and advanced education is not found in the course catalogue—it consist, rather, in having the opportunity to take own responsibility for development, coordination and teaching of a real course for other students.

We also realize at an early stage that the “meeting place” is at least as important as relevant courses. A physical center is needed not only to provide a formal base for interdisciplinary courses, but also to function as a magnet for all those individuals who, like ourselves, are in search of community, inspiration and a platform for taking action together with others. And such a center has to be genuinely interdisciplinary—it has to float above all the individual disciplines and departments so that it would not over time become distorted and shaped by the narrow conditions and interests of one particular discipline. The initial course proposal hence outlined the formation of a real, interdisciplinary center as a desired and logical next step.

While waiting to hear back on our first course proposal, I decide to take the opportunity to study abroad for a year. I end up at the University of Michigan's School of Natural Resources and Environment and find myself in a truly inspiring, interdisciplinary setting with more than one hundred, often unconventional, courses; a vi-

³ The course was later renamed *Environment and Development Studies: Theory and Analysis*, and then *Sustainable Development: Values, World-views, and Visions*, and is discussed in greater detail in the chapter written by David O. Kronlid and Robert Österbergh.

brant interface between academia and the emerging environmental justice movement; and tough, challenging studies with committed teachers. The exchange year turns into two years, a Masters degree and invaluable experiences and ideas.

Meanwhile, Magnus and I communicate over distance, with Magnus taking the bulk of the detailed planning and work now that we have received a go ahead for the course. *Humanity and Nature* is offered for the first time in the fall of 1992. Magnus coordinates the course and every week introduces the lecturers and moderates the hour-long discussion between lecturer and students before a packed Lecture Hall X in the University Main Building. In the first year two hundred students are admitted with five hundred applying, although the course has not even been listed in the course catalogue in time. We were not the only ones who believed that the university had missed something in that year of the Rio Conference!

Cemus is Founded

In 1993, during the first year of *Humanity and Nature*, the Cemus project transitions into a genuinely broad student initiative. From having been the commitment of a few persons, it now turns into an extensive project with the involvement of many people. With its two hundred students, the course becomes the obvious recruitment base for both students who want to take part in realizing the idea of a center, and also for the second generation of course leadership. A momentum builds up which later starts to follow its own logic.

Large weekly meetings to generate ideas and plan for “STUMU”—the Student Center for Environment and Development, the working name for the center over the first few years, generates further work groups that take their own initiatives. During the wait for a real building, students start to create their own “Guide to Environment and Developmental Studies” (GUMU), where they inventory all courses that are relevant to the subject of environment and development within Uppsala University and SLU, the agricultural university; they also invite those who teach those courses to explain the

pedagogical methods behind their course, its examination format, and its goals, and let students who have taken the course provide their evaluations and comments. When STUMU finally gains access to a physical location in a beautiful old building on Villavägen, students plan over the span of a year both renovation and remodeling to create an office that is as sustainable and environmentally friendly as possible (and thereby also constantly challenge the university's Buildings Division!). Others take the initiative to organize an academic student conference, where students from the whole nation are invited to give lectures on their theses and papers. Still others mull over possible new courses. Some of us are working intensively together with supportive senior researchers and professors, deans, and education administrators in order to secure long-term financing and a formal center.

And so, in 1996, Cemus—the Center for Environment and Development Studies—is finally born, a formal university center created as a joint effort between Uppsala University and The Swedish University of Agricultural Sciences, SLU. On the Board are representatives from every Faculty from Uppsala University, representatives from SLU, and also a significant number of students. At the very last moment, the university decides that it might sell the 19th-Century building on Villavägen 7 and that it is therefore no longer an option for Cemus. As a temporary solution, the university instead offers the Celsius Building—the old astronomical observatory from the 17th century at the center of Uppsala—which becomes a distinct landmark and identity of Cemus for many years to come.

How Did It Turn Out?

Much has happened over the 15 years that have passed since Cemus was formally created, with a certain kind of culture taking shape and evolving into something extraordinarily vital and resilient. There has been three main directions:

COURSE DEVELOPMENT: After *Humanity and Nature* and *Humanity and Nature II*, Cemus has created and offered dozens of courses. Their titles indicate an unusual focus which transcends boundaries: *Agenda 21*, *Civil Society and the Issues of Global Survival*, *The Global Economy*, *Global Environmental History*, *Life Philosophy and Modern Society*, *Man and the Machine*, to name a few of the courses given in Swedish. Lately, there has also been an increasing number of courses in English such as *Actors and Strategies for Change* and *Critical Perspectives on Sustainable Development in Sweden*. With few exceptions, the courses were developed at the students' own initiative. The chronology itself provides an interesting view of the history of ideas in the field of "environment and development" over the years; there is rapid feedback when students can themselves develop courses according to their perceived needs and what they find particularly relevant at the time. Since 2008, the semester-long courses *Sustainable Development A* and *B* are offered with considerable interest from students, which bears witness both to how the subject of sustainable development has rooted itself in society and to the fact that Cemus continues to offer relevant education.

THE MEETING PLACE: Throughout the years a fundamental principle of Cemus there has been the ambition to provide a meeting place for extracurricular activities and to actively encourage students to act on their knowledge as an integrated part of the teaching process. It should be easy to move from theoretical insights to real engagement on the basis of one's new insights, points of view, and values—whatever they may be. In a deeper sense, Cemus should probably be regarded as a democratic project, rooted in the academic ideals of knowledge-seeking and critical thinking. It urges students to take responsibility by acting on their knowledge and conviction—through the support of other students, a building and infrastructure, and an attractive social environment. Students without Borders, solidarity organizations for Burma and Sudan, study groups, student newspapers, student conferences and a plethora of

individual initiatives and collaborations have been born and have made use of Cemus as a meeting place over the years.

RESEARCH: Toward the end of the 1990s, the idea of a research dimension at Cemus grew stronger and stronger. Earlier generations of students who had been active at Cemus were approaching the end of their undergraduate studies and were experiencing a situation—and a frustration—similar to that which had provided the foundation for courses and for Cemus earlier on. Where could one find the opportunity to tackle the big, integrated issues that did not fit into any established discipline? Once again, a student-driven initiative arose which formulated, discussed, and chiseled out a model for something different—a research school for exactly the type of action-focused and interdisciplinary students who had found their way to Cemus. Students came and went for many years before Cemus' Research School, Cefo, could finally be established in 2003. Since its inception, around 50 research students have been affiliated with Cefo and made use of and developed its interdisciplinary environment. Over the past several years, several Cemus employees have also received funding for innovative and interdisciplinary research projects.

Key Characteristics of Cemus

It has been a great privilege and learning experience to have had the opportunity to follow Cemus from its birth to the established and comprehensive program it is today. Like so many others who over a few years were intensively involved in the undertaking, I have, through my work with Cemus, gained invaluable personal experience, an increased faith in what can be accomplished, and an opened door to continued professional activity. I have also received confirmation of the importance of putting trust in young, committed people and in the fact that spontaneous processes often lead to the most interesting and innovative outcomes.

I have continued to stay in close touch with Cemus as a lecturer and member of several course work groups, but with less intensity compared to the early years. Other authors of this publication are better positioned to reflect in greater detail on Cemus as it stands today. My own reflections on key characteristics of Cemus are based primarily on the first decade, even though I believe that most of the points I mention are still relevant.

THE SUBJECT AREA: ENVIRONMENT AND DEVELOPMENT

One basic principle from the very beginning was that issues of global survival should be approached in an integrated manner, where both environment and development are fundamental components; but more importantly, that the study of the very interface between these areas is the most central of all. “Environment and development” is here viewed as “one” integrated concept and not as two separate areas that are studied in parallel. Many institutions that offer courses in sustainable development have a disciplinary basis in either the area of environment or the area of development studies, and it can then easily happen that the courses get a bias towards one of these areas. The strength of Cemus is that the focus—and the curiosity—is almost always directed towards the interface and integration of environment and development. Cemus’ course titles testify to this—often unconventional titles that cross boundaries, and are not constrained by what is usually offered by conventional disciplines. It is also important to note that the “development” dimension does comprises as much an examination of our own Western societies’ as it looks towards societies in the South. I find Cemus broad and integrated view of sustainable development, oddly enough, quite rare despite the now more than two decades since the Brundtland commission’s popularization of the concept.

THE INTERDISCIPLINARY APPROACH

The interdisciplinary approach of Cemus has been a self-evident point of departure since the very beginning, and is also discussed in

greater detail in other contributions to this anthology. The concept, however, is by no means unambiguous and can be used in many different ways. At the core of Cemus, I believe, there has been an urge to get to a more profound “transdisciplinary” quality, beyond the more common “multi-disciplinary” dimension, even though this is certainly quite a challenge. For some people, moreover, the ideal of a “strong” as opposed to a “weak” interdisciplinary approach is important—that is, an attempt to fundamentally re-evaluate and break new epistemological ground in relation to one’s view of knowledge and one’s understanding of the search for knowledge (and its limitations).⁴ Cemus has the potential to attract both undergraduate and graduate students who are exceptionally creative, who spawn fresh ideas, and who possess the capacity to—in a stimulating interdisciplinary environment—make significant contributions and open up new fields of knowledge.

CRITICAL THINKING AND DISRESPECTFULNESS

“Critical thinking” is probably one of the most commonly used concepts within education and pedagogy and often used in very generalized ways that in the end devalues the concept. Yet, it is without doubt a foundational element of Cemus. This deliberate emphasis on critical thinking takes place at many different levels, with some approaches that seem to be particularly distinctive of Cemus’ courses. First, there is the often explicit ambition to explore alternative and more radical, unconventional ideas and points of view, that is, the “counterpoint” in addition to the “mainstream.” Secondly, the courses challenge students to critically question their own deep assumptions, world-views, and values, something that can make some of Cemus’ courses quite overwhelming and have a profound effect on students. Thirdly, students are encouraged to maintain a critical stance toward the pedagogical process itself and to continually provide feedback and actively influence the courses while they run

⁴ See, for example, the interesting line of reasoning regarding the various transdisciplinary concepts put forward by the former Dean at Valdivia University in Chile, Max-Neef, “Foundations of Transdisciplinarity”, *Ecological Economics*, no 53, 2005, pp. 5-16.

30 | (and, for some, contribute further by taking responsibility for the course as course coordinators the following year). Critical thinking is also closely connected to the culture of “disrespectfulness” (in a positive sense) for authorities, senior faculty, and researchers that permeates Cemus. It is the student that stands at the center of the process of attaining knowledge; the lecturers pass by, and the student takes advantage of them in the pursuit to synthesize his or her own knowledge—in contrast to an educational situation where the lecturer’s agenda and the query, “What will appear on the exam?” stand in focus of the learning process.

THE FOCUS ON ACTIVE INVOLVEMENT

The urge to become actively involved and engaged in the struggle for social change and a sustainable and more equitable world was the departure point for Cemus from the very beginning and is likely just as important today. A basic conviction has been the belief that if people are exposed to and inspired to think more about issues of global survival, then one will somehow change, draw conclusions, and likely also want to actively do something about those problems. This conviction captures the idea of knowledge as an eye-opener and alarm clock. Whatever political conclusions one may draw from the knowledge one gains, and whatever form of involvement one ends up pursuing, is however something Cemus as an institution should not have any opinions about. It is of course also acceptable to choose not to act, as long as one does so with open eyes and truly stands behind one’s decision. The mission of Cemus is to facilitate and encourage as much knowledge gain, as much critical thinking, and as much reflection as possible—and to make it easier for students to act on these insights if such an urge arise.

THE PEDAGOGICAL METHODS

To improve teaching and pedagogical practices has, as already mentioned, been a central concern of Cemus since the very beginning. However, one may ask whether there is a distinct pedagogical

approach at Cemus? One can certainly see that the pedagogy has differed considerably between courses, and that the courses themselves also change over time. But I think one can still discern several features that have distinguished teaching at Cemus through the years. One of them is the focus on norms, values, and students' own assumptions and sense of responsibility; another is the ambition to supplement reading and theoretical discussions with practical exercises; a third is to whenever possible link theory to concrete, location-bound examples and go on field trips; a fourth is to place great emphasis on social events (scheduled coffee meetings and parties, overnight excursions and field trips); a fifth is the ambition to actively provide a sense of continuity and coherence in courses through, for example, the course coordinators' presence at every lecture, seminar and discussion; and a sixth is provide opportunities for gaining and improving a number of skills of general importance (different kinds of writing skills, methods for problem structuring, analysis of arguments and debating techniques, communication skills, public speaking skills, and project management).

STUDENTS AT THE CORE

—THE RELATION BETWEEN SENIOR FACULTY AND STUDENTS

Without students as the driving force, Cemus would not be what it is. Student leadership is simply a fundamental element that must be preserved and cultivated in the best way possible. At the same time, it is important to recognize that the basic principle has always been the trustful, straightforward interaction between students and senior faculty; not the idea that students should have maximum freedom to do whatever they want. Cemus' approach clearly demands a good dialogue between students and faculty, as well as senior researchers on the Board and in course work groups who have a positive attitude toward significant student responsibility—and who possess the ability to let go, to not micro-manage and to dare let students prove themselves and learn from their experiences. This goes for not only teachers and researchers, but also for the administrative staff of the university. For instance, one cannot underestimate the significance

of Lennart Källströmer, the educational leader at the Department of Technology and Natural Sciences, during the first ten years of Cemus. He helped open doors, found smooth administrative solutions, and helped foster good relations with and respect for students among many of his colleagues within the university management—something he did by means of an unquestioning confidence in the students and a sincere joy to be actively part of such this student-initiated project.

The Road Ahead and the Bigger Picture

When reflecting on the evolution of Cemus, I suppose one has to conclude that in some sense, we succeeded. So many undergraduates, graduates, teachers, researchers and other actors in society have made use of Cemus and contributed to its development. Many have challenged and deepened their world-views. And many former course coordinators and students have gone on—to research and to other positions in society—and continued to challenge, change, and exert influence. This is probably the most significant testimony to Cemus' successes.

Cemus is blossoming, but of course there are challenges for those who are active today—challenges that they need to take seriously: the balancing between formalization and institutionalization on the one hand and flexibility and idealism on the other; the changed character of the subject area, given today's much larger selection of courses and programs which are more or less focused on sustainable development; and last but not least, how Cemus will be able to maintain its independence in relation to specific disciplines and faculties.

And most importantly, what about the university as a whole? A key incentive from the beginning was to change the entire university and its educational process in the larger sense. We are still a long way from the university and educational ideal that David Orr and Paul Ehrlich spoke of 20 years ago. There is still no required introductory course addressing the fate of the planet. Only very

few teachers, researchers, and students devote at least 10% of their work time to tackling the questions of global survival. We must still pose the questions we asked ourselves at the beginning of the 1990s: do Uppsala University and the Swedish University of Agricultural Sciences contribute sufficiently to real solutions of the problems in question, or do they in fact contribute to a worsening of the situation? Can the experiences gained at Cemus somehow be converted so as to expand the debate—and moreover, can these experiences be shared and spread to universities in other parts of the world? What would be the next natural step to take? What are the great challenges of today's students?

As the educator Myles Horton says in his inspiring autobiography, “Neutrality is just another word for accepting the status quo as universal law. Either you choose to go along with the way things are or else you reject the status quo.” How should the university be changed? What is education for? How will Cemus continue to contribute to a sustainable and just society?

NICLAS HÄLLSTRÖM actively contributed to the creation and development of Cemus and has, over the years, collaborated as course coordinator, lecturer, Board member, and work group member. After several years of work on environment and development issues, he is now in the process of building a new organization—the What Next Forum.

SEE MORE WITH CEMUS

A Student Perspective

Gustav Rydeman and Jonas Forsberg

We are two engineers who were part of a motley group of students who took the full-semester course *Sustainable Development A* when it was offered for the first time in the fall of 2008. The oldest course participant was at least twice the age of the youngest, but we were united by a common concern for the environment, climate change, resource management and sustainable development. During our years as students in the engineering program, *Systems in Technology and Society*, we also studied at—and came into contact with—a variety of other institutions within Uppsala University, such as the Departments of Information Technology, Mathematics, Business, History, History of Ideas and Science, and Cultural Geography.

In this chapter, we aim to convey our collected experiences of Uppsala University in general and of Cemus in particular. Our intention, however, is not primarily to compare our studies at Cemus with our previous studies, but rather to convey our own perspective on Cemus and the impression that its courses, course coordinators and unique organization has left on us.

The reader may just have arrived at Uppsala to begin your studies, or you may already have been studying for a while and are now seeking some new perspectives by taking a semester or more at Cemus. Regardless of where you are in your studies and of how big of

a student loan you may have burdened your future with, we can only encourage your choice.

Creativity and Innovation

Most people apply to a university because they want to, hope to, or simply shall *become* something. Some know exactly what and how, while others have not a clue. The incentives are many. On the winding road to this *something*, students are inevitably influenced by a great variety of factors. Values, identities and professional roles are shaped and reshaped. At most institutions, the educational endeavour is part of a sort of professionalization process in which students are given the tools for eventually (hopefully) being able to skilfully execute a job, a method, a model of analysis, a computer program, or something of the sort. The focus is to a great extent on keeping the wheels turning. Significantly less effort is put on trying to broaden horizons, challenge the most habitual trains of thought, or place education in a broader context. That is not to imply that such an arrangement is intrinsically flawed or that creative innovation is not in fact encouraged, but a lot of education contributes a great deal to preserving those beliefs, roles and structures which already exist within a certain profession or group—and in society at large.

Cemus constitutes in this context a refreshing counterbalance which does not seek to shape students according to the aforementioned moulds. The very basis and point of departure of Cemus is to question that which has been and that which to a great extent still is. Cemus has taken an “external perspective” for the purpose of indicating alternative routes where creativity and innovation play an important role. But how do you create spaces and forums for that?

To be creative is to take two or more things which one already knows and then produce something new out of that. The foundation for a creative and innovative environment lies in making possible the conditions under which individuals with different backgrounds and knowledge can meet, discuss and collaborate in order to arrive at new ideas which inspire thought. Cemus offers such a forum,

in which conflicts between old and new truths are considered by groups of people who are of different minds. In such a context, we feel it is definitely *not* a disadvantage if students have experience of prior studies in other fields and also have study routines and are used to participating in discussions. Part of the advantage of those qualities is that they can benefit students themselves, but perhaps the main advantage is that they can broaden the horizons for others, add several different perspectives and give more interesting and in-depth discussions. Some of the most interesting and enriching discussions we had in Cemus' library were those with students who had several years of experience within other areas of specialization than we—areas such as Economics, Political Science and Cultural Anthropology—which gave rise to both a certain quarrelsomeness *and* increased learning for all of us.

This creative atmosphere can also be somewhat overwhelming at first. A concrete example of this can be taken from our student projects, which were carried out in smaller groups within different focal areas: business, gadgets, politics, community, food, cities. The project was supposed to take shape within any one of these focal areas, but its orientation and shape were to be decided entirely by the members of the group. It was striking how hard it was to be confronted with such a free-form assignment. Many would definitely have considered the assignment to be “unclear,” but at the same time, it was a useful lesson that contributed to our development. Passion and creativity is all too seldom a crucial component of student projects, and never before during our years at the university had we encountered this type of assignment formulation—or lack thereof. At Cemus, we were given the opportunity to freely choose the form in which we presented our work. The thought of *not* doing the same thing as we had done in earlier projects—now that the opportunity was offered—presented itself early, but what to do? Here it also became clear that those who had little or no prior experience of university studies suddenly appeared to possess greater creativity and a partially more open mind, while those of us with university experience were stuck in our old ruts. The student

projects eventually resulted in, among others, such widely disparate things as a board game, a film show, an almanac, a trading day, panel discussions and a collection of seasonal food recipes. Our own little group finally managed to patch together a fanzine about sustainable development and “green” investment funds, which today can be found in Cemus’ library for anyone who is interested.

