



The IPN building under construction around 1969.

IPN Chronicle 1966 - 2016

HISTORY

In 1957 the "Sputnik shock" revealed that Eastern technology was not as far behind as previously assumed. The Soviet Union – and not the United States – sent the first satellite into space. This triggered a rethinking of the education policy in the US and Europe. The causes of the West's lagging behind were thought to be primarily due to the educational system. At that time there was a serious shortage of science teachers. Funded programs and science curricula were to

change that. Hence, in the early 1960s the physicist Prof. Karl Hecht came up with the idea of establishing an institute for science teaching and learning. "... In view of the insufficient teaching of science I felt it was necessary to find appropriate ways to convey a better understanding of science and technology to our fellow citizens."

(excerpt from Meine Erinnerungen an die Vor- und Frühgeschichte des IPN von Karl Hecht, 1986)



Today.

On December 1st, 1966, eight employees begin their work under the direction of Prof. Dr. Karl Hecht in two rooms of the Institute of Applied Physics of Kiel University. Prof. Dr. Werner Kroebel (* 1904 † 2001), Director of the Institute for Applied Physics and friend of Hecht had significant influence regarding the chosen location. Physics Education and Chemistry Education were the first two departments.



Kieler Nachrichten, April 22, 1966

1966



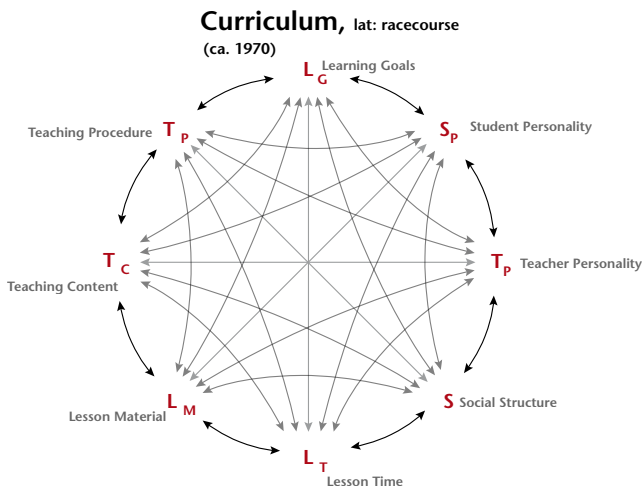
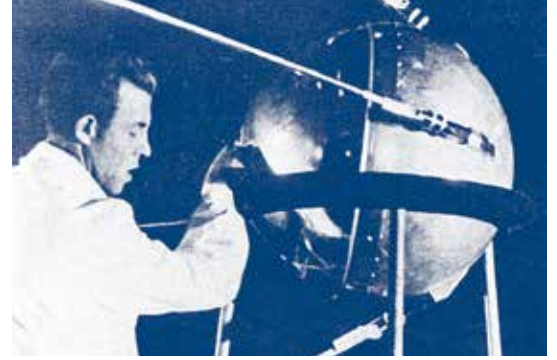
Prof. Dr. Karl Hecht,
founder and first director of the IPN * 1903 † 1994

THE FOUNDER

Karl Hecht, who founded the IPN in 1966 worked as a physics researcher at the Universities of Göttingen and Bonn until 1934. He then left the university setting for 30 years to which he maintained contact while working in the private sector. As Department Head and Officer of Teaching Materials for the company Leybold in Cologne, he focused on the general problems in science classes. Due to his initiative, the German Organization of Technical and Scientific Associations presented the Volkswagen Foundation a “Memorandum to found an institute for science education” to establish an institute for teaching and learning in science classes.

