



## Annual Report 2017



July 2018

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## **SUMMARY**

LEARN! is a multidisciplinary institute that comprises both pedagogical, neuropsychological as well as applied educational studies. Its mission is to improve insight and knowledge concerning education in the broadest sense of the word, comprising formal and informal education, as well as upbringing. LEARN! focuses on the development of children, students and adults in the context of home, school and leisure activities. Research programmes focus on innovative teaching environments, learning and teaching strategies and on biological, psychosocial and cultural factors that promote talent development in a lifetime perspective. Many research projects are carried out in direct collaboration with societal partners (e.g. schools, universities of applied sciences, educational industry and others).

### **Important highlights in the development and organisation of the institute in 2017**

1. Setup of LEARN! postdocship
2. Start of a large collaboration of ACLA and city of Amsterdam
3. Joining of LEARN! by the group of Pol van Lier
4. Approval of a data policy governing LEARN! research

## DEVELOPMENTS IN 2017

In 2016, LEARN! went through its periodical outside evaluation. A committee of international experts and national representatives of the field deemed LEARN! research of very high quality, of very high societal relevance, and highly viable. It also gave some policy suggestions to the board of LEARN!, notably to pursue, and. In 2017, the management and board of LEARN! followed through on these suggestions.

A first main suggestion was to pursue a policy of increasing the size of LEARN! In 2017, LEARN! was joined by a new group, that of Pol van Lier. His research into social dynamics in school classes strengthens LEARN!'s research into social development. Moreover, a large European grant acquired by LEARN! researchers together with the city of Amsterdam allowed us to hire several new researchers working on learning analytics.

The second main suggestion was to foster more collaboration between the research programs. For this purpose we created a new tool, the LEARN! postdocship. This one-year postdocship is intended to give recently graduated PhD students the opportunity to write a grant proposal, while continuing their research. As an incentive, the postdocship is awarded on the basis of some qualitative criteria, of which the most important is that researchers from different LEARN! groups work together in the postdocship, thus fostering links between these programs.

The societal advisory board of LEARN! met once in 2017. The input of its members has been valuable for PI's and has confirmed that LEARN! succeeds in its mission to have not only academic, but also societal merit.

LEARN! also updated its policies with regard to data management and ethics in 2017. With regard to data management, this led to a LEARN! data management policy consisting of guidelines for privacy, data storage during research, and data archiving that changed LEARN! from a laggard within Vrije Universiteit to a frontrunner in data policies.

LEARN! remains a relatively small institute with a lean management structure. However, it is a healthy organisation of researchers with many qualities, and as an institute it is inspiring new opportunities for collaboration with other groups at Vrije Universiteit Amsterdam.

# 1. STRUCTURE RESEARCH INSTITUTE

## 1.1. Participating faculties

In 2017 the following faculties participated in LEARN!:

- Faculty of Behavioural and Movement Sciences
- VUMC Institute for Teaching and Education
- Faculty of Social Sciences
- Faculty of Theology

## 1.2. Research Themes

### *Learners, their Needs and Interests*

- The learning child and adolescent
- Personalizing education to the learner
- Brain mechanisms supporting learning
- Motivation and study success
- Reading and maths
- Executive functions, mindsets and metacognitive strategies

### *Families, Education and Society*

- Upbringing and schooling
- Flourishing, ideals and identity
- Meaningful education and citizenship education
- Parent-school collaboration

### *Teachers, Teaching and the Professional World of Teachers*

- The role of teachers in knowledge acquisition and development
- Differentiated teaching
- The learning teacher and teacher education

## 1.3. Research programmes

### • *Educational Neuroscience (Edu N)*

Educational Neuroscience combines the research programs Brain & Learning and Social Cognition as they existed up to 2015. The programme's mission is to increase understanding of individual development in an educational context, giving priority to so-called bridging studies at the intersection between neuroscience and educational science. Five research lines can be distinguished.

#### *Individual differences in social cognition*

The aims of this research line are 1) to study individual differences in social cognitive skills such as empathy and theory of mind, and their association with social network dynamics; 2) to study the influence of cultural orientations (e.g. individualism, collectivism and honour) on social cognitive skills.