Big Questions

Many of the issues considered at Cemus are big—sometimes overwhelming and unfathomable—and have the entire world as both their point of departure and target. Climate change, environment, energy, poverty, economic development, power structures and social networks were issues considered, among many others, during the fall of 2008. These questions were of considerable philosophical, ethical and humanitarian depth, which unfortunately often tend to be reduced to that which is directly measurable: money. At Cemus, however, great emphasis is placed on an open discussion and a broad formulation of these questions—all for the purpose of letting in as many perspectives as possible. Of course, the feeling of merely scratching the surface presents itself at times, but the issues are illuminated nonetheless. Thought processes get started and the foundation for discussions is created, and that is certainly one important step along the way; it is certainly one way of preparing for the future—and also of handling the present. Thanks to this breadth of issues and perspectives, *Sustainable Development A* is probably the most educational and stimulating course we have experienced during our six years at Uppsala University.

In attempts to do the aforementioned issues justice, those who work at Cemus have markedly interdisciplinary ambitions, which manifests itself when one casts a glance at the subsidiary courses that are included in *Sustainable Development A*. *Global Environmental History* stretches back thousands of years and treats the development of man from a natural to a cultural being. *The Global Economy* takes its point of departure in the prevailing micro and macro eco-

conomic theories in order to then broaden the horizons with ecological economics and environmental economics, among other things. *Climate, Energy, and the Modern Society* focuses on the ways in which we affect the environment and utilize energy, as well as on different strategies to change how we do so. As is apparent from their titles, the courses span over a wide range of issues and disciplines which are still tied together by writing assignments and seminars that transcend the subsidiary courses.

In addition, students are given several opportunities, in different workshops, to practice and discuss two tools that Cemus, in the course *Sustainable Development A*, brings out in striving toward a more sustainable development: systems thinking and communication. Systems thinking is a tool for organizing, illustrating, and partly simplifying the complex world that one is studying and that one wishes to influence. Communication is a tool for conveying ones message—both content-wise and form-wise—which is completely decisive if there is to be any change at all. We were, for example, given two opportunities to try to refine our message by means of so-called “speed dating.” Eye to eye with a classmate, we were given three minutes during which to try to convey the most significant aspects of our student projects in an effective and thought-provoking way, in order then to move on and repeat the same procedure for six other fellow students. Often the results were far from perfect in the beginning, but the training was extremely effective and useful.

A Different Model of Education

As far as we know, Cemus represents something unique among Swedish universities—both in regards to perspectives, which we have already discussed, and in regards to the organization of the education. The teaching is to a great extent coordinated by former students of the course, who are often very committed and passionate about the subject matter, which of course has both advantages and disadvantages. Having students as course leaders can introduce new and partly untried tools into the teaching; they are often closer

to the “mental level” of the students taking the course; and they have, according to our own experience, a more contagious attitude than many experienced teachers. However, those students who run courses and seminars are unable to put the same “weight” behind their words as an educated teacher, lecturer or professor. Their pedagogical skills also vary (though this of course can be the case also among educated teachers).

As a supplement to the limited academic “weight” of those who coordinated the course, an array of knowledgeable, well-renowned, and committed guest lecturers were invited to Cemus by the subsidiary courses. Thanks to their activities within a great many different areas and to their experience from universities, from non-profit and political work, and from business, a wide spectrum of perspectives were presented. Positive and hopeful pictures were mixed with more dystopian and dark views of the future. Many of them showed a particular interest in Cemus as an institution and in the relevance of the attitude that Cemus represents. Several of the guest lecturers also had a past within Cemus or had in other ways been affiliated with Cemus at an earlier date, which to a certain extent functions as a bridge between the university and society—between theory and practice. These guest lectures, in combination with field trips to a number of different companies, organizations and political agencies with ensuing discussions, created a channel to the realities of the surrounding world, something which is completely necessary in order to get a realistic sense of what is going on outside the university.

An interesting observation is that many of those who stand outside of Cemus and who have a limited or nonexistent view into its activities tend to focus on the disadvantages with this educational model, and primarily on the fact that students function as course coordinators. By contrast, those who have seen Cemus from the inside tend more often to stress its advantages. These observations challenge to some extent the prevailing patterns of how university education “ought” to be handled. But as we know, it is rarely easy to go against the prevailing mainstream currents—regardless of what one is trying to do. Perhaps everyone who is trying to change the

course of events has to count on, and be able to tolerate, a little criticism.

The ambitious course evaluations at the middle and the end of the semester were something that further strengthened the feeling of student influence. Never before had we encountered anything similar at the undergraduate level. Normally one is given a somewhat uninspired, web-based course evaluation in which the chance of winning a ticket to the movies was offered as the incentive for actually having the patience to get through it. In addition to providing this standard venue in which to give one's opinion, Cemus reserved an entire day at the end of the semester in which to hold discussions, recapitulate, do evaluation exercises, and give a few "words along the way." In order to maintain the energizing spirit that developed over the course of the semester, reunions and "pep rallies" have also been arranged at regular intervals.

Is Cemus, its education and core issues merely a matter that concerns only a few individuals, or is it a sign of the times? Cemus is evidently a place within the university that is unique in several ways. We definitely believe that Cemus can—and will—play an important role in the challenge of sustainability, that is, to search for answers as to how we are to attain a sustainable social, economic, and ecological development. It is the only place within the university that presently brings up these questions and seeks a holistic view. In a world in which more and more people pay notice to and are convinced of our "unsustainability," it is important that representatives in every part of society (the university, the business world, government, and various kinds of organizations) take *their* responsibility. Cemus has already come a long way in assuming such a responsibility while other departments at the university, in one or two "theme lectures" at most, raise questions concerning sustainability. We would very much like to see more departments raise these questions and make them a greater and more fundamental part of the curriculum. The role and significance of Cemus would thereby possibly change, but by no means be replaced, since new areas of expertise are created

and there is a constant need that someone is at the forefront of these issues.

Cemus also constitutes a platform from which one can act and get involved in important issues, cooperate with and meet people who have a passion for the same things—but perhaps for utterly different reasons—or people who have a passion for completely different things than oneself, things which one might discover are connected nevertheless. During the fall of 2008, Cemus was both directly and indirectly part of a number of events that addressed, in some way or other, the sustainability issues. Among other things, students were offered the opportunity to travel to Poznan in Poland to preside at the EU “pre-meeting” to the big climate negotiations in Copenhagen during the fall of 2009. Those who chose to attend were given a chance to meet students from different countries with a similar interest in the environment and climate change, as well as to be present at some of the negotiations that took place. There were also students who actively worked to incorporate more of the Cemus perspective into their original education at other departments. In this way, Cemus can be a place where the opportunity is presented to learn to work for change—be it great or small—in a hands-on way, as well as a place that gives students the possibility of channeling their commitment.

In retrospect, the timing to give the the course *Sustainable Development A* in the fall of 2008 was perfect. Alongside daily reports in the paper and on TV about environment and climate change issues, the world experienced the beginning of a major financial crisis—and while this all transpired, we were sitting in the school bench listening to lectures about alternative economical theories and the long-term unsustainable character of the prevailing financial system. This made the connection between theory and practice even more distinct, and the insight about the relevance of Cemus even stronger. Surely, this experience will make us a little more partial than we might otherwise have been, but there should be no doubt that Cemus possess all the capacities of playing a great and important role in the striving toward a more sustainable society.

In order to maintain and further strengthen its role, however, it is important that the center continues to hold a high academic standard. If too many committed and passionate people are at the same place, striving in the same direction all at the same time, they risk failing to adjust to a slower speed and might compromise certain principles in order to deliver the message that is seen as overshadowing everything right then and there. That could easily lend an alarmist quality to the endeavour which would diminish its credibility. Scientific principles as well as serious and transparent critique of sources, non-tendentiousness and repeatability must be given top priority if Cemus is to play the role that many want and hope it will play.

In Conclusion

What then are the lasting impressions we brought with us from Cemus—from this fairly unique place within the university? What does one become after having taken a semester of Sustainable Development? A social reformer? A cynic? An activist? An optimist? For us, Cemus became, to a great extent, a very useful and inspiring ledge for the continued climb. Much of what we read, listened to and wrote about could be placed into the context of our “ordinary” studies and provide further insights and inspiration for our professional life.

During our years at Uppsala University, too many Swedish university credits were earned in a dutiful and sometimes relatively unreflective way—only seldomly has such a great deal of good general knowledge and breadth lain behind those 30 credits that were earned through the lectures, discussions, written assignments and student projects that Cemus offered. We are surely even more convinced of this because the fall of 2008 was so revolutionary that all the texts that we read struck us as extremely up-to-date and relevant, since they coincided with the greatest financial crisis of modern times and the media’s constantly growing environmental hysteria.

Many of the existing, well-established disciplines within the university have a well-defined and focused educational program, often with little or no interaction between them. It is our impression that Cemus here represents something new, something which is more general and horizontally connecting. Maybe we are even witnessing the beginning of a new era for generalists within the university? Systems thinking constitute an important foundation, and Cemus is trying to get its students to think in terms of systems and wholes more so than in other departments. A big part of the challenge, we believe, is therefore to form an identity that balances academic depth with a systems approach without at the same time taking the edge off the commitment and conviction that exists within the walls of Cemus—a dilemma facing any modern generalist curriculum at a traditional university.

GUSTAV RYDEMAN AND JONAS FORSBERG *both recently received their BS in Engineering. In the fall of 2008, they took the course Sustainable Development A at Cemus as an elective complement to their studies in Engineering with a specialization in Systems in Technology and Society.*

EDUCATION FOR SUSTAINABLE DEVELOPMENT IS A GENERATIONAL ISSUE

In Search of an Educational Model
That Will Not Destroy the Planet

Jakob Grandin

I've always felt that death is the greatest invention of life. I'm sure that life evolved without death at first and found that without death, life didn't work very well because it didn't make room for the young.

Steve Jobs¹

I started working at Cemus in 2000, as course coordinator for the course *The Global Economy*. The first thing I had noticed when I started taking courses at Cemus a year earlier was the energy, the education's wide breadth of perspectives, the heated discussions and the multitude of interesting lecturers. I had found my way to Cemus with the aim of placing my overall studies in an interdisciplinary context. It was only a few weeks later that I discovered that the course had been planned and was run by students. It was an enticing discovery: one day, I too wanted to hold a course at Cemus. I joined the Student Council and at the meetings of the Cemus Board, I discovered a meeting culture where everyone, regardless of position or title, were contributing on equal terms. This challenged me to take myself more seriously.

Those of us who planned and ran the course *The Global Economy* had divergent academic backgrounds within the social sciences, natural sciences, and the humanities. We all had strong visions for

¹ Smithsonian Institution, Excerpts from an Oral History Interview with Steve Jobs, <<http://americanhistory.si.edu/collections/comphist/sji.html>>

the course and did not always agree. Working together as a multidisciplinary team led to many long and often exhausting meetings. At the same time, the result was a unique course which was enriched by our different points of departure and the disciplinary perspectives that we brought into the planning process.

Working at Cemus was an educational experience for all of us. We developed skills that we could not have gained from the rest of our university experience. Cemus gave us the opportunity to grow and to build our capacity to take on the complex challenges that define our age.

* * *

Today's societies stand before challenges that place completely new demands on education and its organization. Consequently, we need to look to suggestions for how to develop models for education which are adapted to these new challenges. University education as well as the present sustainability problems play an important role in shaping the future living conditions of today's youth. Therefore, young people and students need to get involved both in proposing and developing conceivable solutions for sustainable development and in shaping the form and content of their own education. The educational model of Cemus makes possible an interdisciplinary and student-run education that maintains a high academic standard and has a strong connection with research. At its best, Cemus is an intense and creative educational environment which brings out the best in people and encourages citizenship, the sense of global responsibility, critical thinking, and the creativity that is needed to make our societies sustainable.

Today's Challenges Create New Demands for University Education

Today's education is inadequate! The voices are heard ever more often, ever stronger, from different directions and for different reasons. The global economic geography is being repainted in powerful

and often tumultuous upheavals. Corporations change their home base, move, or close their production. Previously competitive regions and nations are knocked out while others grow stronger. The rate of technological development is constantly speeding up and places new demands on continuous learning. In order to maintain its prosperity and position in the global economy, Sweden and other wealthy countries invest in becoming “knowledge-based economies,” “service industries,” and “regional innovation systems.” People in other nations—who do not have access to the same resources—are marginalized and stand at risk losing their means of sustenance.

Over the next thirty years, more people across the world are expected to earn academic credentials than all previous generations combined. At the same time, according to Education Consultant Ken Robinson, we face a dilemma. Even though an increasing number of people get ever more advanced degrees, they still do not possess what the organizations and corporations of today need the most, namely, the ability to communicate well, to cooperate, and to think creatively. New, knowledge-intensive forms of work build on completely different skills than did the earlier industrial economy for which our current education system was developed.²

It is not necessarily the responsibility of academia to adapt itself to fulfilling the economy’s need for a trained work force with specific skills. Universities and colleges cannot however remain indifferent when the educational system of which they are a part, from pre-school to graduate school, is not adapted to the needs of today, and in particular, of the future. The educational system of today activates only a sliver of the human intellect and thereby keeps people from reaching their full potential.

At the same time as an increasingly globalized economy has changed the conditions for people, regions and corporations around the world, we find ourselves in the midst of a social and ecological crisis. We hear, from many directions, that the very conditions under which civilization has developed and to which life on earth has adapted are threatened. The way in which humankind responds to

2 Robinson, *Out of Our Minds: Learning to Be Creative*, Oxford, Capstone, 2001.

climate change, the way in which we renew vitality to overburdened ecosystems, and the way in which people are given room to rise out of deeply entrenched and systematic poverty are therefore some of the questions that set the tone of our age. The legitimate question of competitiveness for a few privileged regions must be understood within the greater context of a fair and ecologically sustainable global development.

To meet these challenges and making the switch to sustainable development requires deep, structural transformations in how societies develop and generate prosperity. Our social, economic, technological and cultural systems stand at the threshold of a transformation of a magnitude similar to that of the industrial revolution. Previous and contemporary models of development have created wealth for a small but growing number of people in a way which has seriously damaged the planet. Desperately clinging on to “business as usual” will force our social and ecological systems to collapse. A little polishing on the edges of a system that is fundamentally unsustainable is simply not enough.

This is the new surrounding world to which the educational system must adapt, and during the transition to sustainability, universities have a central role to play both through research and education. During the lifetime of today’s students, decisive steps will have to be taken towards this transition. Education therefore needs to provide knowledge, tools, and experience which make it possible to make sense of and operate within a rapidly changing world in which the current strategies of leadership and management no longer work. It has to make room for reflection about complex ethical positions and to stimulate an active citizenship and a sense of global responsibility. It also needs to open up for envisioning various future scenarios and for formulating novel solutions and strategies that can make a sustainable global development possible.

In this context, education for sustainable development has grown strong and become established both at individual universities and in the national legislation. There is still, however, a great gap between what the future demands and what today’s education can provide.

Education for Sustainable Development is a Generational Issue

When discussing education, we must start by asking ourselves what we *really* want to achieve and what kind of world is maintained through our *current* ways of conducting research and education. Education and its view of knowledge shape our understanding of the world and frame our view of what is possible. It affects our ability to understand and meet the problems of today and tomorrow. At present, we have inherited an array of problems that our educational system, through its content and topics, as well as its form and organization, has been part in creating.

Students of today will live for a long time in the world which their education contributes to creating, and they will suffer the greatest consequences if we do not succeed in breaking the unsustainable trends of today. Today's young people will also play the leading role in arriving at and implementing solutions for an attractive, fair and sustainable future. Education for sustainable development is therefore a generational issue. In the thirty-year edition of the classic *Limits to Growth*, Donella Meadows, Dennis Meadows and Jørgen Randers summarize the situation as follows:

The generations that live around the turn of the twenty-first century are called upon not only to bring their ecological footprint below the earth's limits, but to do so while restructuring their inner and outer worlds. That process will touch every arena of life, require every kind of human talent. It will need technical and entrepreneurial innovation, as well as communal, social, political, artistic, and spiritual invention.³

Because the challenges we face today concern the young generation more than the teachers, researchers and administrators that most often define what is to be taught, this is fundamentally a question of democracy. Of course young people, whose future is invested in a sustainable world, have different priorities than people whose careers and identity depend on maintaining the status quo. "Man has a tendency to preserve established systems whether they make sense

3 Meadows, Randers and Meadows, *The Limits to Growth: the 30-Year Update*, Chelsea Green, White River Junction, 2004.

or not,” remarks the Icelandic author Andri Snær Magnason. “A longing for security and fear of change and uncertainty make people hold fast to the existence they know, however unreasonable it may be.”⁴ Consequently, young people and students, who have not yet found a place within the established system, need to become genuinely involved in developing the content of education as well as its organization.

It is also difficult to determine what kind of knowledge and skills will be needed in the future. It is therefore urgent that education becomes more a process of common and mutual learning than simply conveying of information from teacher to student. To give the students an active role as producers of knowledge is also important, since we today lack the technical, social, political and cultural solutions and strategies required to attain a sustainable development. The learning process must involve the students in visionary and creative thinking, processes in which there is space to create new possibilities and options.

The Cemus Model Makes a Creative and Student-run Education Possible

Education for sustainable development thus involves substantially more than simply supplementing existing educational programs with a few new perspectives or bits of content. It also demands in-depth changes within the form and organization of education. We are forced to challenge traditional conceptions about how education is best organized, what subjects should be covered, and the role of students and teachers in this context. This opens for greater experimentation, for moving outside existing areas of expertise and envisioning ways in which education (and research) can be fun, intellectually sharp and deeply meaningful.

Through the years, Cemus has developed a model for creative university education that transcends boundaries not only between

⁴ Magnason, *Dreamland: A Self-Help Manual for a Frightened Nation*, London, Citizen Press, 2008.

50 | students and faculty but also between different academic disciplines. The model makes it possible to organize interdisciplinary, participatory processes of education in which students have the opportunity to practice their skills in communication, collaboration, critical analysis and creative thinking: skills which are crucial to doing well not only in a Swedish knowledge-based economy, but also to be able to contribute to a sustainable and fair development on a global scale. The model puts the student at the center and has four important components:

COURSE COORDINATORS

Two or three students are employed by Cemus to plan, administrate and run a university course as a project. They often work with a course which they themselves have already taken. The course coordinators plan the general structure of the course, put together a reading list, and invite guest lecturers. They lead seminars and handle the administration of the course.

COURSE WORK GROUP

For each course, a work group is formed which consists of researchers, teachers and sometimes also practitioners from different fields and subjects. The course coordinators work in close collaboration with the work group throughout the planning process. The work group comes with suggestions for literature and possible lecturers, and give feedback on the course coordinator's proposed structure, literature and schedule. The course work group is responsible for the examination of the course.

GUEST LECTURERS

The backbone of the course consists of a multidisciplinary lecture series. The course coordinators invite guests from different academic subject areas as well as practitioners to teach at the course. The guests are invited to Cemus because they are passionate about their subject,

because of their knowledge and their pedagogical competence. This results in engaging lectures and a participatory discussion climate.

