



— 2017 —

CEMO

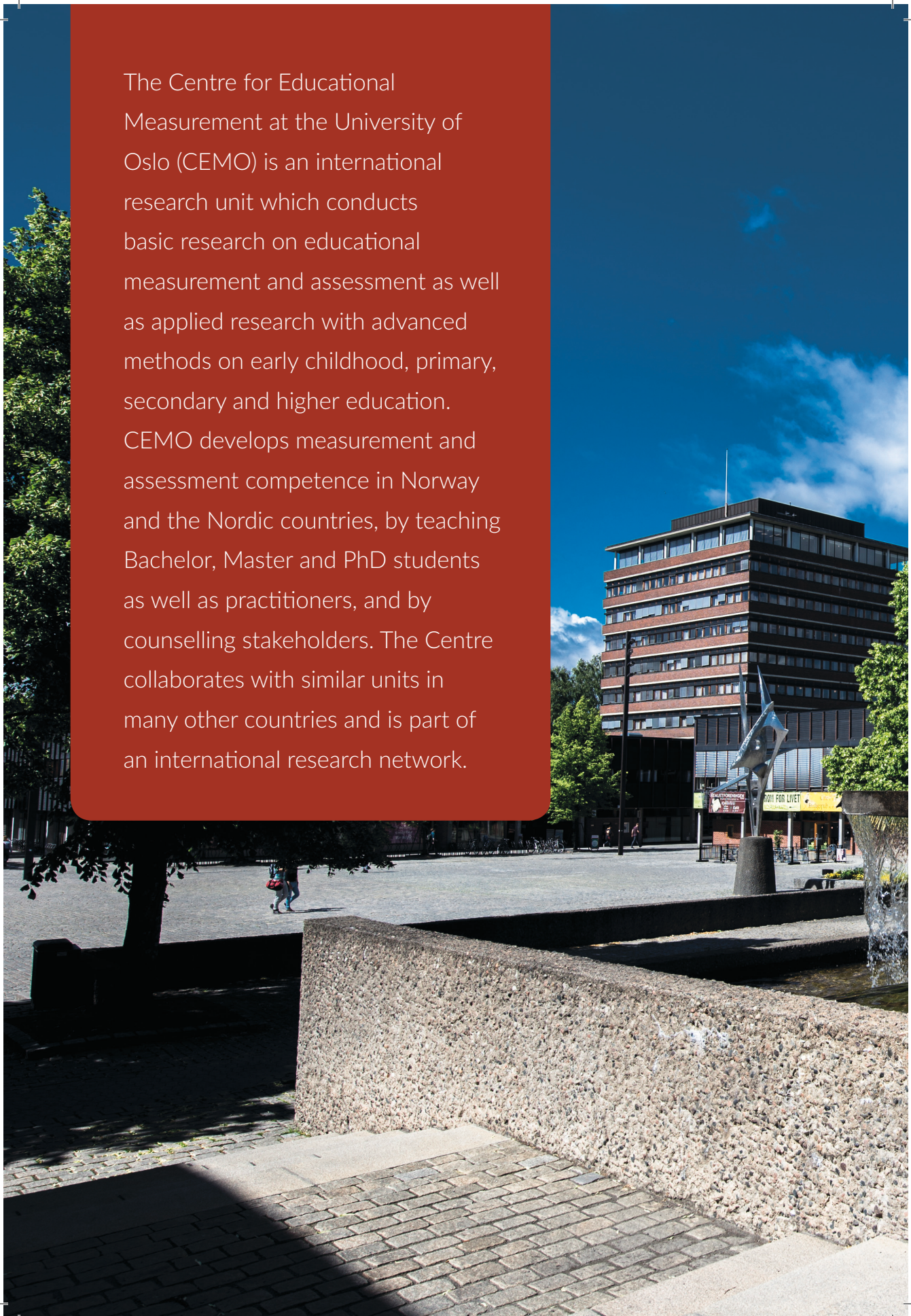
Centre for Educational Measurement

ANNUAL REPORT



UiO • Faculty of Educational Sciences
University of Oslo

The Centre for Educational Measurement at the University of Oslo (CEMO) is an international research unit which conducts basic research on educational measurement and assessment as well as applied research with advanced methods on early childhood, primary, secondary and higher education. CEMO develops measurement and assessment competence in Norway and the Nordic countries, by teaching Bachelor, Master and PhD students as well as practitioners, and by counselling stakeholders. The Centre collaborates with similar units in many other countries and is part of an international research network.





CEMO 2017 IN BRIEF

The Centre for Educational Measurement at the University of Oslo (CEMO), chaired by Sigrid Blömeke, includes 26 team members: five professors, one researcher, four professor IIs, four postdoctoral fellows, eight PhD candidates, two administrators and two student assistants. CEMO is now in its consolidation phase where the main tasks will be to develop sustainable research, teaching and outreach activities that strengthen educational measurement in Norway and the Nordic countries.

CEMO was granted two research projects in 2017: one grant by the Norwegian Research Council in addition to participation in a European Horizon 2020 grant (Marie Skłodowska Curie Initial Training Network). Our main task in 2017 will be to consolidate our research portfolio.

More than 50 scientific articles were published by CEMO (co-)authors in 2017. The majority of these appeared in journals on the highest quality level (2) according to the Norwegian publication system. CEMO also supports an open access policy.