1968

1967



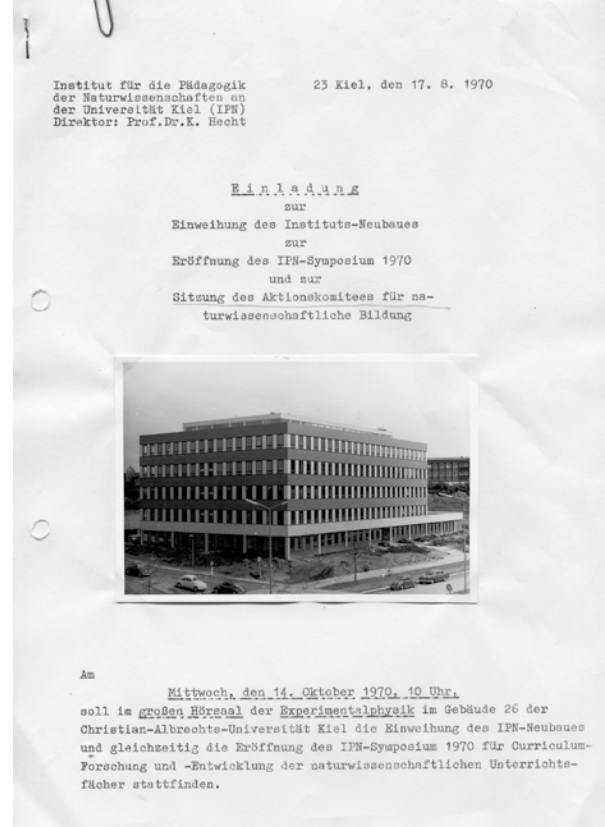
1969

CURRICULUM RESEARCH

From 1966 – 1980 the focus of the IPN is the development and scientific testing of curricula for science subjects biology, chemistry and physics. The goal is lessons oriented towards experimental work for 5th and 6th graders. This is something new for Germany at that time: The curricula offer subject-oriented information, concepts for lessons, equipment and tests including the necessary evaluation guidelines. The curricula are mainly tested in Kiel's schools.

The IPN gains two departments: Biology Education and Educational Research.





1970

After three years of construction, the IPN building in the Olshausenstraße 62 opens in October 1970. Construction was funded by the Volkswagen Foundation.

1971



Prof. Dr. Karl Frey
*1942 +2005



THE SUCCESSOR

The Director of the Department of Education Science **Dr. Karl Frey**, is appointed Hecht's successor as Institute Director at the age of 29. He is credited

with the interdepartmental work still practiced at the IPN – all employees work in a specific department but they work in interdepartmental research areas. Today there are five systematically related research areas. Within

17 years Karl Frey makes the curriculum development institute into an internationally recognized research institute which works with national and international organizations such as Euro Europe, UNESCO and the OECD.

After a five year trial period the first IPN curricula are published by the Ernst Klett Verlag: the IPN Physics Curriculum and the IPN Chemistry Curriculum for grades 5 and 6.

Establishment of the field of **Pedagogical-Psychological Methodology and Education Research** as a subdivision of the Department of Education Research.

1972



Die leitende Verbindung zwischen Fußpunkt und Gewinde einer Glühlampe

- Bitte schreibe die Namen der Glühlampenteile an die Pfeile!
Wenn Du nicht mehr so genau weißt, wie die einzelnen Teile heißen, so suche die Namen aus der folgenden Liste aus: Gewinde – Glaskolben – Glühdraht – Fußpunkt – Halte draht – Isolationskörper
- Male in der Schnittzeichnung der Glühlampe alle Leiter in einer Farbe und alle Nichtleiter in einer anderen Farbe an!
- Wie heißen die Teile der leitenden Verbindung durch die Glühlampe in richtiger Reihenfolge!
Fußpunkt, Halte draht, Glühdraht, Halte draht, Gewinde.
Der elektrische Strom kann einen Draht erwärmen. Wenn der elektrische Strom sehr stark ist, wird der Draht sehr heiß und leuchtet dabei. Genauso kommt auch das Leuchten des Glühdrahtes in der Glühlampe zustande.

132

1973

Joint funding by the Federal Government and States

Kiel / Bonn (dpa) Das „Institut für Pädagogik der Naturwissenschaften“ an der Universität Kiel wird künftig gemeinsam vom Bund und dem Land Schleswig-Holstein finanziert.

Wie das Bundeswissenschaftsministerium gestern mitteilte, wurde ein entsprechendes Abkommen vom Bonner Staatssekretär Prof. Reimut Jochimsen unterzeichnet. Träger des 1965 von der Stiftung Volkswagenwerk gegründeten Instituts ist die „Stiftung Pädagogik der Naturwissenschaften“. In diesem Jahr gibt Bonn einen Zuschuß von 429 000 DM, für 1974 sind 1,25 Millionen DM vorgesehen. Das Kieler Institut ist eine überregionale Einrichtung.

Kieler Nachrichten, 22.09.1973.



The IPN coordinates the International Chemistry Olympiad and a year later the International Physics Olympiad.



Prof. Dr. Karl Hecht is awarded the Federal Cross of Merit from German President Walter Scheel for his dedication in establishing and directing the Institute for Science Education.

1975

1974

“Der Mensch und die Tiere” (Human Beings and Animals) is the first published lesson of the “IPN Curriculum Biology” by Aulis Publishing.



1977

1978

The Delphi study begins: together experts from the pedagogy and science fields develop goals for physics lessons. Subsequently, in a second study the long-term effects of science education are investigated based on fundamental education levels of adults.

1979

The sculptor Hermann Stehr creates the mold which is later used for the IPN logo.

1976



The teaching materials developed and empirically tested by the IPN are presented to teachers at training seminars.