THE ORGANIZATION AT CEMUS

Cemus' organization supports course coordinators in their work. The organization consists of a Director of Studies, an Educational Coordinator, Project Assistants, and a Program Director with experience from both teaching and research.

The work with the courses at Cemus, especially the work group meetings, brings together students in their capacity as course coordinators with researchers and university teachers in a common work process. This leads to mutually enriching meetings between researchers and students. The course work groups also bring together teachers and researchers (and sometimes practitioners) from various disciplines who would otherwise not meet or take part of each other's research and perspectives. In this way, work groups also fill an important role as an arena for multidisciplinary meetings and exchanges at Uppsala's two universities. Hopefully this will catalyze further interdisciplinary research and education at the two universities.

When Uppsala University and the Swedish University of Agricultural Sciences began experimenting with student driven education through Cemus, the focus was on offering complementary evening courses. As the years have passed, Cemus has grown more institutionalized and sustainable development has grown from a peripheral subject to a main field of study. The educational model has shown to be sufficiently flexible to work both for the purposes of complementary evening courses and for the purpose of full-time courses and courses at Master's level.

The model makes it possible to always take a point of departure in what is required to provide the best possible educational process. We are not locked into a certain department's available array of faculty members, and we do not need to take into consideration the need for lecturers to fill their quota of teaching hours. Instead, we

can invite a broad group of teachers who are all specifically selected because they have an important contribution to make to the course. This flexibility has been especially important when, by means of interdisciplinary courses, we have tried to break and bridge the disciplinary boundaries that are still firmly cemented within Uppsala's two universities.

To hire students to plan and run education is also a cost-effective means of setting aside more time for coordination of courses. The great resources we have available for planning and coordination make it possible for us to put time into experimenting with new didactic methods and working out a clear course structure in the planning stage. Every time the course is taught, the planning process begins anew, often with new people, which leads to a constant renewal of the courses.

During my years at Cemus, I have seen how this organizational format makes it possible to provide an education that is unique in both form and content. The main aspects of the courses' form and content are summarized in the table below.

CONTENT	FORM
<ul style="list-style-type: none"> • An interdisciplinary approach • Critical and creative thinking • Systems thinking • Ethics and values • Power relations • Problem-based learning 	<ul style="list-style-type: none"> • Students are seen as producers and not just consumers of knowledge • Participatory and a wide variety of teaching methods • Reciprocity and little hierarchy between students and teachers • A wide range of lecturers from different academic fields and professions

As I mentioned earlier, there is an inherent value in students being given the opportunity to actively work on their own education. For the students who have had the opportunity to work here over the years, Cemus has been a fun and educational work environment. As a course coordinator and Project Assistant at Cemus, I have learned many key skills that my traditional academic education has not been able to give me. I have learned to cooperate, to lead projects, to hold meetings, and to lead discussions. At the same time, I have also gained a deepened theoretical knowledge and a broad understanding of sustainable development. I am convinced that my Cemus experience, more than any other part of my time at the university, has prepared me for the rest of my professional life.

Every year, about 20 course coordinators collaborate at Cemus, and they go through the same in-depth development. The learning curve is steep in the beginning. Because each course is planned as a free-standing project, one must be in control of the entire process, from content and pedagogical approaches to budget and administration. Cemus has high expectations on its employees—the goal is after all to provide the best university education in the world—but has, through clearly defined objectives, a feeling of common ownership of the entire program, and has through a carefully weighed balance between freedom and structure found a process that makes for results that usually exceed the expectations.

The flow of people at Cemus leads to a continual renewal of ideas. Cemus brings together people of different backgrounds and values but with a common interest in the future of the planet. They make contacts and learn to work together. Visions, experiences and knowledge are exchanged formally within the work with the courses but especially informally at coffee breaks, visionary evenings and through friendship ties. This makes Cemus a dynamic, fun and continually challenging work place. This keeps the the organization and its activities up-to-date and prevents it from stagnating.

Creative (Educational) Environments for an Education That is Adapted to the Future

The organization and educational model of Cemus has always been an end in itself. It changes and is continually redefined as both internal priorities and the surrounding world changes. We strive to create an environment and an organizational format which makes possible renewal, efficiency, and quality and which can produce an education that is adapted to the challenges of today and of tomorrow.

This leads to the question of how to create (educational) environments that bring out the best in people. In order to discover possible paths toward a sustainable society, one needs organizational forms which makes it possible to see beyond the reigning paradigm and to formulate new possibilities. Innovative environments—both within academia and elsewhere—which encourage creativity as well as critical thinking and make possible collaboration across disciplines, will play a decisive role in the work toward sustainable development.

This is not the first time we stand before a paradigm shift. Human societies have through all ages gone through deep crises and transformations. Economic Geographer Gunnar Törnqvist has studied times and environments that were unusually creative in order to pinpoint distinctive features of places where genuine changes have taken place.⁵ He notes the importance of diversity, conversation, playfulness, mobility and capital. Above all, structural instability—turbulence, chaos, and institutional formlessness—seems to be a central prerequisite for renewal. Carefully regulated and planned environments have seldom been creative in a deeper sense. A dynamic balance between playfulness and discipline, as well as between structure and chaos, makes it possible to find new connections and solutions and to implement them.

It is also not the case that whole cities, regions or universities are creative and innovative. It is rather separate institutions, departments or smaller research groups within the greater units that

⁵ Törnqvist, *Kreativitet i tid och rum: processer, personer och platser* [*Creativity in Space and Time: Processes, Persons, and Places*, free translation], Stockholm, SNS Förlag, 2009.

within a certain time span are centers of renewal, often challenging authorities and the the rest of the hierarchy. These environments are often distinguished by being small-scale, since the intensive communication that is demanded in a process of renewal cannot be carried out within a too large circle. At the same time, creative environments are part of a greater community and have made strategic contact with other environments within more comprehensive networks.

Cemus has emerged from a dynamic process over the past twenty years, as a cry for renewal but at the same time with the strong support of the existing departments at Uppsala's two universities. It is difficult to consciously create a creative environment. It is however, as Gunnar Törnqvist points out, easy to destroy one by introducing strict regulations and control. As sustainable development grows as an academic field and Cemus grows as an organization, it is therefore important to maintain the freedom, playfulness and open communication that distinguishes the organization and have taken us to where we are today.

Universities and education stand before challenges that cannot be met by simply adding an extra perspective or course module within the regular educational program. In order to meet the demands of a growing knowledge-based economy, but first and foremost to make possible a fair and sustainable global development, we need a structural change in how knowledge and education are produced and who is allowed to influence these processes. Experiences from Cemus can provide inspiration as an example of how education can be organized to meet the needs of the future.

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COLLABORATING FOR SUSTAINABLE DEVELOPMENT

The Cemus Forum and the Responsibility of the University to Inspire Change

Sara Andersson

The scientific evidence suggests that the years ahead will test coming generations in extraordinary ways. Educators are obliged to tell the truth about such things but then to convert the anxiety that often accompanies increased awareness of danger to positive energy that can generate constructive changes. Environmental education must be an exercise in applied hope that equips young people with the skills, aptitudes, analytic wherewithal, creativity and stamina to dream, act and lead heroically. To be effective on a significant scale, however, the creative energy of the rising generations must be joined with strong and bold institutional leadership to catalyze a future better than the one in prospect.

David Orr¹

The Year is 1477

The university's new campus area, Blåsenhus, was opened in March, 2010. The new building complex has been built on land that used to be part of the Botanical Gardens, and the building stands out with

¹ Orr, "What is Higher Education for Now?" *The State of the World 2010: Transforming Cultures from Consumerism to Sustainability*, London, Earthscan, 2009, p.82.

its glassed-in facades and space craft-like interiors neighbouring both the Palace and the Linneum—a modern campus in a very tradition-laden neighborhood. Next to the Blåsenhus main building, they built Campus1477, the students' new fitness center, the name of which of course refers to the year 1477, when Uppsala University was founded. The Campus1477 building matches the new Blåsenhus area. In the vestibule, visitors are greeted by Christian Pontus Andersson's "A Joyful Troop of Perfection—With Crying Sensitive Hearts." The installation, seemingly hovering in the air, consists of seven half naked plastic men with tube socks and safety helmets. The futuristic figures, hanging in lines from the ceiling, remind the visitor of the perfect anatomy of the Vitruvian man and a quest for physical perfection. Welcome to the future. The year is 1477 and over the heads of health-conscious students, sensitive hearts are crying inside moulded plastic.

The Year is 2010

The early 21st Century has been marked by a series of crises that are both local and global in nature. The first decade of the new century was characterized by an ongoing and accelerating climatic crisis, by the insight of a probable and imminent global energy crisis, by a deep and broad economic crisis and a continued and severe poverty crisis. Ecosystems are depleted at an alarming pace and to an alarming extent, and after the terrorist attack against the World Trade Center on September 11, 2001, political relations around the world, as well as the principle of individual integrity, have been severely tried. The spread and the fear of the H1N1 virus have shown how sensitive human systems are to outer influences and shocks. These problems will not disappear by themselves. The year is 2010 and maybe there is a reason for sensitive hearts to be crying.

At the same time, a lot has happened, not least on the local level, that makes me want to use brighter colors to illustrate another possible world. Through my work at Cemus and at the Cemus Forum, or meeting place, I have witnessed students and course coordinators

take on with creativity and new thinking these challenges which are both new and old at the same time. Through the Forum, I have also had the chance to meet actors both within and outside academia, at all social strata and in a number of different countries, whose thoughts and ideas have a potential to be implemented in a systematic way to bring about sustainability. The level of interest in questions related to sustainable development has increased, which manifests itself in a broad and diverse interest in the activities arranged by the Cemus Forum. Put together, these factors inspire hope and comfort, but they are not yet enough to relieve the world of the heavy burden of converging crises.

The Responsibility of the University as an Institution

The Swedish Higher Education Act states that universities should “promote sustainable development which means that present and future generations will be assured a healthy environment, economic and social welfare and justice” What does this entail for Swedish universities and colleges in the year 2010? What do we who work within the university mean when we use the term “sustainable development”; what is it in fact that lies within the university’s responsibility, and what is this effort supposed to lead to in a concrete sense?

David W. Orr, a Professor at Oberlin College and the University of Vermont, was a source of inspiration when Cemus came about. In the recently published article, “What is Higher Education For Now?” he gives his view of the role and responsibility of the university as an institution. Here, he paints a picture of a future university that acts within society and works for the creation of healthy, fossil-free, local economies while also equipping students with analytic abilities, knowledge, inspiration, and the power to design and build a world that is fair and sustainable.

From Orr’s point of view, the ideal university is a catalyst and a source of inspiration, and thereby when it comes to sustainable

development it needs to play a role that transcends the traditional devotion to education. Portrayed in this way, education, research and the university's outreach activities should all be used to work with questions concerning sustainable development. This does not mean that all activities must be devoted solely to implementing sustainability, but the issues cannot be restricted to the margins of the university's activities. To be a catalyst and a source of inspiration involves traditional academic work, but also involves being a forerunner that others can replicate as well as actively supporting the growth of sustainable and fair social structures.

Uppsala University is an exciting place in this context. Here, traditions and a history that is centuries old meet research, education and outreach activities that strive to be relevant to the society in the 21st century. The famous and somewhat ironic motto found in the Main University Building, "It is a great thing to think freely, but it is greater still to think correctly," shares the same university structure as campus Blåsenhus, where the architecture itself breathes a completely different age. There is a possibility of combining the experience and credibility that Uppsala University traditionally possesses with its striving to be up to date and relevant into a university that very concretely contributes to the development of a sustainable society. In other words, here lies an enormous potential which is neither adequately made visible nor adequately taken advantage of.

Building Capacity in a Changing World

In an organizational sense, Cemus' Forum is the part of Cemus that collaborates with the surrounding society. The Forum coordinates and runs projects that are not research in a strict sense or education in the form of courses, but are still relevant to the organization and, by extension, the achievement of sustainable development. The Uppsala Center for Sustainable Development (CSD Uppsala), Uppsala University, and the Swedish University of Agricultural Sciences supports the work, but the structure that first and foremost gives

power to the Forum is the dynamic and inspiring organization that Cemus strives to be and also is.

Activities at Cemus' Forum have one concrete and explicit goal: the Forum should create opportunities for people to meet across boundaries of academic discipline, age, and nation through activities that contribute to the creation and further development of human capacities and conditions that a sustainable future demands. In other words, the Forum focuses on creating a platform for catalyzing meetings that transcend boundaries and that hold the potential of generating new knowledge, where all participants are given the opportunity to develop their individual skills and where the result is a positive contribution to the world. These meetings are also, when successful, sources of inspiration and personal action for those who participate.

Through this goal description, Cemus' Forum can be interpreted as doing political work in the same way that Orr's description of a sustainable university has political implications. Because Cemus' Forum is located within the Uppsala Center for Sustainable Development, its mandate can be interpreted as precisely that. Regardless of how far one wants to take this interpretation, one can find a great deal of support for the goals and working methods of the Forum in the university's guidelines for collaboration. In its program, the university stresses the importance of maintaining a dialogue with actors locally, nationally and internationally. It also underscores that it is just as important to be informed and learn from other actors as it is to teach others about social change—yet another core principle within the Forum. According to the university guidelines, the university is also supposed to make use of its potential to broadly illuminate important social problems. From this perspective, the work done within the Forum is hardly very controversial. It starts from the principles of the university and adds the perspectives of interdisciplinary and critical reflection that the subject area of sustainable development demands.

Cemus' Forum has had different focuses throughout its history. Earlier, before the move to its current offices and meeting spaces, Cemus used to be housed in the Celsius Building on the main pedestrian street in downtown Uppsala. At that time, the Forum functioned largely as a physical place to meet, with a library, computer facilities, kitchen, and seminar room where students gathered for meetings or simply stopped by when they had some spare time. The location and the character of the house made Cemus a natural meeting point for students and others who were active within organizations focusing on sustainable development. In this environment, several student projects were launched that focused on sustainable development on both a global and a local level.

In 2006, Cemus moved to the Geosciences Center, and soon thereafter, the organization became a program within CSD Uppsala. The move changed the physical environment for Cemus' Forum. A different geographic location within the city, and new physical spaces that do not constitute the same natural meeting area, have caused the Forum to change, so that today it is a platform for projects, conferences, and differently structured collaborations, which seldom take place within the physical walls of Cemus. The transformation has also partly to do with the new coordinator of the meeting place, who structures the work and activities in such a way.

The change has both advantages and disadvantages. Through the new projects and the new structure, the Forum operates in new ways in new venues. As the result of making more of a conscious effort, meetings which truly transcend boundaries become possible to a higher degree. At the same time, the Forum has lost some of its vividness and the vibrant quality it had back in the day when students more actively sought out Cemus in order to meet others who were interested in sustainable development. As a consequence, the Forum may have lost some of the potential to inspire it had earlier, at least for students who already possessed a great interest in issues of sustainability.

The Forum Today

Listed below are some of the projects that are managed and coordinated at Cemus' Forum, to give the reader an idea of current activities and focus. The projects vary in their extent, focus and target group, and the participants are of varying ages (from teenagers to senior citizens), backgrounds and nationalities.

THE PROJECT COURSE is offered by Cemus' Forum in collaboration with the educational branch of the organization. The main thought that lies behind the course is the desire to give students who have ideas that potentially can be implemented as sustainable solutions the opportunity to continue developing them and realizing them through project work, and to incorporate it into their education. Through the course, students gain access to the resource base that the Forum is, as well as tools for project planning and project management, and a broad network of actors working within the field of sustainable development. The project course started in 2008, has between ten and thirty enrolled students each semester, and should be viewed as a continuation and further development of the idea of student projects for sustainable development. The main idea is still the same, but by structuring the work as a project course, it frees up resources that enable a more systematic support of the different processes involved in various projects. It also makes the work involved in realizing the projects the biggest priority to students, since they do not have to manage them on their spare time. The projects are often local in character, but international projects for sustainability have also been carried out within the frames of the course.

Even though students nowadays have to enroll in a course in project management in order to gain access to project support, the course is still an integrated part of, and one of the main components within, Cemus' Forum. The potential of the project course to contribute to sustainable development must be considered to be very great. Through the course, students are given an important role in their collaboration with actors outside the university (to the extent that students choose to take their projects outside the academy).

Student projects give the Forum a broadness it would otherwise lack. However, it should be emphasized that students themselves have the responsibility for the planning, focus and execution of their projects. It is the students themselves who should be praised for successful projects and not the Forum, even though the latter provides a platform for their work.

THE FUTURE ACADEMY is the longest running project of the Forum. This collaboration between Cemus and Folkuniversitetet (The Adult Education Association in Uppsala) aims at creating and maintaining a venue where the public can discuss current research on sustainable development with the researchers themselves. Each semester has a different theme, and lecturers are invited to present their research and its relevance to and for sustainable development. After a concise presentation, time is allotted when the audience has a chance to ask questions or make comments—a direct response to the researcher of the evening. The audience at the Future Academy is of the returning kind, and over the years that have passed since the start, thousands of visitors have participated at one or several lectures.

THE HIGH SCHOOL ACADEMY also deserves mention. It constitutes a collaboration project with the Uppsala International High School and has been carried out for two consecutive years. The process is inspired by the Cemus model of education, and the high school students themselves get to book and facilitate a lecture series on sustainable development as a part of their high school education. The lecturers that are invited come from the university, and the series is held within the walls of the university. The project gives students a unique view of how the university and higher education work, and their education at the same gets a current research connection. In return, Cemus and the participating lecturers get an opportunity to reach out to young people who otherwise would not necessarily have found their way to higher education, as well as a chance to get a feel

64 | for what young people—the students and professionals of tomorrow—regard as especially important issues.

THE CLIMATE EXISTENCE CONFERENCES, organized in collaboration with the Sigtuna Foundation, here serves as examples of how boundaries are transcended within the projects put forward by the Forum and Cemus. The focus of these conferences is to discuss the existential, psychological, and moral aspects of climate change and of the global ecological crisis. This takes place in an environment that enables discussions beyond the shallow and distanced level. The environment made up by the Sigtuna Foundation is excellently suited for this purpose, and the many cultural elements within the conferences contribute to rich and meaningful discussions and encounters. Guests from a multitude of academic disciplines participate, but also from other sectors and backgrounds.

BRIGHTCLIMATEFUTURE is a collective name of a network aiming to increase students' capacity to face and handle a changing world. The network focuses on questions of education, both of today and tomorrow. What makes the project unique is that it is run within an international environment where students from different backgrounds participate in a common process, held together by a series of student conferences. The network is initiated by the Baltic University Programme (BUP, a program within CSD Uppsala) and its home base is primarily within the structures of BUP. Cemus, however, participates actively in BrightClimateFuture; among other things, two of the conferences have been organized in collaboration with Cemus. One of the results of the conferences and the student network is that two student declarations—one about climate change and the other about education for sustainable development—have been penned and passed at a student parliament in Poland. Even though the role of the Forum in the network is more limited than what is the case for other projects presented here, it is an important example of how new student groups with varied backgrounds can be reached through new forms of collaboration.

In order to succeed with the mission, prescribed by law, to educate students for sustainable development, the university must display strong institutional leadership on these matters. In this chapter, I have attempted to show how Cemus' Forum answers this challenge through collaboration with society at large. Since Cemus is a part of CSD Uppsala, the focus of its work is obvious, but the challenges that confront humankind are too great to let work for sustainable development be something that is distinct from other university activities. As I mentioned earlier, the university has an enormous potential to have a more active and holistic approach to these issues and to do so in a variety of ways that stretch all the way from the strictly scientific and academic to the more pragmatic. Research and education for sustainable development have to go hand in hand with an active effort in order to make sure that our university as a whole, from its physical infrastructure to purchases and travel policies, constitute a sustainable system that can show the way for and inspire others. When viewed from this perspective, it is unbelievable that the new campus area Blåsenhus does not also breathe innovative sustainability in the same breath that it breathes contemporary design.