Several awards were granted to CEMO members in 2017: Professor Leslie Rutkowski received the Distinguished Alumni Award at the University of Illinois and the AERA Division D Significant Contributions to Educational Measurement and Research Methodology Award for the publication of Rutkowski, L., von Davier, M., & Rutkowski, D. (Eds.). (2014). *Handbook of international large-scale assessment: Background, technical issues, and methods of data analysis*, PhD student Melaku T. Tesema received the IAEA 2017 Frances M. Ottobre Distinguished Student Scholarship, and Adjunct professor Jan-Eric Gustafsson received an Honorary Doctorate at the University of Oslo

for a longstanding contribution to the Faculty of Educational Science and for building up the Centre for Educational Measurement. In addition, CEMO team members are part of editorial boards for scientific journals and expert groups for international large-scale assessments or national research councils. We take these honors and prestigious functions to indicate that CEMO is recognized externally as a strong institution.

Teaching has become an important mission of CEMO because only through building up measurement and assessment competence, sustainability can be assured. CEMO team members taught PhD classes on a number of topics including introduction to international assessment databases, regression analysis and micro-analytic methods. We have also contributed with PhD supervision and a range of more limited teaching activities at other departments at the Faculty of Education. A large part of our work was devoted to developing and implementing a Master program in Assessment and Evaluation, starting in August 2018. CEMO has also in reached out to practitioners in the field by teaching workshops at different places in Norway.

A central part of CEMO's scientific outreach is a weekly open Brown Bag seminar where junior and senior academics informally present their research to colleagues while these have lunch. We also continued our High Profile talks, where scholars were invited to give lectures followed by a one hour discussion. During 2017, CEMO further developed both the Norwegian and English websites. Numbers of followers on social media increased significantly.

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1. THE DIRECTOR'S COMMENTS

As the interim Director it is a pleasure for me to conclude that CEMO continues to succeed and to reach or even outmatch its objectives. The Centre is still growing and will continue to do so during 2018. The immediate impact of our growth was resolved by securing more space in another floor in the NEMKO building.

The most important achievement this year was our successful application for study places. This secures the financial basis for our Master of Science in Assessment and Evaluation (MAE) starting autumn 2018. Activities related to establishing the MAE have had a dominant place at the Centre this year. Already we see indications that our efforts pay off with a large number of applications delivered at the deadline for candidates outside Europe. It will indeed be exciting to see if this is also reflected in the numbers of applicants from EU and Norway during the spring of 2018.

CEMO also continues to be successful with grants. This year Johan Braeken succeeded with his application to the FRIPRO young researcher program of the Norwegian Research Council, and CEMO was successful as a partner with 12 other organisations in an application for a so-called Marie Skłodowska-Curie Initial Training Network within the EU Horizon 2020 funding scheme.

CEMO is a very dynamic working environment, which also means that some persons leave us for new good positions elsewhere. Of course, we regret that persons choose to leave the Centre, but it is also nice to observe that CEMOnians are attractive candidates at the international labour market. We are sorry that Leslie and David Rutkowski are leaving us, but we are happy for their future career at Indiana University (USA). We are also happy that our postdoctoral fellows Muirne Paap and Tyler Matta were offered good positions in Groningen (the Netherlands) and Oregon (USA), respectively. As they leave us, they

help expand our network even wider. And even better, we are so fortunate that we have been able to keep most of them in part-time positions!

On the other and even more pleasant side of these dynamics, many new persons have joined us during the year. We are happy to have Saskia van Laar, Haakon Thorbergsen Haakstad, Kristina Strand Støren and Henrik Galligani Ræder with us for the next four years. With them our group of PhD-candidates is doubled! Even if we are a very internationally oriented centre, it is also nice to observe that we have competitive candidates with a Norwegian background. We also have Björn Andersson joining us. After having a few months in a postdoctoral position, he has now entered into a permanent position as an associate professor! We are also grateful that we continue to attract guest researchers visiting us for shorter or longer periods. They represent a very important influx of ideas and perspectives to our Centre.

The Faculty of Educational Sciences at the University of Oslo, and all the departments at the faculty, continue to be of vital support for the Centre, both through formal and administrative support and by giving us a much-needed connection with the broader field of educational research. In particular, as we now are entering into a new phase of the centre with an educational program, it is reassuring for us that we are part of a larger community with administrative and scientific staff with long experience in running master programs.

We look forward to the new year with great expectations. Starting up our master degree, hosting and creating the new international research conference *Frontiers in Educational Measurement (FREM)* - on top of new and ongoing research activities, 2018 already promises to be yet another record-breaking year for CEMO.

Rolf Vegar Olsen



2. RESEARCH ACTIVITIES

Basic research is the primary task for CEMO, and team members are specialized in psychometrics and latent variable modelling, measurement equivalence, innovative assessment formats, and causal inference from observational data. These methodological issues frequently appear in different substantive areas where CEMO researchers are involved: from measuring socio-emotional and cognitive outcomes prior to school age, via international large scale assessments and twenty first century skills, to examination models with objective structured clinical examinations and rater effects.

CEMO research can be categorized into two major strands that are linked to each other:

- **Research related to educational measurement.** This involves research focusing on methodological challenges of large-scale assessments, and involving new methodologies in the context of Item Response Theory and other latent variable modelling approaches.
- **Research related to educational assessment.** This involves research addressing new formats and modes for assessments, the development of assessments of novel and hard-to-measure constructs; and the use of new types of data (e.g., log-files). For the future we are particularly seeking to develop research on national assessments.

Research mission

CEMO strives to move the field of educational measurement forward. This includes examining the psychometric quality, fairness and effectiveness of assessments and diagnostic tools including the development of new measurement approaches to meet the quality criteria in a better way. In addition, moving the field forward includes examining unintended consequences and side-effects of assessments as well as dissemination of knowledge about measurement issues to stakeholders and the public.