Since January 1st, 1980 the IPN has been an institution of the state of Schleswig-Holstein. On May 30th, 1980 the newly established Advisory Council with its chairman Dr. Hans Dohm, Director of the National Institute Schleswig-Holstein for Practices and Theory of School meets for the first time. He welcomed the members with the words:

“ ... The Advisory Council should seek to optimally counsel the IPN. The highest priority of the expert council should be to improve teaching in the classroom.”



1980

1981

INTEREST RESEARCH

70 experts from 30 countries from all continents attend the 12th International IPN Symposium in Kiel, held in cooperation with UNESCO. The meeting focuses on the declining interest of young people in science subjects throughout their school career as well as a push for two large-scale studies in physics and chemistry. Teaching units that take account of interests are developed and the use of computers in education is promoted.



The IPN participates in the UNESCO conference on the topic of "Out of School Education" in Minsk, Belarus.

1984

1985

During the first International Conference on Interest Research the IPN directs the focal point to the interest of pupils in natural sciences and technology.

1983

In March the first edition of the "IPN Blätter" (IPN News) appears presenting the research, development work, projects and results from natural sciences. Initially they are scheduled quarterly and free of cost for three years. What was originally planned for three years has meanwhile become 32 years.



IPN Blätter 2014

1982



The IPN coordinates the 13th International Chemistry Olympiad and the Physics Olympiad which take place in Kiel and Malente. The logo depicting the flow pattern for the Magnus effect was developed for this occasion.



1986

1987

1988

1989



Prof. Dr. Heinrich Stork
*1931 †1997

Prof. Dr. Karl Frey goes to the Swiss Federal Institute of Technology in Zurich. His successor and Director of the Institute is **Prof. Dr. Heinrich Stork** who until then had been the Department Head of Chemistry Education.



Prof. Dr. Jürgen Baumert

Prof. Dr. Jürgen Baumert is the Executive Director of the IPN for the next four years. Under his direction educational research on learning/teaching becomes the focal point of the IPN and third party funding increases substantially. Especially the breakthrough at the DFG brings with it nine applications which are approved in 1994.



1992

1993

1994

Professor Dr. Karl Hecht dies at the age of 91 in Göttingen-Geismar.

The IPN stands out in the four year BIK model trial "Equal Opportunity – Changes in Elementary Instruction, Especially Taking the Interests and Abilities of Girls into Account" which starts in 1991. The trial shows that learning content is better presented in a context which bridges the curriculum to everyday experiences and interests.

1990

1991



BundesUmweltWettbewerb
Vom Wissen zum nachhaltigen Handeln

The IPN coordinates the newly established National Environmental Competition in Germany – a competition in which students deal with current environmental problems.

The IPN and 19 other institutes from 17 countries establish the European Initiative for Biotechnology Education (EIBE). A novel approach to teaching in schools. Teacher training is to promote the understanding of biotechnologies and further the European debate.



For the first time the IPN coordinates the German participation in an initial international study – TIMSS (Third International Mathematics and Science Study). Mathematics and science education and their determinants are compared on an international level.

1995



Prof. Dr. Horst Bayerhuber

After Professor Dr. Jürgen Baumert moves to the Max Planck Institute for Human Development, **Professor Dr. Horst Bayerhuber** assumes the management of the IPN.

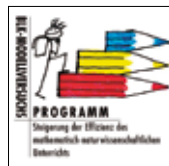
1996



The IPN publishes the periodical “Zeitschrift für Didaktik der Naturwissenschaften”. The ZfDN quickly becomes one of the most important publications for science education in Germany.

DIE LEIBNIZ-GEMEINSCHAFT

Gottfried Wilhelm Leibniz (* 1646 † 1716) the patron of the Leibniz Association was a German philosopher, scientist, mathematician, diplomat, physicist, historian and librarian in one. His spectrum of knowledge connects the 84 scientifically, legally and economically independent research institutes and service facilities of the Gottfried Wilhelm Leibniz Association.



The IPN breaks new ground with the execution and coordination of the nationwide BLK pilot program SINUS. Measures to improve the quality of mathematics and science education are developed and tested in a transnational network. This procedure for quality development in schools distinguishes SINUS from previous pilot projects in the field of education.

The "Blue List" was the origin of the Leibniz Association. The IPN is one of 14 institutes in Section A Humanities and Educational Research.

1997

1998



The International Biology Olympiad takes place on German soil for the first time since 1995. 132 students are in Kiel from July 19th – 26th.



PISA

PISA is the OECD Study "Programme for International Student Assessment". Since 2000, every three years abilities of 15 year olds' are tested worldwide in reading, mathematics and science. In 2000 the IPN conducted the national surveys in science. A total of 32 countries including 28 OECD countries participated in PISA 2000. The IPN establishes and coordinates the DFG Priority Program "Education Quality in Schools" (BIQUA). A total of 32 individual projects aim to improve the quality of mathematics and science education.