Regardless of how intensely the university works, however, the solutions will still come from all corners of, and actors within, society. In other words, one should not imagine that the university alone has the role of providing a final solution to all the challenges and problems in the world. As institutions of knowledge, however, universities must take the responsibility of interacting with our changing world since, like few other actors in society, it can credibly supply an interdisciplinary context to the issues as well as critical perspectives and attitudes. This presupposes that the university is a university within society, as opposed to apart from society, and a university that can both listen and learn, as well as it can speak and teach.

Cemus' Forum is at intersection of two universities and the surrounding community. It is an incredibly exciting place to be.

66 | Through a continuing development of the Forum and an increased and deepened collaboration with local and regional actors, the Forum has a potential to even further strengthen its role in the strive for sustainable development—both within and outside the university. Work is in progress to find ever more natural and meaningful partnerships in the region in order to, together with these new actors, continue to develop the thinking around how work for sustainable development can be deepened and rendered more concrete. Maybe you too want to join us?

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CROSSING BOUNDARIES

An Analytical Look at Cemus' Educational Model

David O. Kronlid and Robert Österberg

What actually characterizes Cemus? Student engagement? Innovative courses? Its focus on solidarity and impartiality? Taking initiative (the fact that an entirely new center was established within higher education)? Its interdisciplinary approach? Student-led activities? Hope (doesn't the actual establishment of Cemus show that changes *that* make the world more humane, less destructive and more tolerant are possible)? All these things are characteristics of Cemus. But could it be said that an essential part of the work—a common denominator running through all these aspects—is the *crossing of boundaries*? This is the idea we want to discuss in this chapter, with a focus on the educational dimension. Due to the special nature of Cemus, the work cannot be anything other than transboundary, given the academic context in which it exists. But what kinds of boundaries are crossed, what does this mean, and what are the consequences?

The Crossing of Boundaries Between Different Educational Approaches

The main driving force behind Cemus and its activities is the will to change—to contribute to a better world. Its courses should not sim-

ply generate new theoretical knowledge and insights, but also lead to actions that have a real impact on the necessary changeover to a sustainable society. In other words, it means an approach to education where knowledge in itself, in terms of pure know-how, is not sufficient, but where its primary value is its application and continuous use in societal processes. Indeed, it could be said that at Cemus there is a direct, instrumental approach to education and knowledge that is based on responsibility for the world's future.

Seen in that light, it may seem somewhat contradictory that one of our long-standing courses was called *Environment and Development Studies: Theory and Analysis*—a course that expressly emphasises *theoretical* aspects.¹ But it is significant that the focus on “theory and analysis” is to highlight and examine central and often unexpressed assumptions and norms in the environment and development field *with the aim of equipping students to work for and change a practical reality of concrete problems*. Hence, core questions are e.g.: Why do different actors arrive at such different conclusions about the state of the world and how questions of global survival should be addressed? Why are we unable to solve the problems that affect us all? A key assumption of the course itself is that an adequate understanding of the complexity of this practical reality can only be arrived at by identifying and analysing the different conceptual, ethical and normative perspectives of nature/environment and development on which these issues (again often tacitly) are based. In addition, this understanding is in turn a prerequisite for being able to change this practical reality.² The deepened theoretical perspective should thus serve the expressed practical and determined purpose.

1 The course is now called *Sustainable Development—Values, World-views and Visions* [Hållbar utveckling—Värderingar, Världsbilder och Visioner].

2 Here we are not talking about a one-way causal connection where the conceptual framework (or “the superstructure”, to use a more established terminology) determines the practical reality (or “the substructure”). The social totality is made up of a ceaseless flow of complex feedback between these two dimensions where “the substructure” also has a determining effect. The precedence that *Theory and Analysis* assigns to the conceptual dimension is based on the need to identify existing but rarely visible basic assumptions and norms.

However, at the same time it would be wrong to claim that theoretical sustainable development literacy has no value, or that students' search for new knowledge is not regarded as an important and completely central phenomenon. Rather, it is a question of a dialectical approach in which both components play an equally significant role—no work for change without knowledge on which this work can be based, no practice without theory (however implicit this might be)—in the same way as all theory derives from practice. However, given that this dialectic is overshadowed by the seriousness of the global environmental crisis, Cemus tries to ensure that theoretical knowledge, knowledge in itself, always reflects practice. Giving a practical orientation like this more prominence means crossing the boundary between a more traditional approach to education, where the theoretical and the practical are clear-cut. To some extent all learning is practical, i.e. all disciplines deal with both theoretical and practical problems. But what makes Cemus unique is that the practical contexts and the possibility for change *beyond the university* constitute a highly important dimension in determining how the courses are shaped. Taken to its logical conclusion, the reasoning is that the prevailing boundary between theory and practice is abolished. Indeed, you could say that the educational ideal that Cemus strives towards is a kind of Aristotelian *phronesis*.

It almost goes without saying that courses that are directed towards practical change and based on a highly critical view of the state of the world also need to remain value-neutral on the one hand and guard against the temptation to adopt a biased, one-sided normative perspective on the other. If Cemus, in accordance with its stated principles, is to “work for a long-term, sustainable, social development that safeguards all people and the whole world,” and at the same time stimulate and encourage students to engage in practical action, this ambition must be reflected in the teaching methods used. How might this be done?

The most immediate answer is that the basic aim can be furthered by simply educating students about “the state of the world”: furnishing them with information about environmental pollution

in different areas, levels of poverty etc, i.e. a kind of fact-oriented environmental education. While this is indeed an important part of Cemus' work, it does not completely reflect the center's educational goals. In environmental education research, the fact-oriented tradition is characterized by e.g. a view of science as the solution to all our problems and a view of environmental problems as a lack of knowledge that can be remedied by more research, especially within the natural sciences, and by correct information to students and the general public. To all intents and purposes this implies that (natural) scientific experts will solve the environmental problems while teachers will transmit the relevant scientific facts and concepts to the student. As we shall see below, such an approach does not reflect Cemus' efforts to cross the subject boundaries.

Given that a fact-oriented education does not reflect the basic aims of Cemus there is, so to speak, no turning back. The courses cannot simply teach about the state of the world, but must also to pose and seek answers to questions that are associated with the normative and the evaluative: Why do these problems arise, and how should they be solved? Why are so many of the proposed solutions so diametrically opposed and mutually exclusive? And what are the practical consequences (ecologically, economically, and socially) of these suggested solutions and approaches?

Cemus' normative efforts and conscious standpoint that a university education ought to contribute to a "better world" could be said to belong to a normative environmental education tradition. This type of education aims towards students actively developing environmentally-friendly values on the basis of scientific argument and learning how to act in sustainable ways. Up to now, there does not seem to be any disagreement about this. However, the normative tradition presupposes that there are causal connections between knowledge about environment and developmental problems, sustainable values and sustainable behaviour. In addition, it often dictates which values are reasonable. This dimension does not match up with the Cemus view that the plausibility of a value judgment can only be determined (at least temporarily) after careful and system-

atic critical reflection and argumentation. In spite of such important differences, both Cemus and the normative tradition emphasize the importance of student-led education.

Before going any further we ought to make it clear that the key issue in the above argument is not about the relation between facts and values, objectivity and value-normativity, that is often taken for granted in education and by society at large. In the Swedish tradition there is a positivistic heritage, which is still strong, according to which education should deal with “pure facts” that are free from inherent values and normativity (which obviously is a value judgment in itself and not a natural phenomenon). But the argument is based on a dichotomy that is more ostensible than real. Given that facts are entities that are used by humans, they will inevitably be incorporated into meaning making contexts—and thereby assume the character of representation, of interpretation. In this way we could concur with Nietzsche and say that there are no facts, only interpretations. But in some cases pure facts are neither the result of interpretation nor need to be interpreted (e.g. the distance between the moon and the Earth is approximately 380,000 kilometres). However, such facts seldom have any real significance, and whether they have has to be determined in relation to the problems being addressed. Facts are only important when they are interpreted and assigned meaning or value, when they become part of a meaning making context. (Is knowledge about the distance between the moon and the Earth important? Is making a trip to the moon possible or worthwhile? What reasons would there be for making such a trip? etc.)

That this stress relation tends to deconstruct itself does not mean that the problem of a one-sided, normative bias in the education disappears. This problem is *possible* in all types of education, but are perhaps more apparent in an educational context like Cemus. There is a danger in this, but also an important opportunity. There is no doubt that one-sided and normative frames that are not subjected to critical analysis pose a serious challenge, regardless of whether they operate implicitly or explicitly. Since the emphasis of the education

that Cemus offers is closely linked to the normative and the evaluative, in line with Cemus' basic principles, this dimension cannot be avoided. But this does not necessarily mean that Cemus education is biased. Emphasizing the *normative* does not have to mean taking a stand, being *biased*. Rather, the aim of Cemus courses is to factually and fairly draw attention to the variety of approaches, assumptions and controversies—to allow for as much normativity as possible—and include these in a continuous, critical dialogue based on the superordinate perspective: that the state of the world is not sustainable. It is especially important that the courses try to highlight the normativity that is traditionally assumed not to exist, where it has been naturalized as ideology, since that is a prevailing problem in the established debate's way of dealing with environment and development issues.

This means that Cemus' approach can best be likened to a third environmental education tradition—pluralistic environmental education. This type of education aims to help students to develop the ability to critically evaluate different perspectives of environment and development problems. From a pluralistic perspective, environment and development problems are due to conflicts between different human interests. They are thereby regarded as social constructions in the sense that different people define them as problems from different points of view. In this tradition, and in line with Cemus' approach, scientific facts are not regarded as moral guides, since they contain contradictory conceptions and interpretations and because knowledge is viewed as an inter-subjectively imposed social construction. Another similarity is that the environment theme is widened to stretch across society as a whole—environment *and* development—which strengthens the conflict-based perspective through links with the social development of society. This tradition also focuses on the democratic aspect of education, which means an emphasis on incorporating real opportunities for student-led contributions in the courses. This was especially the case in the Cemus course for which the authors were responsible, where a variety of teaching methods were used in order to stimulate and structure the

students' critical reflection on the basis of their own previous experience.

In this light, it is clear that critical thinking is of central importance at Cemus: in courses where the normative is both inevitable and highly charged, critical thinking is unavoidable. The very awareness of how closely the activities are intertwined with the normative constitutes a distinctive opportunity. When Cemus courses analyze the norms and basic suppositions of the currents running through the field as a whole, it becomes clear that the grounds for these currents are contingent and constructed. In this way, the view that there are natural and essentialistic relations and categories is problematized. Instead, it is made clear that these are the result of specific choices. The significance of identifying and analyzing basic assumptions is thus not only that students are confronted with a variety of approaches and normative structures, but that they also become aware of the constructions on which they are based. By encouraging thinking outside or beyond the accepted frames, this approach facilitates a way of thinking that has the potential to be more impartial in terms of its awareness of the prerequisites of different approaches and norms. But the approach is also used self-reflexively as a way of stimulating students to reflect on and critically observe their own basic assumptions—conscious or less conscious—that they bring with them to the course. This double-action perspective is the model for Cemus education in general and had an especially prominent place in the course *Theory and Analysis*.

The Crossing of Disciplinary Boundaries

The transboundary educational model on which Cemus is based is already hinted at in the center's name. The "and" in the "Center for Environment and Development Studies" indicates that questions of survival are complex and that environment and development issues are intertwined. It also expresses that this complexity requires new approaches to be understood and explained in the best possible way.

The most frequent transboundary-format at Cemus is multidisciplinary. Multidisciplinary courses allow for flexibility of “movement” across the disciplinary boundaries. Ulf Sandström defines multidisciplinary research in the following way:

One should ... differentiate between the *interdisciplinary* and the *multidisciplinary* in so far as the former represents situations where the actual research process *integrates* elements from several different disciplines, whereas the latter alludes to projects that only consist of additive collaboration between people from different disciplines.³

You could say that Cemus’ multidisciplinary courses (in contrast to the inter- and transdisciplinary elements in Cemus’ courses) have no ambition to formulate new questions. In multidisciplinary higher education only disciplinary questions are posed and responded to with specific disciplinary theories and methods. In other words, multidisciplinary environment and development studies do not in the first instance aim to question the respective disciplines’ established interpretive frameworks. This approach is thus mainly concerned with adding different disciplinary perspectives. Multidisciplinary courses are therefore organised so that a common theme, for example economic, environment and development issues, are analysed from different disciplinary perspectives.

However, Sandström is not completely correct in his claim that multidisciplinary education (or research) does not integrate elements from different disciplines. When we add different perspectives in order to understand how to address a problem from different angles, in most cases an additive integration of knowledge takes place, at least on those occasions when we learn something new.

The learning process does not lend itself to being divided into separate disciplinary compartments. Learning takes place when students encounter new or unfamiliar information and aided by their previous experience individually or with others process it so

3 Sandström, “Tvärvetenskap med förhinder”, *Vägar till kunskap. Några aspekter på humanvetenskaplig och annan miljöforskning* [“Obstacles to Interdisciplinary Science”, *Routes to Knowledge. Aspects of Human Scientific and Other Environmental Research*], Stockholm, Symposium, 2003, p.239. Free translation.

that new meaning is created. In this way, you could say that transboundary education integrates elements from different disciplines, even if we in multidisciplinary courses do not put as much emphasis on including integrating educational situations.

The second most common type of transboundary course at Cemus is interdisciplinary in nature. Like the multidisciplinary courses, these aim towards processing already established questions or problems with the aid of theories and interpretive traditions from different disciplines. The differences consist of the following:

For the sake of simplicity we should regard interdisciplinary science as an integration of theoretical fragments and methodical tools from different disciplines with a view to solving a specific scientific problem—with the ambition of injecting new knowledge of a kind that has not been possible within the parameters of a “narrower” intradisciplinary perspective.⁴

In contrast to multidisciplinary courses, the aim of interdisciplinary education is to offer students the opportunity to learn something that is not possible to learn without intradisciplinary methods and theories being questioned.

It could be said that Cemus interdisciplinary courses are based on the premise that the disciplines’ different theories and methods are interpretation frames and not direct reflections of a factual world. With this, scientific interpretive models are also put into and influenced by their political, cultural, religious, economic and ecological contexts. Hence, the power relations that prevail between different interpretive models, theories and methods and their predecessors are often problematized. Here, a gender- and queer perspectivization of both environment and development issues as the disciplines’ interpretative frame plays an important role. This critical examination often takes place by the course’s Coordinators introducing and

4 Åberg, “Validitets- och reliabilitetsproblem vid tvärvetenskapliga forskningsansatser: exemplet historisk nätverksanalys”, *Tvärvetenskap: fält, perspektiv eller metod*, [“Validity and Reliability Problems in Interdisciplinary Research Efforts: The Example of Historical Network Analysis”, *Interdisciplinary Science: Field, Perspective or Method*] Lund, Studentlitteratur, 2004, p.119. Free translation.

leading carefully selected, goal-oriented, interactive evaluation exercises, role play, argumentation games, written exercises, etc.

Finally, Cemus also offers courses with so-called transdisciplinary elements. In contrast to the multi- and interdisciplinary educational formats, transdisciplinary higher environment and development studies are mainly characterized by a search for new problems to consider and process. Whereas multi- and interdisciplinary education integrates methods and theories from different disciplines in order to provide new solutions to already established environment and development problems, transdisciplinary education aims to formulate problems that lie outside the scientific community by crossing the boundaries between knowledge systems. This also presupposes a new, partly tentative conceptual apparatus.

An example from the course *Global Environmental History* is when students under the guidance of established artists from the Örnköldsvik Graphics workshop⁵ sculptured their own personal environmental history. This experience was processed under the guidance of the course coordinators in such a way that the boundary between the approaches to art and science were problematized and gave a new dimension to how one can relate to and formulate environmental history issues and questions.

Another example of transdisciplinary education is that in the course for which the authors of this article were responsible, representatives from the civil society, representatives of political parties, companies, embassies, political leaders and negotiators, journalists, etc., were invited to take part on an ongoing basis. This too was part of a conscious strategy to cross the boundaries between different knowledge systems and to critically examine the solutions and analyses that the representatives for these actors offered.

By way of summary, we would like to point to the following: Firstly, that Cemus makes use of these three kinds of transboundary environment and development studies as educational strategies rather than striving to establish a certain type of teaching. Different issues and different courses require different strategies. Secondly, in

5 Örnköldsviks kollektiva kulturverkstad (ÖKKV).

comparison to inter- and transdisciplinary courses, multidisciplinary courses may not require didactically conscious choices on the part of the course coordinators in order to integrate different disciplinary theories and interpretive frameworks beyond additive integration. Nonetheless, multidisciplinary teaching strategies are better than inter- and transdisciplinary strategies in those cases where there is no requirement for advanced subject integration. Thirdly, the integration of subject matter in teaching is not about attitudes, but about careful and goal-oriented planning of the course content and its organization. This does not happen by itself. At the end of the day it is a matter of carefully formulated allocations of responsibility, work plans, timetables, evaluations, feedback and hard work.

The Transgressing of Didactic Authorities

The most radical form of transboundary work at Cemus is perhaps the approach to established norms and structures in the actual teaching situation—what we refer to here as *didactic authorities*.

The most common didactic authority in academic education is the researcher as teacher and examiner. The fact that Cemus was established as a result of student initiative and, not least, that the activities are run by students, means that this fundamental academic hierarchical order has been overturned. At Cemus, student influence spans across the entire spectrum of activities: from the starting of new courses at the students' initiative to the courses being administered and run by course coordinators who also set up and lead quality-assured course work groups consisting of senior lecturers.

It should be pointed out that the collaboration and mutual exchange between the students working at Cemus and the senior lecturers involved in the work groups is an essential ingredient. Without their involvement and the knowledge they represent, Cemus courses could not be run. But the crucial point of our argument is the crossing of the structural relationship that traditionally characterizes all higher education. In spite of the fact that senior (guest) lecturers are responsible for the majority of the lectures in Cemus

courses—which can be regarded as a traditional educational format—the students at Cemus encounter other students as important as these senior lecturers in the teaching situation.

The course coordinators act as the catalysts as well as the glue that holds a course together: they are responsible for introducing the topic at each session, formulating examination exercises (together with the work group), and leading some of the seminars and group exercises. The course coordinators thus have a consciously thought-through didactical role that, due to Cemus' critical-constructive approach to the course and knowledge content, often implies that they function as the didactic authority.

In that course coordinators, who are primarily responsible for the courses, integrate the different stages and knowledge content and are sometimes also involved in the teaching, Cemus courses can be characterized as “management from below”—a grass roots education.

That the courses are student-led is not the only way in which traditional forms of didactic authorities are transgressed: Cemus' courses regularly include pedagogical forms that “activate” the student, such as interactive writing and response exercises, different kinds of evaluation exercises and interactive course evaluations. In this way, the student is also assigned an active role in relation to the course coordinators, which can imply a “transgressing of the transgression,” in the sense that the students on the courses are themselves given the opportunity to function as didactic authorities. In short, these transgressions mean an activating role for students.