#### *Implicit beliefs*

This research line studies the determinants, neural correlates and consequences of implicit beliefs about abilities in adolescents. The focus is on the distinction between entity beliefs

(abilities are fixed and innate) versus incremental beliefs (abilities can be improved through effort).

#### *Reading*

The focus of this research line is on the role of higher-order cognitive processes in (1) language and reading comprehension and (2) word problem solving. The research involves both fundamental and applied studies, ranging over topics from situation models to mental imagery to embodied cognition to abstract reasoning. The overarching theme underlying these diverse lines of research is the construction of a deep-level, meaning-based mental representation of the content that is studied. Some work within the research line focuses on the development of children's mathematical skills.

#### *Executive functions*

The research being carried out under the theme of Executive functions focuses on the development of “goal-directed behaviour” in young people in secondary education, and how this corresponds to academic performance. Some perform well while others make no progress whatsoever, and even appear to be at risk of dropping out. What causes this difference?

#### *Clinical child and family studies*

Child and adult development is embedded in social relations. The ‘Challenges to childrearing relationships’ research group studies the ways in which the quality of family relationships and care relationships interacts with cognitive, biological and behavioural development processes, and how this interaction can be improved by external help and support. The research is also partly embedded in the Institute for Health and Care Research (EMGO+), which is part of VU University Amsterdam and VU University Medical Centre Amsterdam.

- ***Meaningful Education in a Diverse Society (MEDS)***

The central theme of the research programme is the search for educational practices that best facilitate the development of children into adults who are able to lead a good life in a society that is culturally and religiously diverse. It combines two types of research: empirically informed theoretical research and theory driven and theory building empirical research. The programme is centred on two related themes:

#### *Flourishing, ideals and identity*

The focus of the first theme is on aspirations of parents and teachers with regard to personal formation of children. The main topics of research are: a) well-being (flourishing and happiness), b) education for a meaningful life, c) cultural and religious diversity. Furthermore, we investigate the desirability of religious arrangements of schools in relation to children's identity development.

#### *Meaningful education and citizenship*

Research within the second theme investigates the way in which educators and educational practices can best prepare children and youngsters to become citizens of a diverse society who critically contribute to the welfare of society. It addresses among others the problem of development of cultural agency, which aims at the formation of well-informed, critical and responsible citizens. It has particular interest in researching the appropriation of knowledge and abilities of high quality in a play-based and inquiry-based curriculum in Developmental Education schools.

‘Meaningful education’ is a shared research topic for both themes (and related researchers), which creates opportunities for collaboration, mutual exchange of ideas and projects that are productive for the elaboration of both themes.

- ***Personalized learning, differentiated teaching (PLDT)***

PLDT investigates the possibilities of personalization, and how it can improve education. The program distinguishes between two steps, which each generate their own set of research questions:

- **Diagnosis:** how can a teacher structure education so that he/she gets an accurate diagnosis of the learning process of the learner? What role can formative assessment play, concept checks, feedback discussions, and ICT? How can the learner and the teacher discover the learner has understood a text? For larger groups, can learning analytics be used to make learning visible, and how can this information be presented in a useful way for both the teacher and the learner?
- **Action:** how can a teacher, according to the diagnosis, personalize the education for the learner? What kind of strategies and (digital) tools does the teacher have? How can these strategies be taught to the teacher? What are the obstacles? Can education be changed in a way that it will be offering the appropriate learning content and practice? How can didactics be adapted accordingly? Is personalization already happening quite naturally by the actions of learners or peers? And, finally, the essential step: will such actions lead to greater and longer lasting learning results, and/or stronger motivation of the learner?

These questions are tackled at the following three levels of education:

- general secondary education (in the Netherlands: havo and vwo).
- higher education (university and college)
- education for teachers (teacher training courses and seminars for teachers)

Next to the research inspired by the above questions, the group also performs research into specialized didactics for school subjects. This research is largely determined by questions from educational practice (e.g., target language use in the field of modern foreign language teaching).