A special objective of CEMO is to contextualize educational assessments in the societal and cultural characteristics of the Nordic countries. CEMO's main contribution to reach these ambitions is through long-term and sustained activities including not only research, but also by educating new generations with psychometric qualifications and skills.

Dissemination and counselling

The activities of CEMO are of strong individual and societal relevance. Diagnosing individual strengths and weaknesses plays a crucial role in all types of assignments (e.g. in educational interventions) and selection processes (e.g. for a new job). The educational sector plays a key role in preparing both persons and the economy for the future of our societies. Companies, municipalities and other actors are therefore in need of persons with foundational understanding of educational measurement, assessment and evaluation.

CEMO strives to provide this understanding through seminars, advisory activities, teaching and public discussions. In 2017, we organized a series of workshops for all national centres and institutions involved in the development of assessments. The workshops took place in Oslo, Stavanger, and Trondheim.

CEMO team members also have responsibilities within the larger international organizations running the large-scale international studies. In addition, CEMO has been involved as advisors both to the Norwegian Directorate for Education and Training (Utdanningsdirektoratet) and the Norwegian Agency for Quality Assurance in Education (NOKUT) regarding the national assessments that these two governmental organs are responsible for. As such CEMO has an impact on dissemination beyond articles published in scientific journals.

Awards

Professor Leslie Rutkowski received the Distinguished Alumni Award at the University of Illinois at Urbana-Champaign School of Education Distinguished Alumni Award.

Professor Leslie Rutkowski received the \$1000 AERA Division D Significant Contributions to Educational Measurement and Research Methodology Award for the publication of Rutkowski, L., von Davier, M., & Rutkowski, D. (Eds.). (2014). *Handbook of international large-scale assessment: Background, technical issues, and methods of data analysis*. London: Chapman & Hall/CRC Press.

PhD student Melaku T. Tesema received the IAEA 2017 Frances M. Ottobre Distinguished Student Scholarship.

Jan-Eric Gustafsson received an Honorary Doctorate at the University of Oslo for a longstanding contribution to the Faculty of Educational Science and for building up the Centre for Educational Measurement.



3. TEACHING ACTIVITIES

CEMO is involved in a range of teaching and development activities from the Bachelor through the PhD level and as well as professional development within areas at the core of our research profile. The relationship between the quality of our research and teaching is regarded as a two-way street where both are mutually dependent on the other.

On the bachelor's level, we contributed to revising the BA programs based at the Departments of Education and Special Education with the objective to teach parts of the basic methods classes. On the master's level, we contributed to teaching in the international programs based at IPED. In addition, CEMO supervises a few Master students from other programs who write their Master thesis as part of research projects at CEMO. We have employed several student assistants, too, who are directly involved in staff research.

Besides regular but small contributions to the teacher education program offered at the Department of Teacher Education and School Research, CEMO is not systematically involved in initial teacher education. We are more involved in the professional development of school principals (Rektorutdanningen), and we substantially expanded our teaching of workshops for test developers in 2017.

The application of a Master in Assessment and Evaluation (MAE) was partly successful by UiO

providing 13 study places. We are currently signing agreements with several Norwegian research institutes for giving students the possibility to conduct their Master thesis projects in cooperation with professionals in the field and potential employers dealing with issues of measurement, assessment and evaluation. MAE will provide specialized training in developing, administering, analysing, and reporting the results from any assessment or evaluation as the first and only program in the Nordic region.

In 2017, CEMO arranged seven PhD courses with study points (Introduction to international databases; Mixed methods; Monte Carlo simulations; Micro-analytic methods in large-scale educational assessment; Regression analysis; Introduction to educational measurement; Introduction to program evaluation). In addition to supervising our own PhD candidates, we are also involved in the supervision of candidates at the other departments at the Faculty of Education.

4. OUTREACH ACTIVITIES

An explicit assignment to CEMO is to reach out to non-specialists related to the educational sector and in need of knowledge about measurement, assessment and evaluation. Educational measurement often has profound impact both on individuals and on processes and outcomes of teaching and learning. This, in combination with the fact that educational measurement often is technically complex, generates different information needs on the side of students, parents, teachers, school-leaders, politicians and administrative bodies.

A central part of CEMO's scientific outreach is a weekly open Brown Bag seminar where junior and senior academics informally present their research to colleagues while these have lunch. This series has proved to be a brilliant opportunity to discuss work in progress in a friendly atmosphere and a chance to talk to each other. For a full list of presenters, see the last pages of this report.

CEMO has in addition continued to organize High Profile talks where renowned colleagues from other countries were invited to present hot topics of current measurement debates. This year's invitees were Professor Marie Wiberg from Umeå University in Sweden who addressed *Equating test scores using information from covariates*; Professor Cassandra Guarino from University of California in the United States who addressed *Issues in constructing value-added models of teacher performance*; and Christin Lotz and Professor Jörn Sparfeldt from University of Saarland in Germany who addressed *Intelligence in education - A neglected construct?*.

Quantitative Roadshow

A major 2017 outreach activity was to reach out to practitioners in the field of educational assessment in Norway by offering cumulative workshops at different places. More than 50 persons followed the whole sequence of three workshops conducted in Oslo, Trondheim and Stavanger. The course gave an introduction to basic statistics and the field of educational assessment. In addition to improving test developers and other practitioners understanding of sound test development, the activity provided an arena for professionals with a joint interest in educational and psychological measurement.