Summary

In this chapter we have approached Cemus on the basis of what we regard as the common denominator of the center's work with the diversity of education formats offered: the crossing of boundaries. We have pointed out that Cemus educational activities involve a crossing of boundaries in three different areas: approach to education, the disciplinary perspective and what we call didactic authorities.

This boundary crossing is partly a result of the fact that Cemus is an anomaly within higher education—it was created through student initiative and is run by students—and partly reflects an inherent necessity in actual environment and development issues where movement over subject boundaries is needed in order to address the problems and suggest solutions. It is our hope that this discussion will lead to a better understanding of the radical and fruitful nature of the work and also contribute to the academic discussion about what higher education for sustainable development can entail.

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CEMUS' RESEARCH SCHOOL

Education, Freedom and Utility

Anders Öckerman

We are in need of a flowering of ingenuity equal to that of the Neolithic or, lacking that, of wisdom.

Alfred Crosby

Personal education and cultivation (“Bildung”) is the most important goal of the university. It achieves this goal by means of research and freedom of teaching and learning. This was the opinion of the linguist and public official Wilhelm von Humboldt at the beginning of the 19th Century, and his idea sparked reforms within universities and the formation of new institutions. Today, many courses, programs and entire universities are far from Humboldt’s idea. Higher education at its worst takes on the character of an information factory which imposes specialization for the purpose of making its students employable. The main objective is to make education useful for the purposes of the state or the economy. Professors and students here stand in service to the prevailing social organization. To a certain extent, this must clearly be the case; but if society and its development face great challenges and have to find new paths for the future, what shape should higher education then take?

According to the ideals of free education, students ought to ask not only “What will I know?” and “What do I need to know?” but also “What do I want to know?” and “What is genuine knowledge?”—and they should also be open to making new and unex-

pected discoveries. They should also allow their personality to be affected in the process of getting an education. According to the “Bildung” view of education, man is ennobled by studies, research, knowledge and learned debates and conversations, and there is the hope that most educated persons become dedicated and wise and can make positive contributions to society and to the world at large. Society and the world need these contributions. Education demands at least a certain measure of freedom and integrity from the state, from politics, from corporations and from business mentality.

Another important aspect of the “Humboldt model” for the university, in addition to the idea of education and freedom, is research. Education should be closely tied to the search for knowledge, and the teachers are supposed to do research or at least be able to do research. And one is supposed to educate researchers. This is something different than putting together a course with a point of departure in the question “What do the students need to know?” When it comes to issues of mankind’s fate, such as the environment, peace, justice and the structure of society as a whole, nobody today knows how to best educate students for the solutions of tomorrow, and maybe not even how to educate them to begin to describe the problems. There is a lot that speaks for the need to implement and perhaps rediscover the Humboldtian ideals of education, freedom and research—for the sake of personal development as well as that of social development. Maybe here the interests of the individual and of society point in the same direction. I find Cemus to be an interesting example of how an undergraduate education can comprise not only social utility but also personal development, commitment, and academic freedom. And it seems as though the principles of Cemus can also be implemented within research and research schools.

My Encounter with Cemus

The first time I briefly came into contact with a Cemus in the making was in the year of 1990 when I was studying Philosophy at Uppsala University. Like many other curricula, mine lacked environ-

mental perspectives, so I organized an extracurricular seminar at the Philosophy Department, which at the time was located in a yellow house on Villavägen in Uppsala. I had invited Alf Hornborg, Professor in Cultural Anthropology, to discuss world systems and thermodynamics. A dozen of interested students had shown up. Niclas Hällström announced that a handful of enthusiastic and motivated students wanted to start a course about the great questions of the future, the questions of the fate of mankind. This was new thinking altogether: the hope was to invite the foremost lecturers in the nation and to run the course as a student project, and connections were already being forged with interested and foresightful academics in Uppsala. The result turned out to be an interesting blend of youthful freshness and academic establishment. The questions of environment, natural resources, and development were timely and, so to speak, brewing, but the universities were, just as they historically have been, primarily a conservative force that took a long time to assimilate new perspectives. The time was ripe for the content, and the form that was created in Uppsala was innovative and dynamic. But the visions and unclouded eyes of young students were needed to see clearly.

For my own part, I moved to Umeå shortly thereafter and spent the rest of the 1990s there. Tidings of the expanding Cemus and its activities reached my remote location, and it all sounded very exciting. In Umeå, interdisciplinary environmental courses were at the time offered at a Forum for Interdisciplinary Studies and included, among other things, courses in Human Ecology. The enthusiasm and pioneer spirit of this meeting place from the 1970s, had to a great extent settled, even though we were a group of young PhD students hanging out at this green oasis in the yellow brick desert of the Umeå University. If only we had access to a Cemus Research school!

I was first invited to lecture at Cemus in 2000. For an outsider, it was difficult to grasp exactly what was going on, but this much was clear: it was pedagogically interesting, and the courses themselves were run by students. As a guest, I was well taken care of. Every-

thing seemed remarkably well thought-through, and the sheer fact that students were there of their own free will, so to speak, and because they were interested in what was going on, made for an atmosphere that was especially conducive to learning. The spirit in which the teaching took place provided a taste of what universities could be when it came to free studies and the search for knowledge.

In 2002, I applied for the vacant position of Director at Cemus, with the result that I found myself employed half time as something I had not applied for: Assistant Director with the mission to establish a research school. At the turn of the century in 2000, “research school” was the concept of the day, but as has always been the case with Cemus, the type of institution envisioned was something innovative that did not fit the regular mould.

The Idea of a Research School

In 1999 and at the beginning of 2000, there were increasingly concrete plans at Cemus to take the operation to the next academic level by offering a doctoral degree. This is of course a reasonable step to take once one has constructed an undergraduate education that comprises several courses and hundreds of students every semester. There was a volunteer group at Cemus that consisted of advanced undergraduates and PhD students who wanted to keep enjoying the creative atmosphere—people who had themselves studied or worked as course coordinators at Cemus. PhD students with an interest in environment and development issues and with a methodological orientation toward multi- and interdisciplinary studies face several challenges. In their departments, they often find themselves at the fringes or outside what is either implicitly or explicitly considered to be the core of the field. To be trained as a researcher and to build an academic career on being innovative at best is hardly as sure a career path as carrying out a detailed study within a well-trodden empirical and methodological path. How is one supposed to find the competence, guidance and encouragement to widen one’s views

or to work in new ways with one's projects? Maybe a research school at Cemus could help?

In the spring of 2000, Vice-Chancellor Bo Sundqvist appointed a work group to generate a concrete proposal for a Cemus Research school, Cefo. The proposal included the establishment of a special committee immediately subordinated to the Vice-Chancellor, and the PhD students who were associated with it were to do their research at their regular departments and work as course coordinators at Cefo. Cefo was to offer PhD courses, PhD seminars, affiliation to the undergraduate education at Cemus, and above all, a creative and multidisciplinary atmosphere. The financing was to be provided by Cefo, while acceptance, study plans, and the appointment of advisors was to be handled on a double basis, so to speak, by both Cefo and the regular departments. Cefo was to provide additional support by offering mentors (and/or extra advisors). The proposal was eventually carried through according to this model, but with the important exception that the Research school did not provide financing for doctoral positions. Instead, Cefo attracted regular PhD students, which I will elaborate on below.

Small sums of money were obtained to further realize the plans and organize seminars and more, but because Cemus did not receive funding for a proper research school, one might say that the project deflated and several of the students who were involved in establishing Cefo were admitted as regular PhD students and became busy with their new duties at their own respective departments. The idea was now in danger of being devoured by the established academic apparatus. But committed students, the management of Cemus, and newly-fledged PhD students continued to work on the project with the result that Cemus, starting in 2002, obtained a total of one million SEK per year from Uppsala University and from the Swedish University of Agricultural Sciences, SLU, for the purpose of establishing a research school.

When, in the spring of 2002, I started working as the newly hired Assistant Director of Cemus and my main task was to launch the research school, it was still unclear how the visions were to be real-

ized, and how the funds were to be appropriated. Cemus as a whole was also in a phase where there had been substantial growth within the operation itself, but the management had not grown along with it, which had resulted in growing-pains and new consolidation. I felt it was urgent to appoint a council for the research school, get started with Cefo activities, and start recruiting PhD students.

As an outsider who had not participated in the volunteer or semi-volunteer work effort that had resulted in the research school, I was understandably met with a certain amount of suspicion and found myself in conflict with some of those who had been involved during the early stages. When idealists who know a lot and who want to accomplish a lot come into conflict with one another, things can get pretty stormy. At best, a creative chaos erupts. After a couple of months, I basically decided to break off the project; but then the gale turned and became what I believe to be a downwind for everyone involved, including those who eventually started to congregate and become affiliated with the PhD activities at Cemus.

Cefo Is Founded

During the first fall, Cemus sent out invitations to a national seminar on schooling in research related to sustainable development. After the seminar, we designed a web page and formed a network for environment and development studies. In the long run, our initiative led to the creation of the volunteer organization Science for Sustainable Development in Karlstad in February of 2004.

At home in Uppsala, a series of meetings were held with the aim of launching the research school, and we invited representatives from the faculties of both universities to help with consultation. Starting in the fall of 2002, Cemus has been offering PhD courses on exciting and innovative themes such as *Environmental History, Place, Scientific World-views*, and *Interdisciplinary Methodology*. Early on, we developed studies in environmental literature, which eventually resulted in a course within the emerging field of Eco-criticism and in a published anthology. Over the first few years, we offered

fifteen interdisciplinary PhD courses, each with lecturers and participants from a broad spectrum of research areas.

In a formal sense, Cefo was established in June, 2003. The foundational idea was to channel ten years of experience as well as the basic concept from Cemus as a whole. We appointed a council of postgraduate education with established academics, and we made sure to carefully think through and to foster the influence of undergraduates and PhD students. On a continual basis, we invited people to participate in consulting meetings, in course development, and so on. To run the courses as student projects, we primarily hired PhD students who themselves were taking courses at Cemus or who had taken courses at Cemus on a part-time basis. We also invited lecturers and teachers.

The original idea at Cemus was that the research school was to be a way of financing and conducting postgraduate education. In reality, with a budget of one million SEK per year, we introduced the possibility of being “affiliated” with Cefo. This entailed a commitment from participating students to earning at least ten postgraduate credits at Cefo, participate in the PhD seminar, and have an extra co-advisor financed by Cemus. The co-advisor was appointed through the mutual agreement of Cefo’s postgraduate education, the PhD student, and the primary advisor at the home department. After three years, there were about twenty affiliated PhD students.

From the point of view of the PhD student and the home department, Cefo offered an additional, creative environment in which to meet PhD students from other fields, pursue projects, work at Cemus, participate in field trips, get publishing opportunities, and so on. Field trips were offered, among other destinations, to Cambridge University in England and to the University of Iceland.

Cefo in the Year 2010

Cefo has continued to operate in the same spirit as during the first few years. As I write, there are 25 affiliated PhD students, and at least two PhD courses are offered every year. The core of Cefo’s

activities is the PhD seminar, which is held every two weeks. A common interest in environment and development issues unites the PhD students, who come from widely different backgrounds and departments. Because of their disparate backgrounds, the PhD students' response to texts that are presented is multidisciplinary and creative, as is the climate for discussion that arises. There are not many other arenas for discussions that cross boundaries between disciplines, but they seem to be very important for stimulating thinking along new lines. In addition to holding the PhD seminar and PhD courses, Cefo also develops workshops, offers the PhD students (as previously) co-advisors in order to heighten the level of interdisciplinary science in their dissertation work, arranges field trips to nationally and internationally interesting interdisciplinary settings and offers opportunities for financing of the fieldwork of affiliated PhD students.

The PhD students are still deeply involved in the continued development of Cefo and also find employment at Cefo, for instance in developing and running PhD courses. To be a PhD student at Cefo also mean that one is given the opportunity to grow as an educator, as a project manager, and as a scientist. Cefo contributes to the development of national and international networks between PhD students and researchers, networks which have broadened with the influx of an increasing number of research projects, for which the PhDs of Cefo have managed to get funding.

Since 2007, several of Cemus' employees have received funding for research projects, including several smaller ones and a larger interdisciplinary one. Many of the earlier "affiliated" PhD students are now researchers within this latter project, and several new projects are being planned. These research projects which are developed and carried out at Cemus would never have come about had it not been for Cefo. Research projects now make up the fourth branch of activity at Cemus.

It is our hope that Cefo constitutes a creative space for interdisciplinary PhD students who find that the boundaries between disciplines are too tight. The question "Is your thesis larger than

88 | your home department?” is one of the questions used for marketing Cefo. Many PhD students at Cefo testify to the difficulties of being admitted to research programs and, once one is admitted, to the difficulty of having one’s work evaluated in a relevant manner. It can also be difficult to receive adequate advising that corresponds to the interdisciplinary problems of one’s choice. Another problem area is which methodology to use. Cefo consequently has the ambition to support and encourage PhD students who have dared to take on an interdisciplinary dissertation and therefore probably also an unorthodox career path.

A Useful and Free Environment

It is our hope that those PhD students who are active at Cefo will receive schooling in research and produce dissertations that are more versatile as well as more creative and innovative. PhD students gain qualifications that prepare them for a professional life within or outside academia, and they also build a social network. In the bigger picture, Cefo strengthens communication between disciplines and instills scientific and social skills. It fosters abilities which are essential to personal growth and education—or to “Bildung,” if you will—and to sustainability.

It is not always easy to think and do research along new lines. But it is necessary if societal development is to take a sustainable direction. We need, as the environmental historian Alfred Crosby has noted, a degree of inventiveness and social reform which is as great as that which prevailed during the Neolithic revolution. Or, in lack thereof, a social and psychological revolution which involves stepping away from a society based only on information and efficiency towards a society based on wisdom. The top criterion for the usefulness of higher education should perhaps not be the one-sided promotion of economic growth in a narrow sense, but rather the fostering of a more sustainable societal development. Cefo indicates one possible direction.

During the 21st Century, PhD education in Sweden has become more formalized and made more effective. The requirements are that students should have a clear focus on the task at hand and to finish within the allotted time. Rules and support functions have been implemented in order to increase the number of PhD students who finish on time. PhD students are generally gifted and ambitious people; they notice opportunities and adapt themselves to the requirements at hand. The safest bet is to choose a narrowly delimited area in line with the wishes of the home department and to secure a satisfactory result which leads to a continued career within the field, in corporations, government administrations, or organizations. A great deal of Swedish research is carried out by PhD students, and for many university professors, the dissertation turns out to be the one larger research project in their career. With the Humboldtian ideals in mind, one sees that this situation can lead to decreased academic freedom, a weaker connection between research and teaching at the universities, and PhDs who, if they are not barbarians, at least lack cultivation.

Cemus Research school, Cefo, has heightened the cultivation—the “Bildung”—of its PhD students, increased their freedom, and improved their research. Wilhelm von Humboldt would probably have cast an approving eye on that.

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INTERNAL AND EXTERNAL CHALLENGES FACING CEMUS

Eva Friman, Matilda Hald and David O. Kronlid

Cemus is not just an inspiring learning environment and platform for collaboration, but also a very creative and instructive workplace. Both the organizational format and the educational model are uncommon and quite unique, which in itself is stimulating and engaging. However, in our roles as Director, Director of Studies, and senior collaborator we have also been faced with a series of challenges that are inherent to the concept of Cemus. In short, the elements that have formed and continue to determine the organization's strength and unique character have also proved to be somewhat problematic.

In this chapter we would like to describe some of the challenges that Cemus has encountered through the years and how staff members have tackled them together. Some are connected to the rapid growth of Cemus, while others are built into the model as such. Others relate to the fact that Cemus is trying to do something different within the fixed framework of the university.

Internal challenges¹

Cemus has expanded dramatically since its formal creation in 1996. Over the span of fifteen years, Cemus has gone from two courses

¹ Some of the paragraphs in this section are based on texts by the co-authors Eva Friman and Matilda Hald that have been published in *Hållbar utveckling och lärande—en inspirationskrift* [Sustainable Development and Learning—an Inspirational Writing], Världsnaturfonden WWF, 2008; and *Perspektiv på hållbar utveckling* [Perspectives on Sustainable Development], Swedish Board of Higher Education, Rapport 2005:47. Free translation.

and a handful of part-time course coordinators to more than twenty undergraduate courses and 130 FTE (full-time equivalent) students, a research school with a dozen PhD students, four research projects involving 13 researchers, and a total of 25 full and part-time employees. This development has of necessity meant an institutionalization and professionalization process. The organizational structure has needed to be revised—a change fuelled both by the needs of Cemus and by external factors.

FROM PARTICIPATORY DEMOCRACY TO INSTITUTIONALIZATION

When Cemus was established the ambition was that the organization would be a positive example in relation to the issues being addressed. Equal responsibility, equal remuneration, equal participation and the same rights and obligations for all staff members were regarded as vital for sustainability and therefore also for Cemus as an organization and an innovative agency. A flat organization was thus a goal and part of the organizational ideology at Cemus. During the center's first ten years, the main part of issues, regardless of level and detail, were discussed by all staff members together. The activities as well as the organization's decision-making process were characterized by democracy and broad participation.

Managing an organization like this is easier with five employees than with twenty-five. As Cemus expanded the organization became unwieldy and more prone to conflicts. New positions were gradually introduced which resulted in a more hierarchical structure, which in itself became a source of tension. The striving towards a flat organization created expectations of participation that were difficult to meet, since some people had more of an overview of and responsibility for the organization than others. Many course coordinators questioned the new hierarchies, especially as they did not initially mean advantages in the form of stronger support from the management.

As Cemus expanded to become an important educational provider and a serious competitor to the regular departments in terms

of students, economic resources, problem definitions and world-view, it also became more important to assert itself internally within the university. As a small and exciting alternative, Cemus posed little threat and was thereby hardly challenged. The establishment of the research school and the increasing number of popular undergraduate courses intensified the scrutiny of Cemus.

In order to meet the new challenges and demands that accompanied a growing organization, a director with a PhD was appointed in 2005. The staff had already embarked on an extensive objective-oriented organizational development process, in which decision-making and service structures were discussed at great length. A new organizational structure with more key positions of greater range and longer contracts started to take shape and was finally implemented in 2006. Further steps toward a more institutionalized structure were taken prior to and in conjunction with the amalgamation of CSD Uppsala, where Cemus regarded it important to have both increased and more secure positions, including full-time staff, in order to be better prepared for potential conflicts in the larger center. The emergence of CSD Uppsala also meant the disappearance of Cemus' autonomy, in that a director was appointed above Cemus' internal hierarchy, and that the Faculty of Technology and Natural Science became the channel to the university management, with which Cemus had previously had direct contact.

The values that have continued to be important within this more traditionally hierarchical structure are openness and full participation in more important decisions and in the development of the organization. By and large, Cemus has managed to grow and reorganize without forfeiting the participatory decision-making and creative organizational development that from the beginning were parts of the Cemus ethos. There are now several different employment categories with clear and differentiated responsibilities. Although not everyone is now involved in all the decision-making, there is an awareness of which and where decisions are made in the organization, and the possibility of influencing the decisions is thus still intact. When trying to avoid informal decision-making and to

promote participation, transparency and clarity are important aspects of an organization's structure.

This institutionalization process was not appreciated by everyone, although the majority accepted that it was necessary if Cemus was to continue to grow. You could say that the decision was made, consciously or unconsciously, to prioritize the success of Cemus' pedagogical model and issues of sustainability within the university, rather than a different and idealistic organization as such. Although the organizational model is still different and participatory, it is less idealistic than it was at the beginning.