- ***Socially accountable undergraduate medical education (SAUME)***

This School of Medical Sciences programme comprises four domains of research: Faculty development, Pharmacotherapy education, Socially accountable undergraduate medical education and Continuing Professional Development. The research programme led by Dr. Rashmi Kusrkar and Prof. Gerda Croiset under the theme Socially Accountable Undergraduate Medical Education focuses on research geared towards finding out how to develop students for life. “Students for life” are students who constantly interact with their environment, integrate learning and practice, and are ready to invest in continuing professional development. This vision has been recently made into a film which is accessible at:

<https://www.youtube.com/watch?v=-h7klf-IZFM>

Research addresses the following topics:

*Motivation, learning and academic performance*

Is academic performance (cognitive and clinical performance, professional behaviour and dropout behaviour) of medical students associated with academic motivation, learning strategies, engagement, burnout, empathy, professional identity and personality characteristics? What are the mechanisms? Are there differences in these mechanisms between ethnic minority and Dutch students?

*Effects of Selection:*

What are the effects of student selection for medical school on the medical student population in terms of their motivation, engagement and academic performance? Motivation of ethnic minority students:

What are the factors in the informal and hidden curricula that influence the motivation of the ethnic minority students negatively?



#### *Inter-professional Education:*

How do students from medical and nursing education learn with, from and about each other?

#### *Professional behaviour:*

What are the underlying problems for unprofessional behaviour in medical students, and what are possible remediation measures for students that have been graded “unsatisfactory” due to their professional behaviour?

#### *Faculty Development:*

How does the professional identity of teachers develop? What are the tools of agency for this process?

How do teachers differ on their concepts of learning and teaching? Can we identify different groups among teachers working in a student-centered versus a traditional curriculum on the basis of their concepts of teaching and learning?

#### *Academic motivation of ethnic minority students*

Which factors influence the academic motivation of ethnic minority students? What are the mechanisms? How motivation does influence their academic performance?

#### *Continuing Professional Development*

Which factors influence a medical specialist’s motivation for lifelong learning? What are the mechanisms?

The section Pharmacotherapy at VUmc School of Medical Sciences conducts scientific research in pharmacotherapy education through the Research & Expertise Center In Pharmacotherapy Education (RECIPE). The objectives of RECIPE are: 1. The development of effective and attractive education for undergraduate and postgraduate students and teachers, based on knowledge of the process of therapeutic thinking and acting, as well as on recent insights in the field of education (evidence-based education) and 2. Conducting research concerning the process of therapeutic thinking and acting of physicians and under- and postgraduate students, particularly the treatment and drug selection process, both theoretically (declarative research), as well as in relation to schooling and training (impact research), selection process, both theoretically (declarative research), as well as in relation to schooling and training (impact research).

## **1.4. Organisation**

#### *Board*

In 2017 the governing board of LEARN! consisted of prof. dr. P. Beek (chair), prof. dr. C. Schuengel and Margreeth van der Meijde MBA.

#### *Executive Management*

In 2017 prof dr. M. Meeter was director of LEARN!, with support from Aisha Wiersma and Stefan de Graaf.

#### *Programme committee*

The Programme Committee consisted of the coordinators of the five research lines:

- prof L. Krabbendam / dr. M. Huizinga – Educational Neuroscience;
- prof D. de Ruyter – Meaningful Education in a Diverse Society;
- prof. M. Meeter – Personalized Learning & Differentiated Teaching;
- prof. G. Croiset / dr. Rashmi Kusrkar – Socially accountable medical education.