The research dialogue: System Earth begins under the administration of the IPN.

2000

1999



The DFG priority program Educational Quality of School (BIQUA) begins under the guidance of the IPN. A total of 32 individual projects endeavor to improve the quality of mathematics and science education.



Prof. Dr. Manfred Prenzel

The IPN heads the five year BLK model trial program 21 – Education for sustainable development.

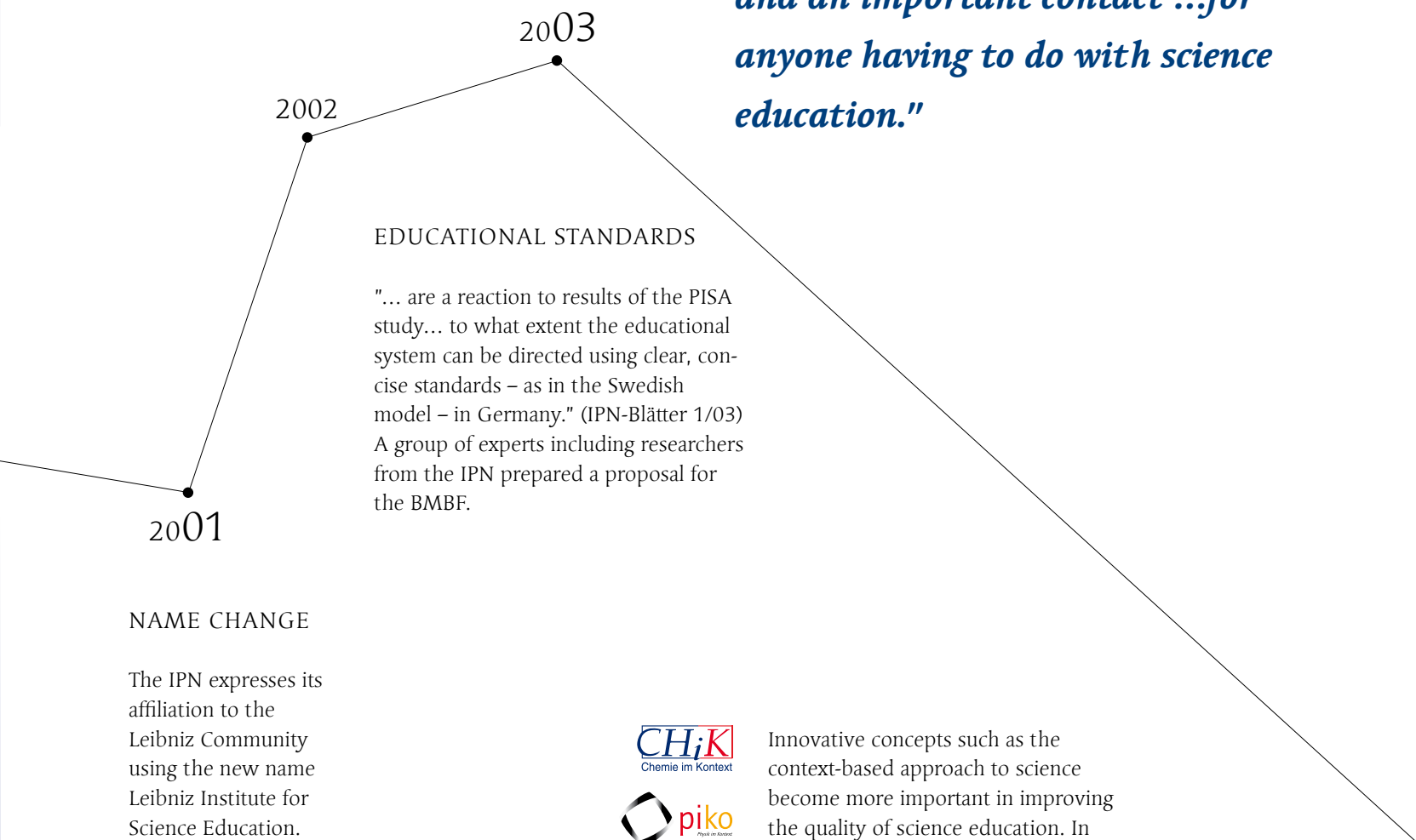
Prof. Dr. Manfred Prenzel becomes Executive Director of the IPN. He further develops work structures. The following aspects of research are strengthened under his direction: problem orientation, interdisciplinarity, long-term research programs, creation of networks and internationality.