“LEARNING BY DOING” AND A HIGH STAFF TURNOVER

Much of Cemus' success and the quality of its education can be attributed to the way in which the organization and its educational model combine students' interests and incentives with the competence that is available at Uppsala's two universities. The model offers great flexibility and creativity, and at the same time means challenges in the form of high demands on individuals and a high staff turnover. The new course coordinators who become involved in the organization on an annual basis are not (and are not expected to be) experts who apply previously acquired knowledge. Instead they learn by doing. While this makes their work extremely instructive, it also demands well functioning routines, support functions and methods of knowledge transfer.

The question of routines and continuity was central at the time of Cemus' creation. A great deal of hard work was put into producing guides and checklists as support for new course coordinators. As the center grew and staff was replaced, it became difficult to transfer the lessons learned from one year to the next. When the growth of the organization was at its most rapid, many course coordinators were very frustrated about the high demands, inadequate time allocations and lack of support functions that resulted from this rapid growth. The feeling that the wheel was constantly being reinvented by every new course coordination team was also prevalent among those who

had been involved in the organization for a relatively long period of time.

An important driving force in the aforementioned restructuring of Cemus' organization was therefore the need for increased continuity and support for course coordinators. The activities had been set in motion by exceptionally innovative and energetic students. Such individuals are still drawn to Cemus, although now that course coordinators positions are advertised on a continuous basis and around ten new course coordinators enter the organization each year, the situation is a little different. Cemus has to be able to offer work conditions that suit different personalities and preferences, and at the same time guarantee high quality of the courses. While course coordinators still have considerable freedom and responsibility, more support and in-service training is included in their job descriptions.

The in-house training of course coordinators now takes place within the framework of the so-called "teacher forum"—a forum for all course coordinators under the leadership of the Director of Studies and the Educational Coordinator. In this forum they read books together, discuss their roles as course coordinators, and receive support and advice about how a course can be developed; what has worked well, what has not worked and which strategies should be applied or rejected. The supervision that new course coordinators receive from those with more experience is also important in the educational context. As course coordinators are preferably appointed on an overlapping basis so that an experienced course coordinator works in conjunction with the new, valuable experience is already available to the coordinating team when the course is to be planned. Moreover, rigorous course reports are written in which the strengths and weaknesses of the course are carefully considered together with the students' and previous course coordinators' evaluations.

An important learning feature for the course coordinator is and always has been the interaction with senior lecturers and researchers in the course workgroup and contact with course lecturers. By

contacting and discussing with the lecturer, planning and leading seminars and exercises, being responsible for and adapting the course in discussion with the students, taking part in the formation and execution of examinations, and evaluating during and after the course, course coordinators gain both competence and new insights. If they lead the course in the following year they will continue to build on this competence and these insights, and thus further enrich Cemus' education.

As many contributors to this anthology have indicated, being a course coordinators at Cemus is a challenging and unique education in itself. As well as becoming more competent content-wise in the teaching area, you also gain experience in taking action. The experience of doing it yourself, being the spider in the web and interacting with senior researchers, gives you the confidence to take on future projects and contribute with ideas of your own. The fact that we now try to ensure that the work at Cemus is part of the employee's educational process also contributes to the learning. The invaluable skills that the course coordinators acquire are then spread to other courses and to society at large.

The work routines at Cemus have become so established that the center is no longer dependent on the commitment and experience of enthusiastic individuals. The work situation and conditions of course coordinators have also improved with time, and course quality and continuity can now be more systematically guaranteed. Given the high staff turnover and the importance of course coordinators for a successful course, the questions of continuity, transfer and in-service training have constantly to be prioritized and developed.

BEING A DIFFERENT COMPLEMENT BUT MAINTAINING A BROAD APPEAL

Cemus has always aimed towards being a creative and transboundary complement to the first, second and third level education offered at Uppsala University and the Swedish University of Agricultural Sciences (SLU) in Uppsala. The courses are chosen by students with

96 | a particular interest in the issues, which also means advantages and limitations.

In the majority of cases, the students who apply to Cemus already have some knowledge about, or at least an interest in, issues relating to sustainable development. They appreciate the education and the opportunity to gain deeper insights into the questions—Cemus courses are often assessed very positively (and at times also harshly criticised) in the course evaluations. However, you could argue that those students who do not have an interest in or knowledge about the issues are in the greatest need of education for sustainable development. Despite the existence of Cemus, there is still a need for an integrated sustainability perspective in the education and research of other monodisciplinary departments. One challenge facing Cemus is to be both relevant and interesting to a broader target group, which to some extent has already been successfully achieved by improving and expanding the courses offered.

The breakthrough of sustainability issues in society has also meant that the courses attract broader groups. It is now stated in the Swedish Higher Education Act that universities should promote sustainable development, and education for sustainable development is increasingly becoming a more established concept. The thoughts and ideas that lay behind the development of Cemus, and that still constitute our basic pedagogical approach, are very similar to the characteristic features that are considered desirable for education for sustainable development within the political arena.² For example, it has been established that education of this kind should be characterized by democratic working methods and an interdisciplinary approach—two cornerstones of Cemus' courses.

If (when) Cemus becomes more “mainstream” in both form and content it would be reasonable to ask whether its role as an innovative and different complement might be lost. Is it more important for Cemus to challenge and renew, or should it mainly work for a greater integration of sustainability issues within university educa-

2 *Att lära för hållbar utveckling [Teaching for Sustainable Development]*, Swedish Government Official Report (SOU), 2004:104. Free translation.

tion? Should Cemus continue to be on the cutting edge, pose more radical questions and continue to challenge society and the university? Should Cemus be an oasis for deeply engaged university students, or a place that attracts the many? The best we can hope for is that we will manage the art of doing both.

COMMITMENT TO THE WORLD AS A DRIVING FORCE WITHIN THE ACADEMIC FRAMEWORK

One reason for the creation of Cemus was that the major challenges facing mankind require citizens with a different kind of knowledge than the fragmentary specialist knowledge that dominates today's academic and research community. Cemus' point of departure has always been that the state of the planet is not sustainable and commitment to the world is a central driving force. This objective has always attracted people with very high ambitions and high expectations, both for what Cemus as an organization can accomplish with regard to societal change, and their own ability to achieve this. This has been and is Cemus' strength, at the same time as both disappointments and conflicts have sometimes arisen in an environment of strong wills, high ambitions and expectations.

While most people at Cemus have faith in the interdisciplinary and creative environment that Cemus can create within academia, and see engagement in the university environment as its strength, some have seen fit to suggest that Cemus should break away from the academic world. They maintained that there is not enough room for creativity in the university context, because here change takes too long. This perception sprung from idealism and deep commitment—from a desire to change society from the roots, as well as quickly and effectively. This has been contrary to the more in-depth academic undertaking, which even within Cemus does not yield clear and fast results. From the outside, Cemus has sometimes been regarded as “a group of activists” by researchers who believe that science and social change should be kept separate (a view that is challenged elsewhere in this anthology). Within the organization,

98 | the management has at times been criticized for being too flat or conventional.

It is clear that an academic milieu sets the frames for Cemus' activities, and it is partly these very frames that we want to stretch and transcend. But what is the best way of doing this? Like many activities with normative points of departure, for Cemus it is about a tension between idealism and pragmatism, and of defining or re-defining itself within a specific context. How does one make the biggest difference?

External Challenges for Cemus Activities

All organizations are framed and permeated by norms that influence and to a certain extent sustain ideas about what is a reasonable, relevant and sound activity. Academia is no exception. Cemus is something of an oddity in the everyday academic community, both with regard to its organizational model and its interdisciplinary approach. This means that we act within structures that don't necessarily suit us. It also means that the activities are sometimes perceived as provocative and perhaps even a threat to academic values. Cemus also faces external challenges that are based on structures and in some cases suspicion of anything that does not fit into the accepted framework.

VAGUENESS AND A LACK OF RESOURCES

Environment and development studies are not a separate subject area³ but a study and research field in which one consciously regards global environment and development issues as factually and analytically linked. This linkage is no longer as extraordinary as it was when Cemus was created. Within the scientific community, the common perception is that the challenges that are associated with global environment and development issues demand interdisciplin-

³ However, in 2007 Sustainable Development was established at Uppsala University as a secondary subject at first level and a main subject at second level that could be included in a degree, and Cemus' courses are classified as part of this subject area.

ary research. A number of structural obstacles to interdisciplinary activity are still apparent within the scientific community. These invisible obstacles are often maintained by how the activities are structured and organized at the university and by funders. It is important to point out that structural obstacles are not due to well-considered or conscious choice. Instead they are sustained (and controlled) by norms, rules, actions and perceptions about what a good activity is.

Examples of structural obstacles to interdisciplinary research and education are the lack of demand and vagueness on the part of existing “consumers”. The funds that are allocated to interdisciplinary environment and development research only constitute a few percent of the total research funding supplied by research councils. In other words, there is a lack of demand, which in itself is a basic obstacle for a center with the ambition of developing a successful educational model at postgraduate and research levels.

The demand for interdisciplinary research and postgraduate studies is often characterized by a non-uniform and imprecise terminology. In other words, interdisciplinarity lacks a conceptual consensus such as that which prevails within and between disciplines—despite the fact that in research policy contexts, interdisciplinarity is regarded as a scientific approach that can and should address problems not possible to address using a disciplinary approach, especially when it comes to environment and development issues.

The creation of Cemus was not the result of any demand from the top. This has characterized the activities that are requested and commissioned—but from below. Support from higher up in the organization has been in place from the start, and the center would not have been possible without it. But it was never a question of any demand from the top. The establishment of CSD Uppsala was not due to demands for interdisciplinary activity within the field of sustainable development either, but was set up for organizational rather than content-based reasons. The combined units (that became programs) all deal with natural resources, at best sustainable development, but in other respects they are all very different. The students’ original “commission” for Cemus was loud and clear. They

100 | wanted a transboundary approach and didactics suitable for studies of contemporary sustainability issues. However, when CSD Uppsala was inaugurated—at the faculty’s request—its instruction was very vaguely formulated.

In the light of another obstacle, a lack of resources, the establishment of CSD Uppsala appears typical. Resources are allocated to first and second level education in relation to student demand—something that has been steadily increasing at Cemus. However, since 2007, as part of CSD Uppsala, Cemus has hoped for faculty funding for research—which unfortunately has not been forthcoming. As interdisciplinary research requires more resources in the form of time and organization than its disciplinary counterpart, we have argued that we have a special need for basic funding in the form of planning grants for applications for external funding. In general, neither the university nor external funders make allowances for the fact that a systematized integration of disciplines is complicated and time-consuming work that should be reflected in the resources that are allocated to interdisciplinary research. As an interdisciplinary researcher within the environment and development field, you need to combine your disciplinary competence with skills of a more general nature. If high quality is to be ensured this will necessarily entail greater labor costs and an increased expenditure of energy. The development of innovative and transboundary skills and activities requires time, money and organizational support. In the case of Cemus and CSD Uppsala, no special resources for research have hitherto been allocated by the university. Although Cemus has recently received external funding for research, any further development of this activity will require funding from the university or faculty.

QUALITY ASSESSMENT OF INTERDISCIPLINARITY

Two more structural obstacles are unclear assessment—or difficulties in assessing the quality of interdisciplinary activity—and the demand for monodisciplinary skills in order to really count, i.e. the principle that good interdisciplinary activity should be rooted in disciplinary training and competence. Unfortunately, there is often

a lack of awareness about what the outcomes of interdisciplinary education and research should be. At Cemus this mainly becomes apparent in that we often need to convince others about the relevance of an interdisciplinary approach.

The most recent evaluation of Cemus' activities highlighted the difficulty of assessing the quality of interdisciplinary and different activities and demands for disciplinary skills. The questioning of whether there is any "real" (disciplinary) competence within Cemus' framework is often coupled with the idea that people at Cemus are generalists and that only generalists are asked to be lecturers and course workgroup members. Even though such ideas are often based on insufficient knowledge about Cemus, they do recur and need to be addressed.

In that there is no common conceptual apparatus relating to the content, execution and goals of interdisciplinarity, established criteria for determining what good interdisciplinarity is are often missing. While interdisciplinary activity contributes to the collective knowledge of what is being studied, it does not necessarily aim to contribute to the development of the distinctive disciplines that are involved. Interdisciplinarity can therefore be perceived as a questioning of disciplinary activity and the understanding of good science that constitutes its legitimacy. From a power perspective, interdisciplinarity is a challenge in itself.

Formalities

Finally, due to its unusual organizational model and approach, Cemus has encountered obstacles relating to the rules and regulations of the university. A concrete example of this is the international masters' program in sustainable development that was established at Uppsala University in 2007. At the time of writing, it is not possible for either Cemus as a separate unit or CSD Uppsala as a center to take full responsibility for the prestigious task of coordinating the program—despite the fact that it would be natural both in terms of the content of the Masters' program and with regard to the peda-

gogy that is relevant for student groups with heterogeneous educational backgrounds and a commitment to the survival of the planet, characteristics which constitute Cemus' unique and documented strengths. Formal rules are readily quoted, e.g. that at the Faculty of Technology and Natural Sciences staff should not only be formally competent as teachers, but also be employed as teachers in order to be a candidate for the position of program coordinator.

According to the same logic, you can only be appointed as a Director of Studies at first, second, and third levels if you have a teaching position. Once again, it's about the form of employment rather than relevant skills. Given that Cemus is organized differently, and as a result of its proven and carefully developed model of education has chosen not to employ teachers, this is a challenge that can only be overcome by those in the higher echelons of Uppsala University. If the potential of Cemus is to be fully realized, it is necessary that structural obstacles like these are made visible and surmounted by making provision for exceptions to the established rules.

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ORTHODOXIES AND INNOVATION IN ACADEMIA

Ulrich Nitsch

In the fall of 1962, *Silent Spring*, written by the American biologist Rachel Carson, was published. In her book, Carson describes how the use of chemicals in agriculture is related to damages to ecological systems. She warns of the risks involved with the use of chemicals and emphasizes that man is a part of and dependent of the complex interplays in nature. When the book was published, I had just finished taking a course in genetics at the university and had learned about the complex mechanisms governing cell division. Cell division can be disturbed by very small amounts of chemicals, a discovery that is put to use in plant and animal breeding in producing so-called induced mutations. Another thing I had learned about was synergetic effects—i.e. that a chemical that by itself does not affect cell division can do so in combination with another chemical. I drew the conclusion that we actually know very little about the effects of pesticides on the environment. What I had learned about cell division from studying genetics increased in my mind the gravity of Rachel Carson's observations and warnings. I asked myself what use of pesticides was justified when considering the risks and the damaging effects on man and nature.

In the beginning of the 1960s, I also came across a book called *Food for Billions*, written by Georg Borgström, a Professor in food science. In his book, I read about human population growth; about how a large portion of the world population is suffering from mal-

nutrition, and about the uneven distribution of the Earth's resources between rich and poor nations. I read about what Georg Borgström called "ghost acreage," which referred to the acreage of arable land a country would need to produce the food protein acquired through fishing and import. As for Sweden, the ghost acreage, according to Borgström, was one third of the country's total arable land at the time. Borgström's conclusions did not agree with the predominant opinion at the time of a costly overproduction of food in the country. Another question that Georg Borgström raised was whether the planet's resources would suffice for the rapidly growing population. Is there a surplus of food, or is there not enough food for the billions of people in the world?

When Rachel Carson's and Georg Borgström's books were first published, I was studying at the Swedish University of Agricultural Sciences to become an agronomist. In our studies, the observations and warnings of Rachel Carson and George Borgström were never brought up. I only remember that Georg Borgström was described as a doomsday prophet and an obsolete Malthusian.¹ The prevailing opinion in the academic environment that I found myself in was that Borgström had not understood that progresses in agricultural sciences in such fields as genetics, plant nutrition and chemistry would solve the problem of providing enough food for the world population. *Silent Spring* was dismissed by one lecturer as emotional and exaggerated. The questions that Rachel Carson and Georg Borgström raised in my mind were not part of the predominant world-view in the agricultural science community at the time.

Today, we know that their questions were relevant. Georg Borgström's concept of "ghost acreage," for example, has found a successor in the concept of "ecological footprints," which plays a prominent role in the present-day discussion of global environmental problems.² His apprehensions concerning the world food supply

1 A Malthusian is a person who subscribes to the ideas of Thomas Robert Malthus (1766-1834), who maintained that unless preventive measures were taken, the population growth in the world would exceed the increase in food production and lead to increased poverty and starvation.

2 www.globalfootprintnetwork.org

are more pertinent today than ever. At an FAO conference in November 2009, it was stated that one billion people in the world are malnourished, and predicted that food production must increase an estimated 70 percent to the year 2050 in order to feed the nine billion people who are expected to be alive then.³ *Silent Spring* is today considered a classic and has contributed immensely to the awareness of environmental issues around the world.

Why were Rachel Carson and Georg Borgström not taken seriously within the agricultural science community during the 1960s? Why did it take so long for people to start paying attention to the issues they brought up? We might seek an answer to these questions in the inertia of the research community as described by several thinkers, among them the historian of science Thomas Kuhn, the economist Gunnar Myrdal and the philosophers Arne Næss and Georg Henrik von Wright.

The Inertia of the Academic Community

The inertia of the academic community has its roots in the norms that are developed within it. Norms develop in all organizations, through the internal interaction between its members and in interaction with the surrounding world. The norms can be explicit or implicit. They convey to the members of the organization what one should do and should not do in order to win appreciation and become promoted or to avoid criticism and become marginalized.

In the academic environment, norms infiltrate the research effort by means of what the American historian of science Thomas Kuhn calls *paradigm* in his book, *The Structure of Scientific Revolutions*. A paradigm refers to the dominating views of reality, theories and concepts within what Kuhn calls normal science. The researcher is well-advised to keep within the frames of the prevailing paradigm in normal science in order to get funding for his research.⁴ The Norwegian philosopher Arne Næss, in his book *The Case Against*

³ www.fao.org

⁴ Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, 1962.

Science, wrote about the propensity of the researcher to make his research “foundationable,” by which he means the tendency to adapt, in funding proposals, one’s research project to the priorities of the funders.⁵ The Swedish sociologist Gunnar Myrdal, in his book *Objectivity in Social Research*, notes that researchers “within every specific institutional and political environment basically move around as a flock.”⁶ The Finnish philosopher Georg Henrik von Wright uses the concept of orthodoxies in a sense similar to that of paradigms. In his well-known book, *Science and Reason*, he summarizes the conditions of the scientific endeavour in the following manner:

Orthodoxies are necessary. Without them, science would degenerate into chaos. But the great advances, those which make the history of science such a dramatic and suspenseful chapter in cultural biography, take place when “the purity of the doctrine” is thrown into question and the “infidels” triumph. That is why it is *never* in the interest of the sciences that orthodoxies be confirmed, but rather that they be doubted.⁷

Paradigms within Agricultural Sciences

Our knowledge of the world, our perception of reality, is based on what we have learned to see. Our perceptions are influenced by our personal history and culture. We always start with what we already know. We have gained that knowledge from our everyday experiences and through media and education. From this point of departure, we pose questions about reality. Some people have greater influence than others over what we learn to ask about, to see, and not to see. As children we learn from our parents. Later, school teachers and friends teach us what is important. At the university, it is researchers and lecturers. They select the literature we will read and pursue examinations to control that we have learned properly. They

5 Næss and Drengson, *The Selected Works of Arne Næss*, 1982. Free translation.

6 Myrdahl, *Objektivitetsproblemet i samhällsforskningen* [*Objectivity in Social Research*], Stockholm, 1969. Free translation.