#### *Advisory board*

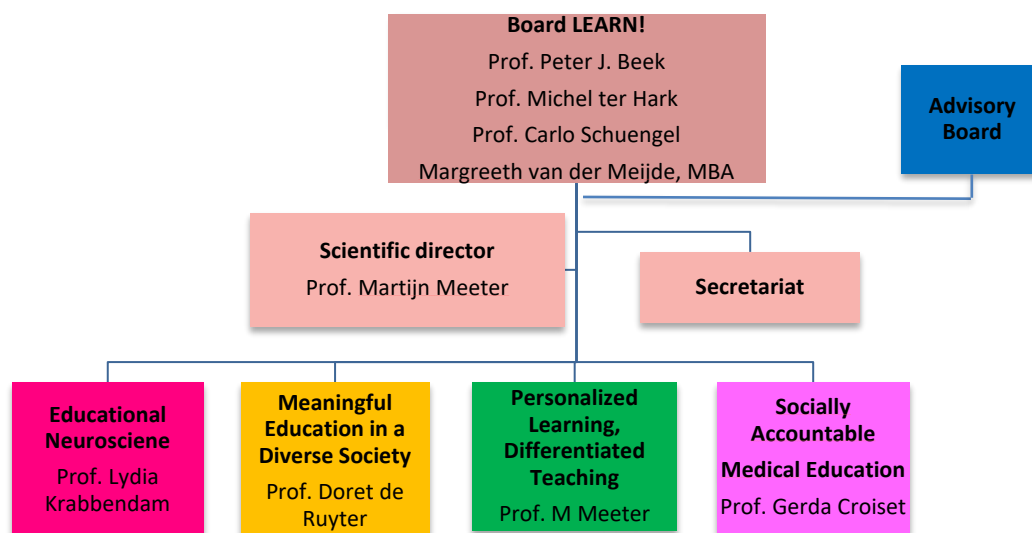


In order to keep a close eye on educational developments and the needs of educators, LEARN! set up an advisory board with representatives of various educational streams.

The advisory board consists of the following members:

- Maarten Faas, president board of directors orthopedagogical centre 'De Ambelt', Zwolle (primary, secondary and vocational education)
- Ivo van Hilvoorde, professor 'Exercise, School and Sport' Windesheim, Zwolle and sports philosopher VU University, Amsterdam (higher education)
- Rien Spies, director Agora group of primary schools, Noord Holland (primary education)
- Joost van Rijn, director O.R.S. Lek en Linge, Culemborg (secondary education)
- Dolf van Veen, professor urban education and youth policy Inholland, Haarlem (higher education)
- Roel de Vries, director Julianaschool, Schagen (primary education).

## 1.5 Organization Chart



## 2. COMPOSITION

### 2.1. Research Staff

The total number of scientific personnel in 2017 was 63 amounting to 19.49 full time research fte committed to LEARN! The Faculty of Behavioural and Movement Sciences is the largest contributor followed by VU University Medical Centre. The breakdown per job category is provided in table 1, for LEARN! as a whole as per research programme. To provide some context, data from the previous year have been added.

Table 1: (SEP D3a) Research staff for the institute and per programme

LEARN!	2016	2017
Scientific staff (1)	31 / 9.29 fte	35 / 10.13 fte
Post-docs (2)	9 / 3.93 fte	7 / 3.62 fte
PhD-students (3)	16 / 7.93 fte	18 / 5.74 fte
<b>Total research staff</b>	<b>57 / 21.36 fte</b>	<b>63 / 19.49 fte</b>

Edu N	2016	2017
Scientific staff (1)	10 / 2.69 fte	7 / 4.08 fte
Post-docs (2)	7 / 3.38 fte	4 / 1.67 fte
PhD-students (3)	8 / 4.05 fte	3 / 1.31 fte
<b>Total research staff</b>	<b>25 / 10.14 fte</b>	<b>14 / 7.06 fte</b>

MEDS	2016	2017
Scientific staff (1)	9 / 2.74 fte	4 / 1.45 fte
Post-docs (2)	1 / 0.20 fte	2 / 0.95 fte
PhD-students (3)	2 / 0.96 fte	1 / 0.48 fte

**Total research staff** **12 / 3.89 fte** **7 / 2.88 fte**

<b>PLDT</b>	<b>2016</b>	<b>2017</b>
Scientific staff (1)	9 / 2.86 fte	11 / 3.40 fte
Post-docs (2)	1 / 0.2 fte	0 fte
PhD-students (3)	0 / 0 fte	5 / 1.25 fte
<b>Total research staff</b>	<b>11 / 3.06 fte</b>	<b>16 / 4.65 fte</b>

<b>SAUME</b>	<b>2016</b>	<b>2017</b>
Scientific staff (1)	2 / 1 fte	4 / 1.2 fte
Post-docs (2)	1 / 0.35 fte	1 / 1 fte
PhD-students (3)	6 / 2.92 fte	9 / 2.7 fte
<b>Total research staff</b>	<b>9 / 4.27 fte</b>	<b>14 / 4.9 fte</b>

Note 1: Comparable with WOPI-categories HGL, UHD en UD; tenured and non-tenured staff

Note 2: Comparable with WOPI-category Onderzoeker

Note 3: Standard PhD (employed) and Contract PhD's (externally or internally funded but not employed)

Edu N: Educational Neuroscience

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See appendix A for a complete list of all research staff that participated in LEARN!