EVALUATION PASSED

Every seven years all institutes belonging to the Leibniz Community, including the IPN, must undergo an independent evaluation. The evaluation panel concludes

“...the IPN is successful

and an important contact ...for anyone having to do with science education.”



EDUCATIONAL STANDARDS

“... are a reaction to results of the PISA study... to what extent the educational system can be directed using clear, concise standards – as in the Swedish model – in Germany.” (IPN-Blätter 1/03)
A group of experts including researchers from the IPN prepared a proposal for the BMBF.

NAME CHANGE

The IPN expresses its affiliation to the Leibniz Community using the new name Leibniz Institute for Science Education. The abbreviation remains unchanged.



Innovative concepts such as the context-based approach to science become more important in improving the quality of science education. In 2002 the IPN starts the first context project in chemistry. Physics and biology in context are added in 2003 and 2005.



The IPN assumes management of the second PISA data collection. Researchers from Kiel and partner institutes conduct the study in Germany. In Germany a total of approximately 45 000 students are tested for PISA 2003. This survey not only allows comparisons within participating countries internationally, but also comparing results from states in Germany and comparing them on an international basis.



A center for counseling and quality development of school laboratories, called LeLa (Learning place Laboratory) is created at the IPN.

Students, teachers and researchers work together to obtain a greater understanding of the "System Earth". The IPN takes on the coordination of the world-wide network Globe.



The International Junior Science Olympiad (IJSO) starts. The IPN is head coordinator.

2004

2005

2006



The IPN is awarded the certification 'berufundfamilie®' for its family-friendly policies. The certification is granted for three years.

Schleswig-Holstein and the Federal Government sponsor an expert commission consisting of state and federal representatives as well as experts. These recommend expanding the IPN to include a Department of Mathematics Education.



240 students from 61 countries take part in the 36th International Chemistry Olympiad in Kiel. This is the first time it takes place on German soil.



2007

On May 15, 2007, as part of *berufundfamilie*[®] a parent and child office is introduced. Parents can work in an office with their child when unexpected situations arise regarding childcare.



The IPN organizes the 5th European Science Olympiad (EUSO) in Potsdam.

The IPN changes its legal structure. From now on it is an independent foundation governed by public law. The expert council which accompanied the IPN's research is dissolved and replaced with a scientific advisory board which from now on evaluates and councils the IPN. The Board of Directors is now a Board of Trustees.



Board of Trustees 2015.

NEPS – NATIONAL EDUCATIONAL PANEL STUDY



A solid education is important for everyone, personally and professionally. The cornerstone is laid early, first at home and in kindergarten and later at school and at work. Due to the importance of education, the Federal Ministry of Education and Research launched the National Education Panel (NEPS) in 2008. This long-term study examines educational development from childhood to adulthood. Specifically abilities in reading and listening, in mathematics and science are studied and conditions examined under which children and adults learn. The National Educational Panel resides at the Leibniz Institute for Education Trajectories in Bamberg. The IPN is instrumental in the fields of mathematics, science and computer literacy.



Since 2008 the annual SH-Summer University takes place in Sankelmark. About 50 teachers get together towards the end of the summer break to enroll in workshops and listen to lectures regarding current educational research. This dialogue between school practice and research is jointly organized by the IPN, Kiel University (CAU), the Ministry of School and Professional Education (MSB) and the Institute for Educational Quality Improvement in Schleswig-Holstein (IQSH).

2008

In May 2008, the IPN gets its fifth new department: **Mathematics Education**. This department executes national projects and tasks in the area of mathematics education.



The 71st Conference for Empirical Educational Research (AEPF) under the motto "Ability: Modeling, Diagnostics, Development, and Support" takes place in Kiel and is hosted by the IPN.



In September the IPN hosts the first International PISA Research Conference in Kiel. Participants include over 250 researchers and representatives of educational policy from more than 40 countries.



The IPN is once again awarded the 'berufundfamilie®' certificate. This acknowledges that the institute is a family-friendly.



In collaboration with the Hamburg Schulversuchsprogramm "alles>>könnern" the

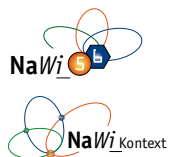
research program komdif starts August 2008. It is their goal to create a scientific basis for the development and implementation of ability-based individualized instruction for elementary and secondary school.



End of September the IPN organizes the international conference of the 'Fachsektion Didaktik der Biologie' (FDdB)

(Commission for Biology Education) in the VBIO (FDdB- Organization for Biology and Biomedical Sciences). Over five days, lectures, symposia and poster sessions take place regarding "Measuring heterogeneity – individual support in biology instruction".

2009



The context projects continue in Schleswig-Holstein and in NaWi 5/6.

EVALUATION 2010

Again the IPN receives a positive evaluation.