External workshops by CEMO members

CEMO members have also taught at international venues, for instance:

Rutkowski, L. (March 2017). Seminar in Introductory statistical analysis at an OECD-commissioned workshop

Scherer, R. (April 2017). Structural equation modeling with PIAAC data, at the International PIAAC conference, GESIS, Mannheim, Germany

Scherer, R. (May 2017). Longitudinal models with complex factor structures, at Oxford University, UK

Rutkowski, L. (June 2017). Workshop on Multi-level modeling with IEA data, at the IEA Research Conference, Prague, Czech Republic

Websites and social media

During 2017, CEMO further developed both the Norwegian and English websites. Numbers of followers on social media increased significantly. Both Twitter and Facebook were used several times a week to spread information about CEMO's research activities, possibilities, and cooperation. On the websites the main features remain the personal pages for each CEMO member, information about CEMO's research and teaching, upcoming events, and the list of publications. Overall, our websites had more than 70.000 hits in 2017.



5. MANAGEMENT & ADMINISTRATION

CEMO is established as a research unit hosted by the Faculty of Educational Sciences at UiO. The Centre is located at Gaustadalleen 30. The Norwegian Ministry of Education and Research and UiO are CEMO's main funders. They constitute the final reporting entities that define the guidelines under which CEMO operates. The Faculty of Educational Sciences is responsible for the main load of administrative support.

Administrative structure

The centre is run by the director, Professor Sigrid Blömeke. In collaboration with co-director Professor Rolf Vegar Olsen and under the supervision of the CEMO Board, the director's responsibilities include strategic decisions about CEMO's research, teaching and outreach profile, about CEMO's personnel tableau, recruitment strategies and employments as well as the management of the CEMO budget. The leader team also represents CEMO at the Faculty and higher UiO levels as well as outside the university.

Senior Advisor Anne-Catherine Lehre is responsible for the daily running of CEMO. The administration also consists of Higher Executive

Officer, Øystein Andresen. Operative tasks of the administration include, among other things, external communication, facilitating a good reception and stay for guests, maintenance of the websites and social media, taking minutes from board meetings, recruiting and organizing and implementing the different arrangements like courses, seminars, and workshops. CEMO's administration also functions as permanent secretariat for the CEMO Board and the International Advisory Board.

The Faculty of Educational Sciences operates employments at CEMO as well as budgeting and accounting. IT support is provided by the Department of Teacher Education and School Research.

The CEMO Board and CEMO's International Scientific Advisory Board

The CEMO Board is an administrative body that meets three to four times per year to approve the CEMO budget, the director's progress reports about research, teaching and outreach activities at CEMO and the employments. In addition, the department heads and the student representative provide feedback on CEMO's activities from an internal perspective.

The CEMO Board	
NAME	AFFILIATION
Chair: Rita E. Hvistendahl	Head of Department of Teacher Education and School Research, UiO
Ona Bøe Vie	Head of Department of Special Needs Education, UiO
Ola Erstad	Head of Department of Education, UiO
David Rutkowski	Employee representative
Hanna F. Skjeie	Student representative

CEMO established in 2016 an International Scientific Advisory Board to receive feedback on its research, teaching and outreach activities from renowned and highly experienced international colleagues working in similar contexts in other countries. The board shall also promote research between CEMO and other international research centers. The Board had its second meeting in June and discussed the CEMO portfolio including general strategic issues, research and recruitment politics, the new master program, the roadshow, research on the Norwegian assessment system, and research innovations ahead.

International Scientific Advisory Board	
NAME	AFFILIATION
Cees Glas, Professor of Educational Measurement	University of Twente, The Netherlands Chair of the Department of Research Methodology, Measurement and Data Analysis
Susan Embretson, Professor of Quantitative Psychology	Georgia Tech, USA
Irwin Kirsch, Director of the Center for Global Assessment	Educational Testing Service ETS Distinguished Presidential Appointee
Sophia Rabe-Hesketh, Professor of Educational Statistics and Biostatistics	University of California, Berkeley Fellow of the American Statistical Association and Elected Member of the National Academy of Education in the U.S.



Comments by the CEMO Board chair: Rita Hvistendahl

The CEMO Board met three times in 2017, on 26 April, 27 September and 29 November. Several issues were also decided upon in electronic board meetings on 21 February, 21 March, 27 July and 21 August. In the first meeting, the CEMO Board welcomed Hanna F. Skjeie as student representative. She has represented the students in the CEMO Board throughout the entire year.

The Board has welcomed four PhD Candidates, one Postdoctoral Fellow and one Associate Professor this year. The reports from the evaluation committees have been of a high standard, documenting that all applicants have been considered in a transparent and fair evaluative process. These reports are indeed vital support for the decisions made by the Board. The result is that excellent and highly qualified persons have been recruited to the Centre.

The financial status of the Centre is very good. We are very pleased that CEMO succeeded with an application for new study places to finance the upcoming master program. Furthermore, high return on applications for external funding has made it possible for CEMO to sustain a much higher level of activity than would otherwise be possible from the basic funding. The Board particularly congratulates the Centre for being part of a successful application to the EU Marie Skłodowska-Curie action, funding a new doctoral training network across Europe, and with two of 15 PhD positions placed at CEMO.

We also were delighted to see that the first CEMO director, Jan-Eric Gustafsson, received the Honorary Doctorate from the University of Oslo in September. Over many years, Gustafsson has made important contributions not only to CEMO, but to the whole Faculty of Educational Sciences.