## 2.2. Financial input

Table 2 provides an overview of the various sources for financing the research staff in LEARN!. A total of 49 % of the researchers' salaries comes from direct University funding ('1e geldstroom'). 41% comes from research grants obtained in scientific competition from public funding agencies like NWO, ZonMw and the ERC ('2e geldstroom'). The remaining 11% is funded via contract research contracts (15,6%; '3e geldstroom').

<b>LEARN!</b>	<b>2016</b>	<b>2017</b>
Direct funding (1)	13.09 fte / 56.2%	12.59 fte / 64,6%
Research grants (2)	7.60 fte / 32.6%	2.4 fte / 12.3%
Contract research (3)	2.6 fte / 11.1%	3.98 fte / 20.4%
Other (4)	-	0.52 fte / 2.7%
<b>Total funding</b>	<b>23.29 fte</b>	<b>19.49 fte</b>

<b>Edu N</b>	<b>2016</b>	<b>2017</b>
Direct funding (1)	2.85 fte / 26.4 %	2.92 fte / 41.4%
Research grants (2)	7.31 fte / 68.1 %	1.99 fte / 28.2%
Contract research (3)	0.59 fte / 5.5 %	1.63 fte / 23.1%
Other (4)	-	0.52 fte / 7.4%
<b>Total funding</b>	<b>10.75 fte</b>	<b>7.06 fte</b>

<b>MEDS</b>	<b>2016</b>	<b>2017</b>
Direct funding (1)	4.09 fte / 77.9 %	1.89 fte / 65.6%
Research grants (2)	0.27 fte / 5.1 %	0.24 fte / 8.3%
Contract research (3)	0.9 fte / 17.1 %	0.75 fte / 26%
Other (4)	-	-
<b>Total funding</b>	<b>5.25 fte</b>	<b>2.88 fte</b>

<b>PLDT</b>	<b>2016</b>	<b>2017</b>
Direct funding (1)	2.16 fte / 70.6 %	2.88 fte / 62%
Research grants (2)	0 fte / 0 %	0.17 fte / 3.7%
Contract research (3)	0.9 fte / 29.4 %	1.60 fte / 34.4%
Other (4)	-	-
<b>Total funding</b>	<b>3.06 fte</b>	<b>4.65 fte</b>

<b>SAUME</b>	<b>2016</b>	<b>2017</b>
Direct funding (1)	4 fte / 94.6 %	4.9 fte / 100%
Research grants (2)	0.02 fte / 0.5 %	0 fte / 0%
Contract research (3)	0.21 fte / 5.0 %	0 fte / 0%
Other (4)	-	-
<b>Total funding</b>	<b>4.23 fte</b>	<b>4.90 fte</b>

Note 1: Direct funding (basis financiering / lump sum budget)

Note 2: Research grants obtained in national and European scientific competition (e.g. grants from NWO and ERC)

Note 3: Research contracts for specific research projects obtained from external organisations, such as industry, governmental ministries, European organisations and charity organisations

Note 4: Funds that do not fit the other categories

Edu N: Education Neuroscience

MEDS: Meaningful Education in a Diverse Society

PLDT: Personalized Learning, Differentiated Teaching

SAUME: Socially Accountable Medical Education

### 3. RESEARCH QUALITY

#### 3.1 Research Output

Output of LEARN! has increased substantially in 2017. That is partly due to that “other research input” has been recorded more faithfully than in the past, as well as that PLDT output was undercounted in 2016.