Prof. Dr. Manfred Euler
Managing Director
May to November 2009



Prof. Dr. Olaf Köller
Managing Director
since December 2009

When Prof. Manfred Prenzel is appointed Founding Dean of the School of Education at the Technical University of Munich (TUM), **Prof. Manfred Euler** temporarily takes on the role of Managing Director. In December, **Prof. Olaf Köller** becomes the new Managing Director of the IPN.



The ZIB (Center for International Student Assessment) is established. Three institutes make up this research organization: the Technical University of Munich (TUM), the German Institute for International Educational Research in

Frankfurt (DIPF), and the IPN. A core task of the ZIB consists of processing central methodological problems resulting from large scale assessments. The IPN sets up an endowed professorship for this task.

2010

The IPN hosts the 12th Spring School in Biology Education in the Associations Biology, Biosciences and Biomedicine.

Two IPN projects receive the Polytechnik Prize. 'Mathe macht stark' (Mathematics makes students strong) is awarded the second prize, 'Chemie im Kontext' (Chemistry in context) the first.



The KiL project (Measuring the professional knowledge of preservice mathematics and science teachers) begins. This study focuses on how to survey student teachers' subject and pedagogical knowledge.

2011

FURTHER NAME CHANGE

The institute's name is now "Leibniz Institute for Science and Mathematics Education at Kiel University". The abbreviation IPN stays the same.

On September 19th – 20th, 2011 the IPN invites postgraduate students from all the Leibniz institutes of Section A to Kiel for the first Leibniz Post-graduate Forum. The event is met with such a positive response that the Section decides to organize a biennial Leibniz Post-graduate Forum.



The IPN's corporate design is revised and the IPN logo modernized.



The Research Express travels through Schleswig-Holstein. The Bayer Science & Education Foundation selects and promotes the IPN and NaWiKiel project as a flagship project.

2012

The IPN and Mathematics and Science Association of Kiel University sponsor the Kiel Research Workshop student laboratory which opens in October.

MaKobE The MaKobE project (Mathematical-scientific abilities in initial vocational training) commences. In the coming three years the IPN will survey about 3000 young people commencing from school to vocational training and will accompany them over the course of their vocational training.



MaP Improving education, training and teaching skills of Mathematics teachers through a German-Danish Exchange. Start of the EU subsidized binational project MaP (Mathematics with perspectives / Matem)



The nationwide program of increasing the efficiency of mathematics and science (SINUS) lessons ends after fifteen years. Nationwide SINUS at primary schools, the last project from the "SINUS family", includes more than 800 primary schools with around 5000 teachers from 10 federal states.



By organizing the 37th Conference for the International Group for the Psychology of Mathematics Education (PME) the IPN hosts the largest annual international Conference on Mathematics Didactics. Over 600 scientists from almost 50 countries meet in Kiel from July 28 to August 02, 2013.



In cooperation with the University of Linköping, Sweden, the project "Challenging threshold Concepts in Life Science - Enhancing" which is funded by the Swedish Research Council Understanding of Evolution by Visualization is launched.



The IPN sets up an internal postgraduate school to further promote junior researchers.

GEBF Gesellschaft für Empirische Bildungsforschung The Society for Empirical Educational Research is established in Frankfurt am Main on February 9th, 2012 with the IPN as co-founder. From March 11th – 13th, 2013, the IPN hosts the 1st session of the Society for Empirical Educational Research. About 600 scientists accept the invitation to Kiel.



2013



Again the IPN is awarded the certificate audit berufundfamilie®. On August 15, 2013, the IPN opens a day care for children under three years of age, the "IPN Sprotten".





The IPN and Kieler Gelehrtenschule establish a series of lectures for the public used to present current results from research dealing with questions about school environment. Renowned experts from all over Germany come to Kiel to give presentations.



The Palea Study will be continued. The Federal Ministry of Education and Research decides to finance the costs of the longitudinal study used to trace students' progress in lectureship for another three years.

To promote young scientists, the IPN sets up two independent research groups, one of them explicitly for a promoted scientist. The research group: Teachers' professional competence as well as the research group: Teaching and Learning at the Junction of Physics and Mathematics take up the work.



The IPN gets a new dual leadership organizational structure: Administrative Manager Bent Hinrichsen (left) is appointed Managing Administrative Director.



Another project for the acquisition of professions knowledge in teacher training begins with KeiLa: The development of professional competence in pre-service mathematics and science teacher education. It examines the importance of institutional factors such as learning opportunities for the acquisition of professional knowledge during the course of studies, and the individual characteristics of student teachers relevant to the development of professional knowledge.