7 von Wright, *Vetenskapen och förnuftet* [*Science and Reason*], Helsinki, 1986. Free translation.

do this under the influence of the prevailing paradigm or orthodoxy of their scientific community. | 107

During my studies at the University of Agricultural Sciences, research and teaching were dominated by a perspective which I call the *control paradigm*. The control paradigm is based on the assumption that with the help of science and technology, in the shape of, among other things, fertilizers, pesticides and advanced biotechnology, we can steer and control in order to optimize agricultural production. The goal of the research was focused on immediate benefits in the form of increased production and economic efficiency. Long-term consequences for ecological and social systems were left out of consideration. The observations of Rachel Carson and Georg Borgström exceeded the frames of the control paradigm. The questions they posed demanded a broader systems perspective and a longer time perspective. That kind of systems and time perspective is included in what I call the *coexistence paradigm*. Through the perspectives of the coexistence paradigm, we seek forms of production in agriculture and forestry that do not generate pollution and also do not destroy ecological systems over an extended time span. Today, we find this focus in research and teaching within the fields called Ecological production and Agroecology.

Obstacles to Innovation

Paradigms in research, or orthodoxies, to use von Wright's terminology, are strengthened through the working conditions of the scientific community. A lot of people are drawn to a career in research. But there are not many positions available and research funding is restricted. The work environment is characterized by competition.

Competition is often ascribed a positive value in our society. We usually imagine that competition gleans out the best products and people. But not all competition works that way. We should make a distinction between external and internal competition. Examples of external competition are for instance when producers compete for consumers' on a free market, or when politicians compete for the

support of voters in democratic elections. Here, the competition has many positive sides.

It is a different thing with internal competition, which takes place when employees within an organization compete about the approval and acceptance of their superiors or employers. This type of competitive environment enhances people's propensity for opportunism and adaptation. In the academic world, these mechanisms lead to a resistance among researchers to question or go beyond the orthodoxies of normal science. They adapt their research questions to the paradigm that is supported by the established scientific community and to the priorities of the research foundations.

A Force for Renewal

Considering the formation of social norms and paradigms in the scientific community, I see Cemus standing out as an expression of the community's self-awareness and insight about itself. With Cemus a force for renewal has been introduced. Having students run the organization opens doors to new perspectives. Students ask questions based on other experiences and with different expectations than established researchers who are schooled in and dependent on the orthodoxies of normal science in the established disciplines.

One illustration of Cemus as a force for renewal is its multidisciplinary approach to inquiring sustainability issues. Ecological as well as social, ethical and economic aspects are taken into consideration. Our concerns for environmental issues depend on our world-view, values, norms and our perceptions of the meaning of human life. Students at Cemus have understood this and introduced such aspects in the organization. Issues from an unequivocally interdisciplinary reality are brought up in courses and seminars. The students use their own informal information system to find innovative lecturers that transcend disciplinary boundaries. Lecturers are selected, not on the basis of their formal qualifications and positions, but rather on the basis of what the students themselves have experienced and heard from each other about the relevance of what

a lecturer can contribute with respect to knowledge, perspectives, and commitment. In these ways, Cemus opens the door to new perspectives and thoughts. | 109

I consider the function of Cemus as a meeting place for dialogue and critical reflection to be extremely important. Often we do not really know what we think and believe until we have had a chance to express it and received a response from others. When we get an opportunity to test our thoughts in dialogues, they become clearer to us and our knowledge increases. Our courage to present new and possibly unpleasant points of view thereby also grows. Imagine if, during my student days, there had been a forum where we discussed the ideas of Rachel Carlson and Georg Borgström! That could have given us strength to introduce their ideas into our education and to question the predominating control paradigm of the agricultural sciences. We would have had the opportunity to develop alternative frames of reference. Integrating these in our professional activities would have introduced socially and ecologically more sustainable aspects into the field of agriculture.

According to Georg Henrik von Wright, innovation and progress in the sciences require that orthodoxies are questioned. The same holds true for innovative development in society as a whole. With the challenges facing humankind in the form of depletion of natural resources, pollution, globalized markets, and the power of the mass media in shaping our world-view, meeting places for dialogue and critical reflection are more important than ever.

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SCIENCE AND THE COMMITMENT TO CHANGE

Sverker Gustavsson

Science must begin with myths, and with the criticism of myths.

Karl Popper

For a number of years, I have enjoyed the great privilege of being able to offer my services as lecturer and seminar leader at Cemus. The questions that are raised and discussed during classes at Cemus are always noticeably central and intellectually stimulating. This is especially the case when we are discussing the relationship between science and the commitment to change. These discussions are marked by a focused attention among students and course coordinators with important current issues and problems relevant to our future. They seek knowledge in order to understand the problems of the world, but they also seek solutions to them.

The question at hand concerns what is needed in order not only to understand the world, but also to change it. The answer is not obvious, and largely depends on what we are studying, what we have a passion for, and how far along in our studies we have come. But regardless of area of specialization, and level of specialization, we still wish to compare thoughts and experiences with each other. Regardless of what we are working on and where—in a laboratory, in clinics, in seminar rooms, in lecture halls or simply with computer and library—we seek a common denominator.

Even the most recent period of history fails to give us any indication of what that common denominator is. Over the past seventy years, the generally cherished solution has been broadly encompassing and, largely, shared by those who think about the relationship between science and commitment to change. Politically, the debate has not only engendered liberal and socialistic expressions. The frustration has also been green and feministic. And still, the fundamental attitude—namely, that it is possible to unite science with a commitment to change—has largely been commonly held and has not changed in any significant sense since World War II.

In order to gain a clearer grasp of the underlying antagonisms and oppositions, we need to go another fifty years back in time, to what is generally referred to as the breakthrough of modernity. By studying what was debated during the first half of the 20th century, the nature of the current relative consensus will become more tangible.

Around the turn of the last century, there was a dominant group of strongly committed theology students, law students, medical students and students in the sciences and humanities as well, who along with their associated professors were zealous about sustainable development. What these passionate conservatives feared was not primarily an unsustainable economizing with natural resources, but rather that the foundations of moral values in society would be torn apart. That could be the consequence, they believed, if democracy and industrialism were victorious.

Whatever one might say about these university conservatives prior to 1914, one cannot accuse them of having been indifferent to the large issues of the time. The point is that they were preoccupied with them in a way which was unacceptable to liberal and socialist academics. According to the latter, science could not be reconciled with a commitment to political status quo. The essence of their criticism was that their conservative opponents failed to distinguish between the three verbs “be,” “ought,” and “do.”

This slide between empirical and normative analysis, which was viewed by liberals and socialists as condemnable, became central to the debate during the first half of the 20th century. On two occasions separated by thirty years, in 1911 and then again in 1941, leading philosophers at Uppsala University contributed with energetically formulated polemical writings. Both of them stressed the importance of differentiating between what is desirable and what is in fact the case.

Axel Hägerström

Axel Hägerströms legendary inaugural lecture “Om moraliska föreställningars sanning” (“On the Truth of Moral Beliefs”) brought the issue to its point. It was held in the assembly hall of our university on March 18, 1911. Only claims about reality can be true, he argued. The truth of moral judgments varies according to historical circumstances. Value judgements are expressions of emotion the truth of which cannot be proven.

Hägerström’s showdown with the tendency to slide between norms and reality was interpreted by his contemporaries as a death blow to scientific value judgements. What Axel Hägerström rejected was the idea that scientific studies could establish what was beautiful, right, and appropriate. The only thing that could be scientifically determined was states of affairs.

Axel Hägerström was modern and radical. He expected that if only we learned consciously to distinguish between value judgements and judgements about reality, we could bring about a total transformation. The important thing was to avoid making judgements that are not scientifically founded. He held his sights on a society and a world in which people hold for true only that which there are acknowledgable reasons to hold for true.

In spite of Axel Hägerström’s radical and modern intentions, it was not possible in the long run to disregard the fact that his orthodoxy in practice pushed the door wide open to disintegrating forces. The passionate university conservatism with which modern reform-

ers had been faced during the breakthrough years was a mild breeze compared to the storms that had to be fought during the interwar years.

As offensive and militant reactionary forces grew stronger, the absence of any scientific support in defense of fundamental human values became all the more obvious. Liberals and socialists had an increasingly difficult time defending conquered territories. The idea that it was impossible to make quality assessments about value judgements in a scientific way, came to seriously undermine the ability to effectively defy Nazism. If value judgments are simply expressions of feelings, people asked, then how can we at the same time say that certain value judgements are better than others?

Ingemar Hedenius

The lack of an effective scientific defense against the aggressively reactionary ideologies gave cause for a reconsideration of the issue with the same point of departure as Axel Hägerström's argument (namely, that only claims concerning reality can be true), but with the diametrically opposite practical conclusion. When the situation in World War II was at its darkest, in the year of 1941, Ingemar Hedenius published his book *Om rätt och moral (On Rightness and Morality)*. What he advocated was a crucial revision of what his elder colleague had argued thirty years prior.

To be sure, Ingemar Hedenius argued that judgements concerning reality and judgements concerning value differ in character with regard to whether or not they can be true in the end. But from a practical point of view, it is not the possibility of absolute truth that is the primary concern, but rather the quality of those points of view and arguments that constitute the basis of our actions. It is possible, in a nuanced and differentiated manner, to assess the quality, not only of judgements concerning facts, but also of judgements concerning value. Without this kind of more far-reaching ambition, scientific work cannot in any productive manner contribute to a modernization that is grounded in reason.

According to Axel Hägerström's argument, only pure natural science could measure up to standards of verifiability. Still, there was no general weeding out of all other research. As a result of an inherent sluggishness, the first generation of modernists would never have the time to put that thought into practice. But the implicit thought itself was sufficient to make the representatives of practically oriented disciplines feel the ground start to give way beneath their feet. Were their activities scientifically legitimate?

The counter-argument that Ingemar Hedenius formulated entailed a renewed expansion of the field of legitimate scientific activity. This regaining of lost territory gave academics within the humanities, law, social sciences, medicine, and technology reason to gather their courage once again.

Representatives of the practical sciences could now with good conscience question not only certain statements of purpose but also states of affairs which were ascertainably unsatisfactory, as well as practice and politics within widely divergent areas of life. The difference was that they were now methodologically stronger than what their conservative predecessors had been, before Axel Hägerström thirty years earlier had radically deemed the possibility of making scientific claims about value a failure.

Three Claims

What is striking, when viewed from today, is that the solution suggested by Ingemar Hedenius seventy years ago has not been replaced by any other comparable teaching. We still reason in largely the same way as he presented the matter.

Our affiliation to the Uppsala tradition gives us a local fixed point. But clearly, our university neither was nor is any kind of isolated environment. The transformation of the all-inclusive way of thinking has occurred within the framework of a broad international movement away from both the conservatism of the 19th century as well as the narrow positivism of the early 20th century. The attitude which has come to bear its mark on developments, not only

here in Uppsala but also all over the world, has entailed a break with both of these earlier stances.

I interpret these events as an increasingly energetic implementation of three basic claims with the character of a meta-ideology. These three basic claims are related but clearly distinguishable from each other. Expressed as claim formulations, together they constitute a common frame of reference which it is the mission of today's and tomorrow's critics to gradually attempt to modify and improve on or—if they are really radical in their intentions—fundamentally reject.

Judgements Concerning Value Presuppose Judgements Concerning Reality

The first claim formulation is that which Ingemar Hedenius focused his attention on when he criticized Axel Hägerström. For value judgements and recommendations to deserve to be taken seriously, he argued, they need to be well-founded. What type of reasoning inspires confidence? The answer is that well-founded arguments are arguments in the form “x is a reasonable value to embrace, because y indicates that z will otherwise happen.”

Examples from the present might be our evaluation of the observed warming of the global atmosphere, as well as our evaluation of the great differences between the rich and the poor, both of which are highly central topics within the scope of Cemus' courses. These evaluations are not just meaningless expressions of emotion, as Axel Hägerström would have said, but rather evaluations that are justified for scientific reasons.

Quality-assessed judgements about reality can be assigned in support of the claim that global warming will have palpable effects, and also in support of the claim that those effects can be cancelled by well-considered measures being taken. In a corresponding way, we can assess the quality of our value judgements concerning the difference between the rich and the poor. The consequences of the

inequality can be predicted, and it is possible to take measures to redistribute wealth in a way that can be scientifically supported.

Basic values such as health, peace, employment for everyone, absence of inflation, sustainable development, democracy and human rights are, to be sure, value judgements. But that is not the main point from a scientific point of view. The main point is that it is possible to bring forth strong arguments in the form of ascertainable preconditions and consequences which make it rational to speak for, and against, the value in question. It is possible, in other words, to use corroborated statements about reality in support of those values which we upon mature consideration choose to embrace—as well as of those recommendations for courses of action which we find objectively justified.

What is interesting here is the logical and empirical sustainability of these supporting judgements concerning reality. With this new way of reasoning, it is not a devastating argument to state, as Axel Hägerström did, that values and recommendations are expressions of emotional thinking. What is crucial is not the expressions of emotion per se, but rather the extent to which there is scientific support for the normative beliefs that the expressions signify.

New Ideas Do Not Constitute Proof

The second claim statement emphasizes the difference between new ideas and proof. As a researcher, I need to be able to both raise questions and prove that what I am claiming is in fact the case. The latter takes place by means of source criticism, statistics, and experimentation. The logic of discovery is one thing, Karl Popper writes in his book *The Logic of Scientific Discovery* from 1959. The logic of justification is another.

The trick is to be able to combine scientific intuition and inventiveness with a capacity to prove one's claims. Sound evidence is of little help if what is proven is uninteresting. Conversely, simply having a great idea does not suffice. Successful studies presuppose

a combination of good questions and believable answers. An active commitment facilitates coming up with the former. As for the latter, the important thing is to keep in mind that what is interesting and desirable cannot always be proven or justified.

In a practical sense, this means that the passionate researcher must dare to trust her intuition when choosing what issues to take a special interest in. My intuition about the provability of my claim takes me far, but not all the way. In order to prove that what I am claiming is actually the case, there is no other methods than source criticism, statistical processing, and scientific experiments.

Neither Cynicism nor Idealism

The third claim formulation emphasizes the significance of organization of research. The way in which research and higher studies are actually organized is more important than the psychological stance of those individuals who conduct the research. Neither hard-boiled cynicism nor pure-hearted idealism has any significance as a psychological attitude without being backed up by good organization.

Academic studies gain legitimacy in the eyes of the citizenry by those conducting the research claiming to be able to objectively establish the intellectual quality of their reality and value judgements. That is the starting-point. What becomes interesting here is how I am able to establish that what I am saying and writing is not simply my own subjective opinion. This is especially important if I claim to want to be scientifically objective and normatively committed simultaneously. How is that possible?

Historically, there were two answers to that question. One of them was cynical through and through, and the other was idealistic through and through. The point of the cynical answer was that objectivity is an illusion; that in fact, every researcher represents economic, political and religious interests. Basically, everything is a battle about money, power, and influence. Let us realize how matters really are and stop being hypocrites!

According to the thoroughly idealistic answer, the objectivity of the researcher depends on nothing but good will. For the passionate researcher, this duty is even more tempting. The researcher has to be aware of the risk of distortion her passion can cause. The only way to convince others is through the right state of mind!

The point is that not only the hard-boiled and cynical, but also the pure-hearted and idealistic answer, were deemed to be failures as guiding theories by the novel way of thinking introduced by Ingemar Hedenius and his international counterparts after the second world war. The cynical answer was dismissed as self-contradictory. If I say that objectivity is not possible, this will also affect my own claim about objectivity. The pure-heartedly idealistic attitude was open for criticism for being ineffective. History had shown that good will alone was not sufficient. On that point, the cynics were right. Objectivity presupposes something more than simply wanting to do one's best.

What is needed in addition to a good will is the understanding of the importance of good organization. One cannot be objective all by oneself. This holds regardless of the disposition of the individual student, teacher, or researcher. The quality of argumentation is determined by the extent to which I manage to convince not only myself, but also *others* who aim to follow the rules of the game.

The art of attaining a confidence-inspiring objectivity as a collective usefulness lies in succeeding in balancing openness with critical thinking. A formulation of a problem, a point of view or an argument is not without value simply because it is possible to understand it. Neither is the opposite true: an original thought is not scientifically valuable just because it is difficult to grasp. The criticism needs to be systematized in such a way that it affects both old and new ideas.

Intersubjectivity

According to the third claim formulation, objectivity is interpreted as *intersubjectivity*. That is what a good external organization should

aim to secure. It should be possible to follow the various segments of a train of thought step by step in such a way that it is possible to ascertain the extent to which the study would have the same result if it were conducted by someone else.

In this manner, scientific knowledge is delimited from insights which are of an intuitive, religious or artistic nature. Truths of the latter type are often important to the individual. Nevertheless, they are subjective in the sense that they have different meanings for different people. When it comes to scientific testing of the data that I have amassed, however, nothing else than source criticism, statistics, and experimentation will do. It does not matter how indifferent or passionate I act personally. The only things that count when the hypothesis is being tested are facts and methodology.

The most important thing, in other words, is not the state of mind of the student, but rather how lectures, courses, seminars, editorial boards for journals, and selective procedures for appointing professors and distribution of research funds are practically organized. Is the criticism systematic enough that the only thing that matters is the intellectual quality of the argumentation in question?

Thinking and acting with objectivity as organizational principal has two advantages over reasoning in a thoroughly cynical or a thoroughly idealistic way. One of them is that I am not tempted to take for granted that a good intention equals a good argument.

The other advantage, which is the most important in practice, is that I have access to something more substantial against which to brace my feet when I believe a point of view to be ill-supported. If I am not able to refer to science as organization in support of my criticism, I will have a hard time maintaining that what I am claiming is in fact the case. The only remaining options would be to refer to the prevailing power structures or to my own good intention. Neither is actually able to settle the issue.

Development for the Better

In other words, today's generation of students reap the benefits of the theoretical advances of science. With the support of these conquests, the problem can be handled more efficiently. The sociology of science is more important than its psychology. Today, we believe that the systematization of criticism is more important than the purity of the researcher's intention. The development can be summarized in three steps.

For the academic generation that was active during the decades immediately preceding World War I, the issue was how to make our European societies morally sustainable in light of industrialization and democratization. This idealistic preoccupation with big and essential questions provoked a radical separation of science and politics in the next generation of academics. The idealists were accused of having gone all too far with regards to academic rashness. They were thereby, indirectly, considered to have helped bring about the collapse.

After the upheavals of the interwar years and World War II, the issue of sustainability arose once again. But this time, it was more strictly formulated and concerned peace, democracy, economy, and ecology in a more specialized manner, taken separately. The change in theory of science that took place during this time has facilitated the treatment of the issue of sustainability.

Today it is less risky to allow oneself to be politically inspired than it was before 1914. It is no longer necessary to neglect demands on scientifically acceptable testing of assumptions and positions. Objectivity is no longer a matter of state of mind, but rather of how the scientific endeavour is organized. This basic claim is always at the center of the debate at Cemus in a way which is both pedagogical and scientifically fruitful.

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THE FUTURE OF CEMUS

Bengt Gustafsson¹

As long as a university can renew itself it is a living world.