<b>LEARN!</b>	2016	2017
Refereed articles	97	134
Non-refereed articles (2)	0	0
Books	3	13
Book chapters	20	37
PhD-theses	8	3
Conference papers		26
Professional publications (3)	16	25
Publications aimed at the general public (4)	17	26
Other research output		70
<b>Total</b>	<b>179</b>	<b>334</b>

<b>Educational Neuroscience</b>	2016	2017
Refereed articles	52	54
Non-refereed articles (2)	0	0
Books	0	2
Book chapters	7	5
PhD-theses	3	0
Conference papers	0	1
Professional publications (3)	0	2

Publications aimed at the general public (4)	0	0
Other research output		8
<b>Total publications</b>	<b>62</b>	<b>72</b>

<b>MEDS</b>	2016	2017
Refereed articles	22	17
Non-refereed articles (2)	0	0
Books	2	3
Book chapters	12	14
PhD-theses	1	1
Conference papers		5
Professional publications (3)	14	7
Publications aimed at the general public (4)	17	20
Other research output		13
<b>Total publications</b>	<b>68</b>	<b>80</b>

<b>PLDT</b>	2016	2017
Refereed articles	18	38
Non-refereed articles (2)	0	0
Books	0	7
Book chapters	1	18
PhD-theses	2	1
Conference papers		20
Professional publications (3)	2	14
Publications aimed at the general public (4)	0	5
Other research output		21
<b>Total publications</b>	<b>23</b>	<b>124</b>

<b>SAUME</b>	2016	2017
Refereed articles	23	25
Non-refereed articles (2)	0	0
Books	1	1
Book chapters	0	0
PhD-theses	2	1
Conference papers	0	0
Professional publications (3)	0	2
Publications aimed at the general public (4)	0	1
Other research output		28
<b>Total publications</b>	<b>26</b>	<b>58</b>

Note 2: Articles in journals that are non-refereed, yet deemed important for the field

Note 3: Publications aimed at professionals in the public and private sector (professionele publicaties), including patents and annotations (e.g. law).

Note 4: Also known as “populariserende artikelen”.

Note 5: Other types of research output (if applicable), such as patents, editorships, inaugural lectures, designs and prototypes (e.g. engineering) and media appearances.

Edu N: Education Neuroscience

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PLDT: Personalized Learning, Differentiated Teaching

SAUME: Socially Accountable Medical Education

### 3.2 Key Publications

1. Brinkman, D. J., van Rossem, A. P., Tichelaar, J., Richir, M. C., & van Agtmael, M. A. (2017). Does Medical Students Knowing More About Drugs Lead to Better Treatment Choices? *Journal of Clinical Pharmacology*, 57, 1071-1072.
2. de Koning, B. B., Bos, L. T., Wassenburg, S. I., & van der Schoot, M. (2017). Effects of a Reading Strategy Training Aimed at Improving Mental Simulation in Primary School Children. *Educational Psychology Review*, 29, 869-889.
3. Hodes, M. W., Meppelder, M., de Moor, M., Kef, S., & Schuengel, C. (2017). Alleviating Parenting Stress in Parents with Intellectual Disabilities: A Randomized Controlled Trial of a Video-feedback Intervention to Promote Positive Parenting. *Journal of Applied Research in Intellectual Disabilities*, 30, 423-432.
4. Isik, U., Wouters, A., Ter Wee, M. M., Croiset, G., & Kusurkar, R. A. (2017). Motivation and academic performance of medical students from ethnic minorities and majority: A comparative study. *BMC Medical Education*, 17, 233.
5. Schinkel, A. (2017). The educational importance of deep wonder. *Journal of Philosophy of Education*, 51, 538-553.
6. Snell, J., Meeter, M., & Grainger, J. (2017). Evidence for simultaneous syntactic processing of multiple words during reading. *PLoS One*, 12, e0173720.
7. van der Veen, C., de Mey, J. R. P. B., van Kruistum, C. J., & van Oers, B. (2017). The effect of productive classroom talk and metacommunication on young children's oral communicative competence and subject matter knowledge: An intervention study in early childhood education. *Learning and Instruction*, 48, 14-22.
8. Vander Heyden, K. M., Huizinga, M., Raijmakers, M. E. J., & Jolles, J. (2017). Children's representations of another person's spatial perspective: Different strategies for different viewpoints? *Journal of Experimental Child Psychology*, 153, 57-73.
9. Veen, M., & de la Croix, A. (2017). The swamplands of reflection: using conversation analysis to reveal the architecture of group reflection sessions. *Medical Education*, 51, 324-336.
10. Vu, T-V., Finkenauer, C., Huizinga, M., Novin, S., & Krabbendam, L. (2017). Do individualism and collectivism on three levels (country, individual, and situation) influence theory-of-mind efficiency? A cross-country study. *PLoS One*, 12, e0183011.