The IPN has been involved in three Leibniz research consortia: the Leibniz Research Alliance Education Research Network, the Leibniz Research Group Science 2.0 and the Leibniz Research Alliance Energy Transition.



Two more EU projects begin: Assist-me and Irresistible.



Development of Learning in Science – a large-scale cooperation project with the University of Umeå, Sweden begins.

The Humboldt University Berlin and the IPN establish a Leibniz-Humboldt Professorship of Instructional Research.



The NSF Core Grant Exploring Potential Learning Trajectories for the Energy Concept in Middle School is approved. The project is conducted in cooperation with Michigan State University, USA, and the Weizmann Institute, Israel.



The IPN organizes the 31st training and lecture meeting of the Chemistry Teaching Group in the GDCh in September 2014. The theme “Open Horizons – Chemical Perspectives for Research, Education and Society” attracts more participants than ever before.

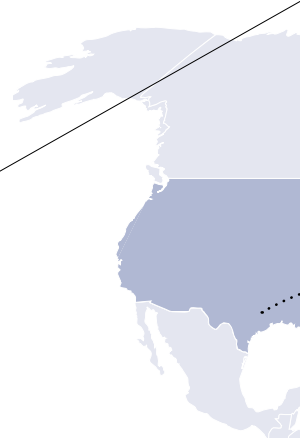
2014



The IPN directs the DFG-Nachwuchsakademie zur fachbezogenen Unterrichtsforschung. The success is enormous: All 17 participants submitted a DFG application, eight of which were approved.



The IPN, and Kiel University set up the Center for Empirical Educational Research in the Humanities (zebig).



The IPN work unit **Educational Measurement** is established as an independent department of the IPN. Thus, the IPN is divided into a total of six departments.

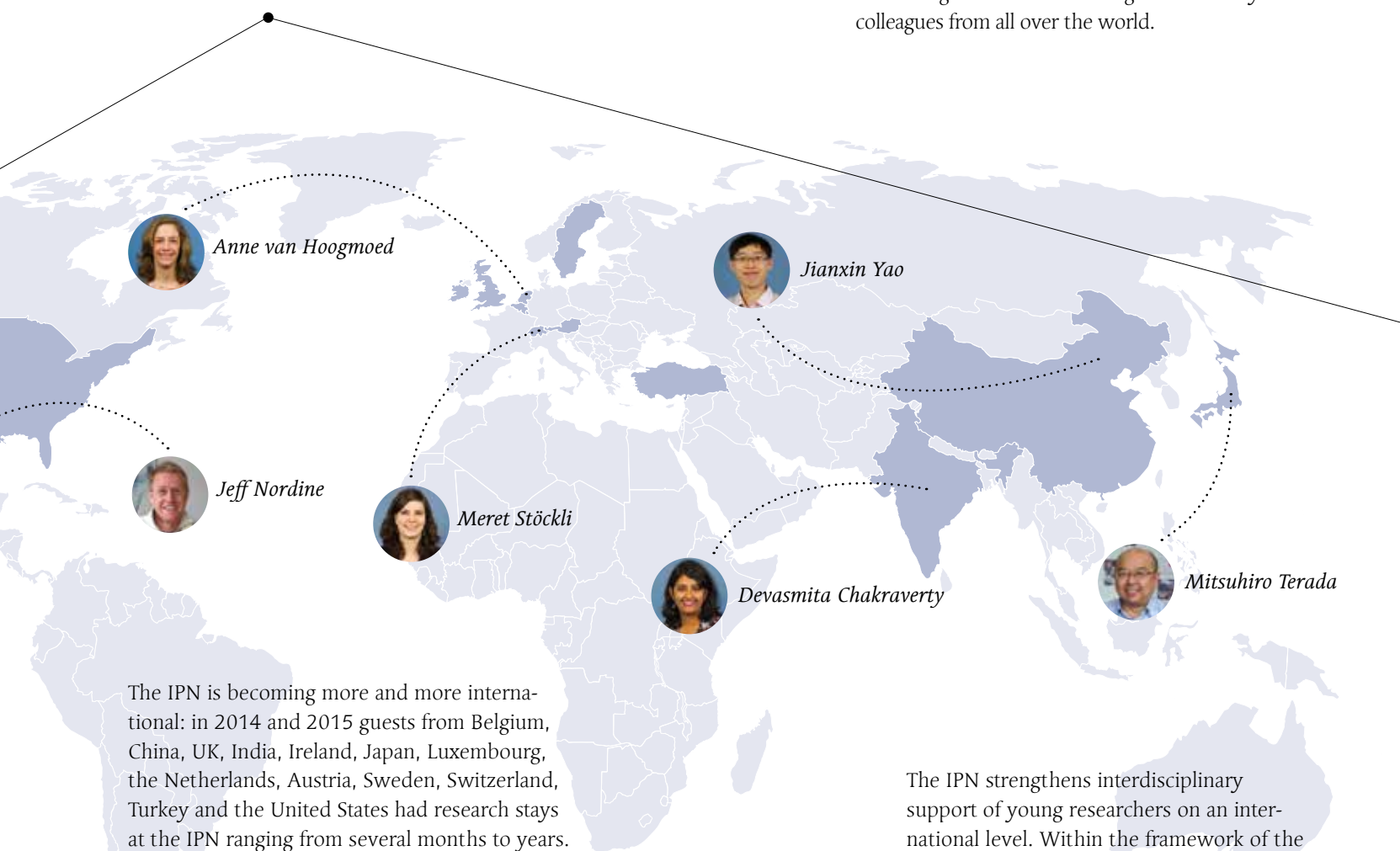
In order to promote women in research, the IPN sets up another independent junior research group for a post-doctoral researcher. The research group's title: Personality Development in Educational Contexts.