2018 will become a crucial year in the further development of CEMO: The Centre will be in the middle of the initial 10-year period and the first students will be admitted to the new Master of Assessment and Evaluation. The Board also looks forward to the report from the "midterm" evaluation committee. In addition to a brief retrospective evaluation, this committee has been given a mandate to give advice on how CEMO should be able to establish itself as a sustainable Centre beyond 2023 when the initial funding from the Ministry of Education ends.

6. FINANCES

The Norwegian Ministry of Education and Research (7.200 MNOK core-funding to CEMO) and UiO (several positions) are CEMO's main financial contributors.

Revenues and expenditures 2017

		Financial statement	Budgeted expenses
Opening balance		-11 199 334	-11 199 334
Total Opening balance		-11 199 334	-11 199 334
Funding	Core funding	-11 968 256	-11 647 000
	External income	-150 000	
	Income from sales	143 826	
Total funding		-11 974 430	-11 647 000
Staff expenses	Salary cost	7 444 206	8 478 137
	Overtime		
	Salary (variable)	170 361	108 672
	Holiday pay, payroll tax, pension	3 088 609	3 616 080
	Salary expenses	35 648	
	Other refunds	-15 271	
Total staff expenses		10 723 553	12 202 889
Operating expenses	Consultancy service	32 274	0
	Rent	479 843	402 668
	Travel costs, courses, conference	769 067	691 000
	Other operating expenses	192 230	2 656 529
Total Operating expenses		1 473 414	3 750 197
Investments	Investments	214 028	100 000
Total investments		214 028	100 000
Netto contribution	Own funding (UiO)	502 893	964 025
	Overhead	-1 611 345	-2 223 492
	Salary Reimbursement	-1 067 599	-2 154 048
Total netto contribution		-2 176 051	-3 413 515
Project closing balance	Project closing balance	1 759	0
		55 923	
Total project closing balance		57 682	0
Total		-12 881 138	-10 206 763

Budgeted revenues and expenditures 2018

		Budget
Opening balance		-12 881 137
Total Opening balance		-12 881 137
Funding	Core funding	-11 821 000
	External income	
	Rental/sales Income	
Total funding		-11 821 000
Staff expenses	Salary cost	9 586 024
	Salary (variable)	79 465
	Holiday pay, payroll tax, pension	4 179 974
	Salary expenses	
Total staff expenses		13 845 463
Operating expenses	Consultancy service	0
	Rent	479 841
	Travel costs, courses and conference	1 191 000
	Other operating expenses	3 062 998
Total Operating expenses		4 733 839
Investments	Investments	100 000
Total investments		100 000
Net contribution from	Own funding (UiO)	652 639
externally funded projects	Overhead	-2 180 771
	Salary Reimbursement	-2 993 389
Total net contribution from externally funded projects		-4 521 521
Total		-10 544 356

7. APPENDICES

CEMO current team members

Name	Nationality	Position	Since
Blömeke, Sigrid	Germany	Director	Aug 2014-
Olsen, Rolf Vegar	Norway	Professor/deputy-director	Apr 2016-
Braeken, Johan	Belgium	Professor	Feb 2014-
Rutkowski, Leslie	USA	Professor	Sep 2015-
Rutkowski, David	USA	Professor	Sep 2015-
Ribero, Lucia	Portugal	Researcher (50 %)	Oct 2017-
Scherer, Ronny	Germany	Postdoctoral Fellow	Jan 2014-
Schauber, Stefan	Germany	Postdoctoral Fellow	Mar 2015-
Liaw, Yuan-Ling	Taiwan	Postdoctoral fellow	Oct 2016-
Andersson, Björn	Sweden	Postdoctoral fellow	Dec 2017-
Daus, Stephan	Norway	PhD Candidate	Oct 2014-
Tesema, Melaku Tesfa	Ethiopia	PhD Candidate	Jan 2015-
Helland, Fredrik	Norway	PhD Candidate	Sep 2016-
Mughogho, Kondwani K.	Malawi	PhD Candidate	Nov 2016-
Van Laar, Saskia	Netherlands	PhD Candidate	Nov 2017-
Ræder, Henrik Galligani	Norway	PhD Candidate	Nov 2017-
Støren, Kristina Strand	Norway	PhD Candidate	Nov 2017-
Haakstad, Haakon T.	Norway	PhD Candidate	Nov 2017-
Gustafsson, Jan-Eric	Sweden	Professor II (from July 2014 UV Fac.)	Oct 2012-
Zachrisson, Henrik D.	Norway	Professor II	Jul 2014-
Skrondal, Anders	Norway	Professor II	Jan 2015-
Frey, Andreas	Germany	Professor II	Sep 2016-
Lehre, Anne-Catherine WG	Norway	Senior Adviser	Jan 2013-
Andresen, Øystein	Norway	Higher Executive Officer	Aug 2014-
Aursand, Leah Rose	USA	Research assistant	Nov 2016 -
Feyer, Frida	Norway	Research assistant	Aug 2017-

CEMO former team members

Name	Nationality	Position	Period
Emslander, Valentin	Germany	Research assistant	Aug – Sep 2017
Paap, Muirne	Netherlands	Postdoctoral Fellow	Oct 2015 – Aug 2017
Boothby, R. Clark	USA	PhD Candidate	Nov 2016- Feb 2017

CEMO Gustafsson-Skrondal visiting scholarship

Name	Nationality	Period
Matta, Tyler	USA	Oct 2016-

CEMO guest researchers

Name	Nationality	Period
Wu, Yuanyue	China	Sep 2016 – Aug 2017

CEMO events

High Profile talks

Name	Seminar title	Date
Lots, Christin & Sparfeldt, Jörn	<i>Intelligence in education – A neglected construct?</i>	Nov 16, 2017
Guarino, Cassandra	<i>Issues in constructing value-added models of teacher performance</i>	Sep 5, 2017
Wiberg, Marie	<i>Equating test scores using information from covariates</i>	May 30, 2017