Free translation from Henri Frédéric Amiel

The Story of Cemus

"We want a course like this!" The four young students sat round the cluttered table in my room. They gave me a folder with papers that they spread over the piles on the table and looked insistently at me. I skimmed through the course. "Humanity and nature. Interdisciplinary. Captivating lecturers. Student influence." It seemed a bit naïve. I remembered how difficult it had been to start up an interdisciplinary program at our traditional university, and how Lennart Annersten had failed twice in a row with his plans for a Center for Interdisciplinary Studies back in the '70s. It was now the late '80s and probably even more difficult. "Well, it looks interesting enough," I said. "But how will exams be conducted, if students rather than teachers are responsible for the course? What about financing? And if the course is supposed to be more than just a one-off, how will it continue without any departmental affiliation?" I gave them the names of some people to approach—teaching colleagues at the university and some administrators on the university management board. They then left, and did not return, for a year.

¹ Bengt Gustafsson was prevented from reviewing the translation of this chapter. It is published with his kind permission and trust [editor's note].

But two of them turned up again rather unexpectedly, this time with a more elaborate proposal. A workgroup to support the course consisting of several lecturers, who would also function as examiners. Generations of course coordinators, who would overlap in order to ensure both the training of the next generation and the sustainability of the course. Reports of every lecture, which would then be read and commented on by the lecturers and the examiners, checked by the students and then made into a course pamphlet that could be referred to by the next generation of teachers and students. Compulsory attendance and examination seminars. Detailed evaluations of each lecturer. And suggestions for lecturers, some of whom had already been contacted and enthusiastically responded. Could I organise the financing?

I talked the matter over with Lennart Källströmer, Director of Studies at the Department of Mathematics and Natural Sciences, who had already been wooed by the students. He offered his views and suggested that we advertise the course as an experiment. The faculty was supportive but wondered where the financing would come from. We raised the matter with Vice-Chancellor Stig Strömholm, who was delighted and exclaimed that students taking the initiative themselves and inviting their teachers to give lectures reminded him of the old medieval University of Bologna.

The course was duly advertised and attracted more than 500 first-choice applicants. We could accommodate two hundred in Hall X, the university's largest lecture theatre. It was just a matter of getting cracking.

What happened later—how the course was repeated in successive terms, how we launched the follow-up course, *Humanity and Nature II*, and how the Center for Environment and Development Studies, Cemus, was eventually founded—with Stig Strömholm and Head of Department Bo Sundquist (Strömholm's successor) as active supporters—is described in other chapters of this anthology. I myself had the pleasure of being the chairman of the *Humanity and Nature* workgroup and then serving on the committee for the newly established center. It was fascinating work, partly because

most of it was done by the students themselves as very enthusiastic volunteers. Despite the large number of participants, the main lectures, followed by one-hour Q&A sessions, were among the best seminar sessions I have ever experienced (and I have attended a lot of seminars, in different countries and in different departments). The lecturers often telephoned afterwards to say thank you! Lennart Källströmer had a great deal of work piloting the students into the administrative and economic system, but surprisingly soon the Cemus Director and course coordinators began to master these tasks as if they were experienced heads of department and directors of studies. What surprised me most was that knowledge was relayed from generation to generation by students in their roles as course coordinators, directors of studies and heads of department. The entire concept, as it was sketched out for me in my first meetings with the initiators, seemed to work admirably.

Unique Circumstances?

One question that can be posed about Cemus is why this experiment, if it has been so successful, has not been copied in other subject areas and by other colleges and universities. The question is natural—especially as Cemus has been in existence for a number of years and we have seen how the project has developed. Indeed, many of us thought that it would serve as a model for many similar undertakings. It also attracted a lot of attention, was described in articles and in various ceremonial speeches by the university's Vice-Chancellor and was even mentioned in a government bill. Those of us who were engaged in Cemus were asked to give lectures at conferences, and on the home front played host to numerous study visits. Why didn't anyone carry the baton further? As far as we can gather this has not happened. Cemus still seems to be almost unique. How can that be?

One reason could be that several interlinking factors came into play. One was of course the existence of a group of dedicated and imaginative students who felt the need for courses that addressed issues of great importance. Another significant factor was the ex-

istence of a corresponding group of university lecturers who were interested in global questions of this kind but who did not have any format for collaborating on these issues within the traditional university setting. Power and money have traditionally been assigned to the faculties, where the venerable professorial chairs play an important role, not only as symbols of tradition but also as organizational entities, not to mention as so-called “cost centers” into which the money is channelled. Within a structure like this it is difficult to create transboundary and, even more so, faculty-transcending activities. Cemus offered a platform for all that.

But there was yet another important factor: the very area of study—how development and environment could, and should, be united in terms of the future of the planet—had been staked out by the United Nations through the Brundtland Report of 1987. Granted, the concept of sustainable development was not clearly defined and involved a lot of difficult or perhaps impossible compromises between the inflexible conditions that would be placed on society if ecological damage was to be limited and the reasonable demands from the world’s poorer counties for economic development. But this ambiguous nature also made the subject very suitable for analysis and discussion. In addition, the Brundtland Report had turned the issue into general political property; the problems were no longer a specialty for activists and experts—they were, but were also experienced as the concern of many people across the political spectrum. The issue was also taken up by students and lecturers and no longer seemed so politically tainted that academia had to keep a distance. There were active students, interested and active lecturers, and most importantly, an important and hitherto ignored subject area that could be examined from many different perspectives.

Cemus in a New Position

All this happened twenty years ago, and the world is now a different place. “Sustainable development” has become an established, albeit ambiguous, subject area within and beyond the university.

Courses, workshops and research institutes are organized around this concept throughout Sweden and in different parts of the world. At Uppsala University the activities have also been institutionalized: Cemus has been incorporated into the Center for Sustainable Development (CSD Uppsala), attached to the Department of Technology and Natural Sciences. The Swedish University of Agricultural Sciences is also a partner, and Cemus is located at Uppsala University's Geosciences Center.

There is nothing strange about this development. Cemus has gone through a process of development similar to that of many research groups: they often also start in-between different research traditions, and perhaps also with different subjects, and for the first decade feed on the sheer enthusiasm of a group of young activists. A more permanent research program is then established and the group eventually becomes well-established. Similar developments can also be observed in new educational programs. A contributing factor is also that universities develop skills in people who are identified as key figures; people that the university naturally wants to keep. In line with Swedish labor legislation, the subject of "permanent positions" then arises. A more solid format seems to give a better guarantee of continuance—it is no longer dependent on enthusiastic volunteers. There is nothing strange about Cemus' formal ties with the faculty either, instead of, as in the past, being one of the many "common concerns" under the management of the Vice-Chancellor. It is important that university education has a clear affiliation to research, and by Cemus being associated with a faculty there is the possibility, at least in principle, of research development.

That Cemus was institutionalized in a particular way was not without controversy. Cemus was included in the new center, together with two other quite different programs: the Baltic University Programme and the Collegium for Development Studies, one being an office for international collaboration between more than one hundred universities around the Baltic Sea and with a focus on sustainable development, and the other an outward-looking conference organizer as well as a platform for collaborations between develop-

ment aid and development scholars at the universities in Uppsala. How would the distinguishing features of Cemus survive the institutionalization in general and this new environment in particular? A comprehensive effort and long meetings with the Cemus students and other interested parties were necessary to ensure support for the new organization. It became especially important to establish the goals and formats of the activities in the new context that had been suggested—work that was hoped would create a sense of security and ensure that the very nature of Cemus would be maintained.

But is it really possible to protect Cemus' character, and is it necessary? The answer partly depends on the perception of Cemus' work. If the task is to promote the study of social development and environmental problems, the move towards a traditional university department could be very positive. But the emphasis can also be put on other things—that it is about opening new contexts and perspectives in education, research and society; about giving students increased influence over what is studied and how it is done; about promoting a kind of dialogue-pedagogy that goes beyond the details of the teaching content or situation and into the organization itself and its responsibility for the education, not to mention the basic ideas of what education is actually about.

In these respects Cemus is in a transition period where an insensitive institutionalization process could upset the balance. How, then, can the specific values of the Cemus model be safeguarded and developed in a situation like this? This question is certainly not easy to answer. When all is said and done, it is probably to do with the larger question of how the university is renewed, and how continued renewal can be guaranteed once the process has begun.

Renewal of the University

My impression is that research at Swedish universities is largely renewed by people leaving their posts and making room for other researchers, especially those from different places. Relatively uncommon research grants that make it possible for younger researchers

to establish their own groups also play a role here. The difficulty of changing research orientation also means that in many cases research becomes a matter of routine and renewal is merely sporadic. This is often healthy, since research is a long-term undertaking that doesn't easily respond to major and rapid change. However, this also leads to many research institutions appearing to work primarily with follow-up projects of the breakthroughs that took place some decades ago—until younger researchers are recruited and the next breakthrough takes place. But even then it can be difficult to achieve renewal, especially for those research institutes that are involved in major scientific experiments. They are often committed to long-term involvement with those who have financed the equipment and with collaboration partners who are taking part in the experiments.

I am not quite so sure about the renewal of the education, however. There are certainly examples that show that newly appointed lecturers play an important role, but there are also senior lecturers who, inspired by new and different ideas, contribute to the renewal of the education, especially if they are engaged in new courses and at new levels. (Similar things can of course happen in research, but for the reasons I have stated above this is not quite so common, especially not in experimental fields.) But it is true that teaching often follow the beaten tracks. This is perhaps especially the case for vocational programs, where previous generations of students who have been employed as doctors, engineers or teachers, and who have also become responsible for recruitment in their own companies or institutions, maintain a strong professional identity that is based on their educational background. As a personnel officer at one of Sweden's largest corporations once said: "An engineer is someone who has my own educational background." Moreover, renewal is difficult to achieve if the organization is cumbersome and linked with other large systems, like in the larger established university programs with a lot of teachers, laboratory equipment, and so on.

A third driving force for renewal is the students themselves. This takes place in different ways: through course evaluations that are now compulsory elements of university education, and through

representation on the different committees and management boards that are responsible for the courses and programs. This is not always easy or even appreciated among the students themselves—they have expectations that their studies will provide them with qualifications for good jobs, and often have neither the resources nor the time to take risks with non-traditional forms of education. A more direct and radical example of renewal through student influence is Cemus, where in principle the planning and the execution of the education is largely undertaken by the students themselves. The basic question is now how such a renewal can be administered and maintained.

Of course, renewal is not a value in and of itself. If a course or program is working well, why should it be changed? The most important thing about Cemus is not that it is desperate to do new things, but rather that it is flexible enough to enable students to take responsibility for their own education, acquire the necessary insights and knowledge and develop the organizational skills that are essential in order to create a good course in an unfamiliar discipline. The students can't do all this on their own, but need qualified help. Universities can provide such assistance. However, in principle, a much greater responsibility than students are used to can be given to them. Cemus has certainly demonstrated this, just as the University of Bologna did in the 12th century. But the question is again—is this sufficient, and can it be developed further?

A factor that indicates that renewal should be actively built into the educational system should also be mentioned. If we look back at the discussions about environment and development issues and the connections between them over the past fifty years, this is clearly an area of rapid development. It requires considerable flexibility—of thought and habits—from a university that wants to reflect and contribute to such a development, and to analyse it in depth. At best, Cemus can be a driving force for achieving this kind of flexibility.

How, then, should the conditions for the future be assessed? A number of more or less trivial observations can serve as points of departure in our thinking about this:

1. Insights about the value of interdisciplinary activities in general, both with regard to education and research, have grown in society and within the university. Many people now know that new and exciting research emerges in the borderlands between different traditional research disciplines. Many also realize that important social areas require people with an interdisciplinary background.
2. As I have already mentioned, sustainable development was put on the agenda as a central, albeit not particularly well-defined goal for social development, and has also become established in several different university programs. Many different research programs are now also clearly oriented towards the study of the key relations that are vital for sustainable development. ESD, Education for Sustainable Development, has also become an important and internationally acknowledged undertaking.
3. As far as can be ascertained, students in general have become more goal-oriented and increasingly regard university education as a direct qualification for future employment. Even though environmental issues engage a broader range of opinions, the view of political activity in society has not become more positive, and there is a general fear of getting involved in activities with a political agenda. Even though Cemus cannot be regarded as an “activist school,” its ambition is to facilitate a deeper understanding among those students who are interested in social change.
4. As also indicated earlier, appointments at Cemus have become more permanent. There are also signs that other branches within CSD Uppsala, under which Cemus is currently classified, are having problems with funding.

5. Among the departments in Uppsala there is considerable scepticism towards the establishment of new departments and centers.

Points (1) and (2) above clearly indicate that the activities such as those carried out at Cemus have a future. Education that is oriented towards aspects of sustainable development seems set to increase at universities. However, it is both natural and important that an increasing proportion of this education takes place in other programs, centers and institutions. Cemus and CSD Uppsala should, with their unique experiences, be able to serve as a resource and meeting place in these contexts. But any attempts to claim that Cemus or CSD Uppsala have a special kind of “ownership” of such perspectives would be both irrelevant and misleading.

While the first two points indicate a prosperous future for Cemus and CSD Uppsala (if perhaps not a completely decisive key role), points (3) to (5) imply certain difficulties, not for education for sustainable development per se, but for Cemus’ unique character as a student initiative. Cemus’ free and experimental approach contrasts with the more standardized courses which have a clear goal-orientation towards finding permanent employment for its students. There is also a tendency for students to gravitate towards the educational ideals in the courses; something that fits well with the basic approaches and format at Cemus. However, this tendency seemed to be stronger among students a few years ago and could disappear completely when “economic realities” set in. Ultimately, this will probably be a question of economic relations and the development of the labor market.

If the number of students who apply for courses at Cemus decreases—and whether this simply reflects the demographic downswing in cohorts that is predicted for coming decade—it is possible that the situation will arise in which only those who are permanently employed at Cemus, CSD Uppsala and in other university departments are given teaching assignments. If this happens, the system of students as course coordinators and students choosing guest lecturers will be endangered. At present, however, there does

not seem to be any real reason to worry about a reduction of student interest—on the contrary. A development in this direction would be problematic, however, since an important advantage with Cemus, and which has obviously had a positive influence on the recruitment of students, is and has been the active role that students and course coordinators have played. The question is if the student-run aspect of Cemus has not been demonstrated, indeed manifested, by the important function had by the temporarily employed course coordinators.

The Cemus management and Uppsala University should therefore consider how the student initiative at Cemus should be guaranteed and, if possible, developed. A broad discussion about this should be held, especially if student interest in Cemus courses begins to diminish.

Could the ideas behind Cemus and its methods for channelling student interest spread to other areas of education? The experiences from Cemus indicate that similar student initiatives for courses and education in important multidisciplinary areas other than sustainable development, that have not yet found their way onto the agendas of traditional universities, could prove advantageous. One characteristic feature, and perhaps a prerequisite for Cemus, has been the need among the initiators and participating students to create a knowledge base for action, for activities that are designed to bring about societal change. When similar needs and opinions arise, with regard to security policies, social policies or more cultural currents, Cemus has provided a model for how advanced student activity can be organized in order to meet these needs. From this perspective, it is imperative that a university that wants to contribute to social development ensures that knowledge about how Cemus originated and developed is passed on. Interestingly, the initiatives taken at Cemus have also demonstrated how far education can be developed didactically, if students are given greater influence. The universities in Uppsala should discuss in depth how the experience gained through Cemus can be utilized in a more general sense.

With all due respect for the student initiative and its didactical advantages, conversations with Cemus-active students over the years have taught me that as a rule the most important driving force among them has not been student empowerment as such, but rather the possibility of creating a course they wanted that dealt with environment and development problems in context, and which also pointed to and analyzed various alternatives for action. The particular pioneering quality that characterized issues of sustainable development at the beginning of the 1990s, the years following the Brundtland Report, has now given way to a more general acceptance of the relevance and the multidisciplinary nature of these issues. There is therefore reason to believe and hope that the area will become sufficiently established to be able to be dealt with by a traditional university with tight structures and trusted traditions. This does not prevent one from considering the danger that the work could become “discipline oriented” and restricted to certain perspectives that follow the organizational patterns of traditional universities.

However, many of the aspects that are included in the study of the prerequisites for a sustainable development are in themselves problematic and sufficiently interesting to justify critical analysis and new perspectives. It is not unrealistic to think that the study will require a great flexibility of approach, with new interdisciplinary constellations of interaction in the coming decades. This, like the importance of the issues, justifies continued active engagement, especially from students. Here, in the midst of all the worries about the future of the planet, is a ray of hope from the point of view of Cemus—the difficulties of achieving a global sustainable development are so great and so challenging that they will become all the more pressing, as will the need for relevant education. In this, Cemus’ contributions must not have been in vain.

Let me end with a comment made by the editor of this volume: “Cemus’ courses also tend to emphasise the more radical perspectives, ‘go further’ and discuss more radical changes in society than is normally the case in university courses. These more radical perspec-

tives will probably never become ‘mainstream’ in the courses run by other institutions. This naturally has to do with students as the driving force—young people’s strong engagement, their unwillingness to settle for ‘realistic’ perspectives and accepted ideals.” Even though I am not sure whether this is true, but believe I have seen “more radical perspectives” and youthful ideals among senior university lecturers, and even if I have some sympathy with the Thorild quotation above the entrance to the university’s assembly hall about thinking freely and thinking correctly², the editor nevertheless points to an important fact: Cemus needs these driving forces, and not just as decorative features, and not just as engines, but as inspirers. And, what is even more important: the university needs them.

BENGT GUSTAFSSON is a Professor in Theoretical Astrophysics at Uppsala University and was instrumental in the establishment of Cemus. He has contributed to the work of Cemus since its very beginning , e.g. as a Board member, lecturer, workgroup member, evaluator and mentor.

² “It is a great thing to think freely, but it is greater still to think correctly.”

CEMUS IN PICTURES



During the first ten years, Cemus was located in the Celsius Building in the middle of the main pedestrian street in Uppsala, seen to the left and below. The pictures on the right are from Cemus' tenth anniversary in December 2005, right before the move to Geosciences Center on Villavägen. In 2007, Cemus was incorporated into the larger Uppsala Center for Sustainable Development. The picture down and right is from the opening ceremony with the Vice-Chancellors from Uppsala's two universities present.







The pedagogy of Cemus is characterized by participatory teaching methods, where the student is in focus. Inspiring guest lecturers are also important for the courses, here exemplified by the environmental historians John McNeill and Donald Hughes, the deep ecologist Arne Næss and the interdisciplinary scholar Wolfgang Sachs.





Cemus' organizational structure is characterized by student participation and democratic decision-making. It is a platform for encounters and meetings between students, teachers and researchers. Here are pictures from board meetings, workgroup meetings, course development meetings, and from the discussions prior the incorporation into CSD Uppsala.





Field trips and study visits are appreciated elements in many of Cemus' courses. The pictures are from the crags of the High Coast, the mountains of Norway, a coal power plant in Denmark, Kuanas in Lithuania, the Greenhouse in Söderhamn, Norreda Hostel outside Uppsala and the wolf territory in Ockelbo.





Can the experiences gained at Cemus somehow be converted so as to expand the debate – and moreover, can these experiences be shared and spread to universities in other parts of the world? ... How should the university be changed? What is education for? How will Cemus continue to contribute to a sustainable and just society?

Niclas Hällström
Co-founder of Cemus



The Center for Environment and Development Studies, Cemus, is a unique student initiated and student-run university center with the explicit ambition to contribute to a better world. Since the early 1990s, Cemus has offered interdisciplinary education and been a creative meeting place for students, PhD students, researchers and teachers from Uppsala's two universities. In this anthology, students, researchers and teachers reflect on the center's origins, ideologies, challenges and possible futures. This is a historic documentation of a unique initiative, but more than that it aims to serve as a source of inspiration and reflection for current students at Cemus and others with an interest in education for sustainable development and Cemus' educational model.

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