The Centre for International Student Assessment ZIB, which is supported by the Technical University of Munich, the German Institute for International Pedagogical Research (DIPf) and the IPN, receives a positive evaluation.

SELF The IPN and Kiel University organize the eighth Self Biennial International Conference "Self – Driving Positive Psychology and Well-Being" in Kiel. The meeting is attended by colleagues from all over the world.

2015



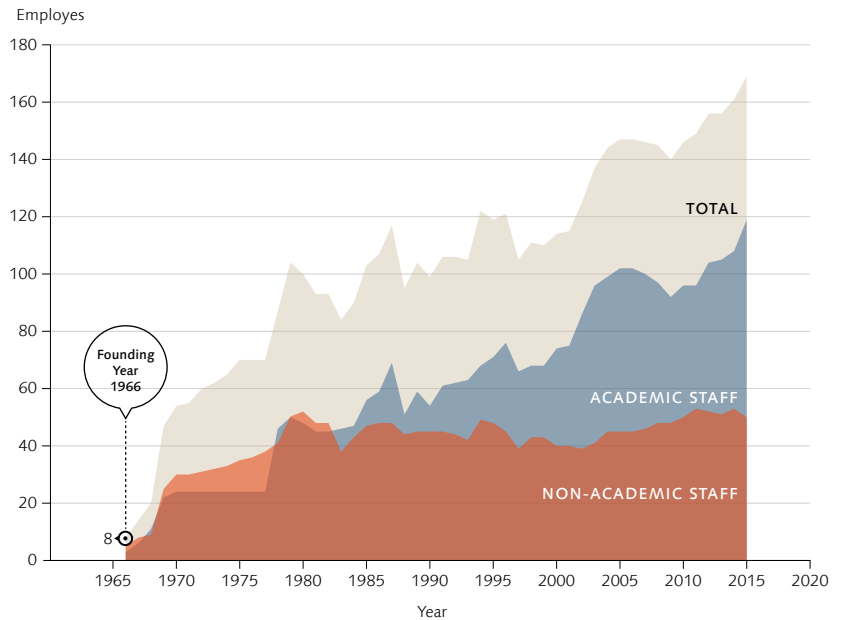
The IPN is becoming more and more international: in 2014 and 2015 guests from Belgium, China, UK, India, Ireland, Japan, Luxembourg, the Netherlands, Austria, Sweden, Switzerland, Turkey and the United States had research stays at the IPN ranging from several months to years.

For the first time a cooperation project is launched jointly funded by the DFG and the Swiss counterpart, the SNSF: Structure of early childhood educators' domain-specific professional competencies and their effects on the quality of mathematical instructional situations in kindergarten and on children's increase in mathematical competencies.

The IPN strengthens interdisciplinary support of young researchers on an international level. Within the framework of the IPN's cooperation with the Freudenthal Institute of the Utrecht University (NL), both institutes share a joint doctoral student for the first time.

The IPN is growing and growing – in the 1980s the IPN counted more than 100 employees. Today, twice as many academic and non-academic staff are employed at the IPN.

PERSONAL DEVELOPMENT 1966–2015



2016

2016 The IPN celebrates its 50th anniversary.

Almost 6,000 publications were published in 50 years. From 1973 to the turn of the millennium, a series of in-house productions such as the "Blaue Reihe", "IPN-Arbeitsberichte", the "IPN-Schriftenreihe" "Information Documentation Co-

operation Series", the "Yellow Series" and the "IPN Materials". But internationally recognized journals such as the "European Journal of Science Education" have their origin at the IPN. It was first published by Prof. Dr. Karl Frey in 1978.

HUMAN RESOURCES DEVELOPMENT 1966 – 2015