Brown bag seminars

Name	Seminar title	Date
Protopapas, Athanasios	<i>Can Matthew effects in reading ever be empirically established?</i>	Dec 12, 2017
Kondwani Kajera Mughogho	<i>Interactive effects of item parameter estimation and latent trait scoring on subscore value in international large-scale assessments</i>	Dec 5, 2017
Zachrisson, Henrik D.	<i>Merging psychometrics with econometrics</i>	Nov 7, 2017
Matta, Tyler	<i>Calibrating item families with few siblings</i>	Oct 31, 2017
Frey, Andreas	<i>Utilizing response times to inform the treatment of omitted responses in achievement tests</i>	Oct 10, 2017
Tesema, Melaku T.	<i>Mapping the higher education admission policy in Ethiopia: Affirmative action as equity instrument?</i>	Sep 26, 2017
Mjelve Hagen, Åste Marie	<i>Improving language comprehension in preschool children with language difficulties: A cluster randomized trial</i>	Sep 19, 2017
Buchholtz, Nils Fredrik	<i>Researching subject-didactical opportunities to learn in teacher education</i>	Sep 12, 2017
Schauber, Stefan K.	<i>Seven thousand students can be wrong - A Bayesian IRT perspective on measurement precision in criterion referenced testing</i>	Aug 29, 2017
Willms, Douglas	<i>Equality, equity, and educational prosperity</i>	Aug 15, 2017

Brown bag seminars (cont.)

Name	Seminar title	Date
Bjørnstad, Elisabeth and Eliassen, Erik	<i>A psychometric evaluation of the ITERS-R and ECERS-R in Norwegian ECEC</i>	Jun 6, 2017
Greiff, Samuel	<i>Complex and collaborative problem solving: Transversal skills in educational research</i>	May 23, 2017
Mahler, Daniela	<i>What characterizes an effective teacher? The relationship between teachers' professional competence and students' performance</i>	May 16, 2017
Martinussen, Monica	<i>Thirty years with pilot selection and meta-analysis</i>	May 9, 2017
Gustafsson, Jan-Eric	<i>The report of the Swedish School Commission</i>	May 2, 2017
Nortvedt, Guri	<i>Oslo schools' and principals' work with the national numeracy mapping tests - preliminary findings</i>	Apr 25, 2017
Nilsen, Trude	<i>Implicit statistical learning - why it is relevant to education and why we need better ways to measure it</i>	Apr 4, 2017
Belanger, Julie	<i>Using RCTs to better understand what works in schools in England</i>	Mar 28, 2017
Arnesen, Anne	<i>A look at the quality of social functioning and reading assessments used in Norwegian elementary schools</i>	Mar 14, 2017
Braeken, Johan	<i>Diagnosing the dimensionality structure of a test</i>	Mar 7, 2017
Zachrisson, Henrik D.	<i>What is a large effect size?</i>	Feb 28, 2017
Björnsson, Julius K. and Olsen, Rolf Vegar	<i>Age vs grade effects: Does it matter when you're born?</i>	Feb 7, 2017
Kornør, Hege	<i>PsykTestBarn</i>	Jan 17, 2017
Wu, Yuanyue	<i>Introduction of National Basic Education Quality Assessment in China</i>	Jan 10, 2017

Courses

UV9226: Introduction to Program Evaluation, David Rutkowski, Sep 2017

A five-day course introducing program evaluation models and methods of evaluating programs, processes, and products in a variety of settings with specific emphasis on education.

UV9225: Introduction to Educational Measurement, Leslie Rutkowski, Sep-Nov 2017

A 24 hours course introducing relevant concepts, theories, and applications related to educational measurement.

UV9214: Regression Analysis, Johan Braeken, Aug 2017

A four-day course focusing on basic concepts and principles of simple and multiple regression, and various strategies for using multiple regression.

UV9917V4: Micro-Analytic Methods in Large-Scale Educational Assessment, Bryan Maddox, Jun 2017

A two-day workshop introducing 'micro-analytic' methods in large-scale educational assessments, their application in testing and underlying theory.

UV9917V2: Monte Carlo Simulations: Principles and Applications in the Social Sciences, Andreas Frey and Christian Spoden, May 2017

A three-day workshop covering (a) the objectives of Monte Carlo simulations, (b) their basic steps, and (c) practical advice for planning, setting up, conducting, and analyzing Monte Carlo simulations.

UV9501: Mixed Methods, David Rutkowski and Lisbeth Breivik, Mar 2017

A 26 hours course giving an overview of mixed methods research, consisting of the history and philosophy of mixed methods, emerging literature within the field, purposes and characteristics of mixed methods research, types of research problems typically addressed, the specification of mixed methods purpose statements and research questions and types of major mixed methods designs.

UV9917V1: Introduction to International Assessment Database, Leslie Rutkowski, Feb 2017

A two-day workshop providing an overview of the structure and contents of the TIMSS and PISA databases, as well as an overview of the main design features of these surveys that are relevant for the analysis of their data.

Publications and Presentations

Contributors affiliated with CEMO in bold; * = Open Access

Articles in peer-reviewed journals (level 2 or level 1 with Impact factor >1)

Impact factor = number of citations of articles in a given year published in the preceding two years

* Arnesen, A., **Braeken, J.**, Baker, S., Meek-Hansen, W., Ogden, T. & Melby-Lervåg, M. (2017). Growth in oral reading fluency in a semitransparent orthography: Concurrent and predictive relations with reading proficiency in Norwegian, Grades 2–5. *Reading Research Quarterly*, 52(2), 177- 201. Doi: 10.1002/rrq.159

* **Blömeke, S.**, Jenssen, L., Grassmann, M., Dunekacke, S. & Wedekind, H (2017). Process mediates structure: Relation of preschool teacher education to preschool teachers' knowledge. *Journal of Educational Psychology*, 109, 338- 354. Doi: 10.1037/edu0000147

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Conference contributions

Zachrisson, H. D. (January). *Norwegian longitudinal data on social inequality in children's skills*. Presentation at workshop with WP1 of the ISOTIS EU2020 project. University of Utrecht. Utrecht, The Netherlands.

- Frey, A.** & Mikolajetz, A. (February). *Multidimensionales adaptives Testen mit nicht-kompensatorischen MIRT-Modellen* (Multidimensional adaptive testing with non-compensatory MIRT models). Presentation at the Kolloquium Methoden der empirischen Bildungsforschung, Hirschegg, Austria.
- Frey, A.,** Nagy, G. & Bernhardt, R. (March). *Effekte computerisierten adaptiven Testens auf positiven und negativen Affekt* (Effects of computerized adaptive testing on positive and negative affect). Presentation at the 5. Tagung der Gesellschaft für Empirische Bildungsforschung (GEBF). Heidelberg, Germany.
- Frey, A.,** Nagy, G. & Hartig, J. (March). *Effekte des Testens 1: Effekte der Testdarbietung auf Testresultate* (Testing effects 1: Effects of testing on test results). Symposium at the 5. Tagung der Gesellschaft für Empirische Bildungsforschung (GEBF). Heidelberg, Germany.
- Nagy, G., **Frey, A.** & Hartig, J. (March). *Effekte des Testens 2: Effekte der Testbearbeitung auf motivational-affektive Merkmale* (Testing effects 2: Effects of testing on motivational and emotional variables). Symposium at the 5. Tagung der Gesellschaft für Empirische Bildungsforschung (GEBF). Heidelberg, Germany.
- Paap, M.C.S.** (March). *Utvikling av en adaptiv test for å måle livskvalitet i pasienter med kols* (Development of an adaptive test measuring quality of life in COPD patients). Lungerehabiliteringskonferansen 2017 (the Pulmonary rehabilitation conference 2017). Oslo, Norway.
- Rutkowski, L.** (March). *Methodological challenges to measuring heterogeneous populations internationally*. 2017 Comparative and International Education Society Conference. Atlanta, Georgia, USA.
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- Rutkowski, L.,** Kaplan, D., & **Matta, T.** (April). *Imputation as a means to create a synthetic pre/post design*. 2017 IEA Research Conference. Prague, Czech Republic.
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- Zachrisson, H. D.** (June). *Barnehaugen som forebyggende arena* (Early education as arena for prevention). Konferanse om barns levekår (Conference on children's living conditions). Bergen, Norway.
- Zachrisson, H. D.** & Dearing, E. (June). *Concerns over internal, external, and incidence validity*. The Stockholm Criminology Symposium. Stockholm, Sweden.
- Bjørnsson, J. & **Olsen, R.V.** (June). *Relative Age Effects in TIMSS and PIRLS over 20 Years*. 7th IEA International Research Conference, Prague, Czech Republic
- Daus, S. & Braeken, J.** (July). *Are TIMSS country scores and rankings sensitive to varying opportunities to learn?* International Meeting of the Psychometrics Society. Zürich, Switzerland.
- Frey, A.,** & Mikolajetz, A. (July). *Measuring non-compensatory multidimensional structures with computerized adaptive testing*. Paper presented at the 81th Annual Meeting of the Psychometric Society (IMPS). Zürich, Switzerland.
- Frey, A.,** Spoden, C., Born, S., Fink, A. & Kühne, I. M. (July). *Kriteriumsorientiertes adaptives Testen in der Hochschule (KAT-HS)* (Criterion-referenced testing at the University). Poster at the Fachtagung

“Hochschulen im digitalen Zeitalter” am Bundesministerium für Bildung und Forschung (BMBF). Berlin, Germany.

Paap, M.C.S., Born, S. & **Braeken, J.** (July). *Comparing CAT performance for variable-length tests: health measurement vs. educational testing*. The 2017 International Meeting of the Psychometric Society (IMPS). Zürich, Switzerland.

Braeken, J. (August). *Bayesian Elastic Constraints to Screen and Model Local Item Dependencies*. International Meeting of the Psychometric Society. Zürich, Switzerland.

Skrondal, A. (August). *Presidential address*. 2017 International Psychometric Society Meeting. Zürich, Switzerland.

Zachrisson, H. D. (August). *Hvordan bruke naturlige eksperimenter for å nærme oss kausale slutninger?* (How to use natural experiments to approach causal inference?). Workshop at internal research meeting, The Norwegian Institute of Public Health. Oslo, Norway.

Bjørnsson, J. & **Olsen, R. V.** (August). *Relative age effects in international large scale studies*. The European Conference on Educational Research (ECER), Copenhagen, Denmark.

Born, S., **Frey, A.**, Spoden, C. & Fink, A. (September). *Kriteriumsorientierte adaptive Hochschulklausuren: Auswirkung verschiedener Kalibrierungsdesigns auf die Personenparameterschätzung* (Criterion-referenced adaptive University exams: Effects of calibration design on ability estimates). Presentation at the 13. Tagung der Fachgruppe Methoden und Evaluation der Deutschen Gesellschaft für Psychologie (DGPs), Tübingen, Germany.

Zachrisson, H. D. (September). *Pilot on tracking early social inequality in children's skills*. Presentation at workshop with WP1 of the ISOTIS EU2020 project. University of Amsterdam. Amsterdam, The Netherlands.

Paap, M.C.S. (October). *Multidimensional computerized adaptive testing in health measurement: reflections and recommendations*. The 33rd RCEC Workshop on IRT and Educational Measurement. Enschede, The Netherlands.

Tesema, Melaku T. (October). *Assessment as a social lever*. 43rd annual conference of International Association for Educational Assessment. Batumi, Georgia.

Scherer, R. (November). *The relevance and measurement of social and emotional skills*. Ministry of Education Norway (KD). Oslo, Norway.

Zachrisson, H. D. (November). *Barnehage og barns utvikling* (Early education and children's development). Oppvekst 2017. Trondheim, Norway.

Zachrisson, H. D. & Eliassen, E. (November). *The causal effect of entry age on children's social competence at 3 years* Nettverk for longitudinell barnehageforskning (Network for longitudinal early education research). Bodø, Norway.

Elected positions and organizations

Skrondal, Anders: Elected and served as 82nd President of the Psychometric Society

Skrondal, Anders: Organized 2017 International Psychometric Society Meeting, Zurich, Switzerland

Published research journalism

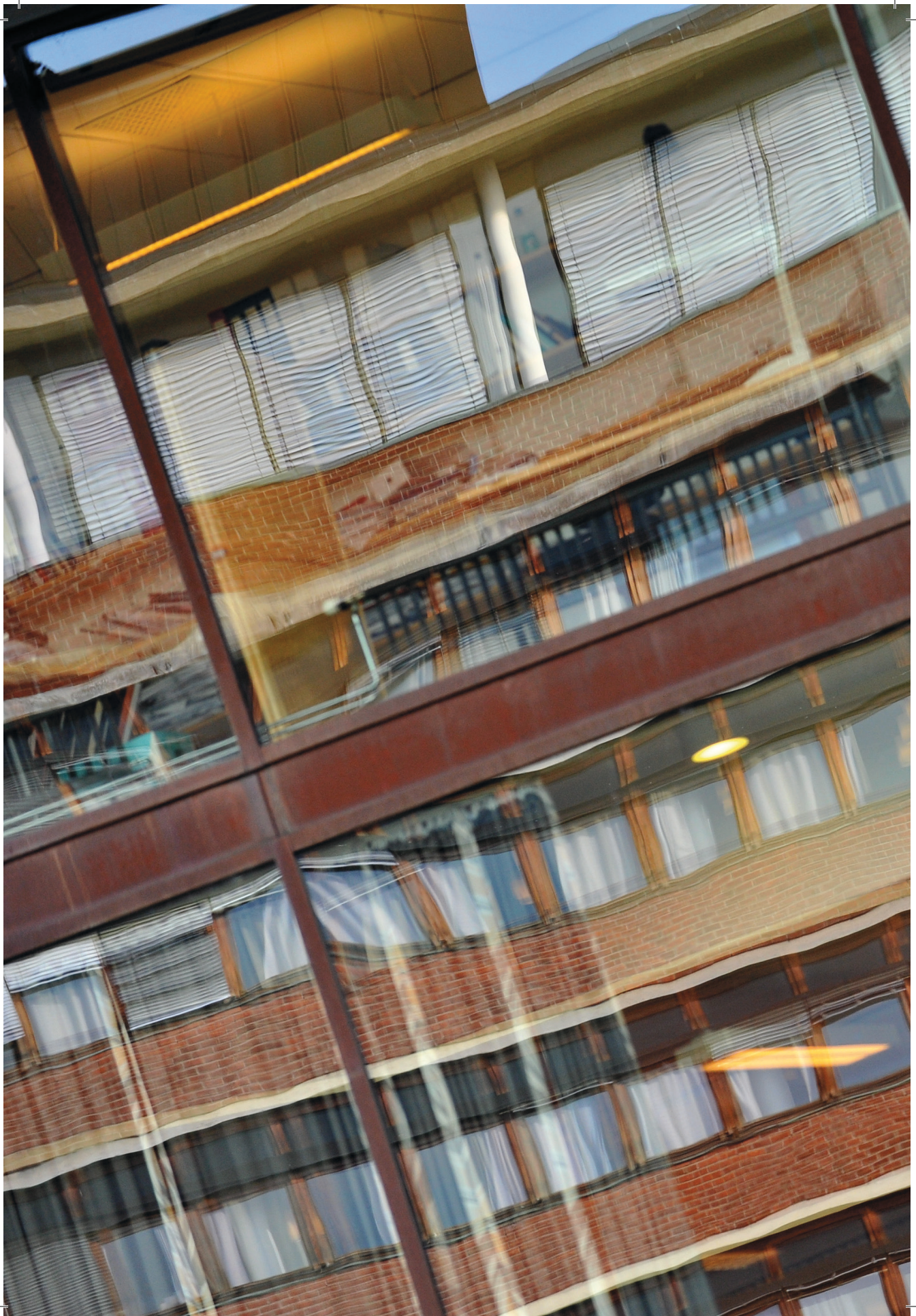
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Vartun, M., Høegh-Omdal, K., Smestad, T. & **Andresen, Ø. N.** (2017). Tre elever i hver klasse kan ikke pluss og minus. *Forskning.no: nettavis med nyheter fra norsk og internasjonal forskning*.

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