### 3.3 Indicators of esteem

<b>LEARN!</b>	2016	2017
Awards	14	16
Grants	9	15
Invited Lectures	57	57
Editorial positions	10	18
Organisation of conferences / workshops	7	15

<b>Edu N</b>	2016	2017
Awards	3	3
Grants	1	4
Invited Lectures	12	8
Editorial positions	3	4
Organisation of conferences / workshops	2	4

<b>MEDS</b>	2016	2017
Awards	0	0
Grants	2	4
Invited Lectures	24	25
Editorial positions	7	10

Organisation of conferences / workshops	1	3
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PLDT	2016	2017
Awards	0	3
Grants	2	6
Invited Lectures	2	12
Editorial positions	1	4
Organisation of conferences / workshops		4

SAUME	2016	2017
Awards	11	10
Grants	4	1
Invited Lectures	19	12
Editorial positions	0	0
Organisation of conferences / workshops	4	4

*Edu N: Education Neuroscience*

*MEDS: Meaningful Education in a Diverse Society*

*PLDT: Personalized Learning, Differentiated Teaching*

*SAUME: Socially Accountable Medical Education*

## 4. SOCIETAL RELEVANCE

### 4.1 Overview

Societal impact is of utmost importance to LEARN! Of its three aims, two (Integration of basic and applied research, and knowledge transfer with special attention to the formulation of relevant research questions and translation of research results into applications and everyday practice in the home, at school, and in other environments) fall squarely within the concept of societal impact.

Integration of basic and applied research is organized through:

- (a) Structural collaboration with schools for primary and secondary education, universities of applied sciences, municipalities, such as the city of Amsterdam, intermediary institutions such as Platform Betatechniek, educational publishers and industry.
- (b) External PhD students who have research & teaching positions in Universities of Applied Sciences or schools, in this way embodying the close interaction between research and educational practice.
- (c) Interaction between programme leaders and the advisory board consisting of representatives of various educational streams met twice and gave the programme leaders valuable input for their research.
- (d) development of academic workplaces (see below)

The transfer of knowledge is organised through:

- (a) public lectures and professional publications;
- (b) The University Centre for Behaviour and Movement (UCGB), which offers teacher training for secondary school teachers, a master's programme aimed at universities of applied sciences (HBO) teachers, professional development courses for teachers in secondary and higher education and courses in educational sciences;
- (c) Collaboration with 'De Activiteit', an organisation for the implementation and support of Developmental Education in primary schools;

Looking at the indicators of societal impact shown in the next sections, it becomes clear that LEARN! researchers are prolific in transmitting the products of their research to professionals and the general public: each year they write many professional publications and publications aimed at



the general public (such as newspaper articles), and they contributed to many reports. Some reports came out of contract research, which were awarded regularly to LEARN! researchers. Members of LEARN! were also active in extra-academic committees on the basis of their expertise, for example in the field of educational and youth policy and in the field of diversity in education.

**Products for society.** Over the years, LEARN! has engaged in many projects of applied research. One example is the research that led to PestPlotter, a tool used in schools to plot the social dynamics in school classes that lead to bullying. This tool came out of the dissertation of PhD student Jeroen Pronk, with dr Frits Goossens as his daily advisor. PestPlotter is currently being implemented in primary and secondary schools in the Netherlands.

Notwithstanding the success of LEARN!'s efforts at creating societal relevance, there are some opportunities that are not yet fully taken advantage of. For example, teacher education at VUA is supported by groups within LEARN!, but links to LEARN! research are not yet as strong as they can be.

## 5 Performance Indicators LEARN! 2017 per assessment dimension

				<b>QUALITY DOMAINS</b>				
<b>ASSESSMENT DIMENSIONS</b>		<i>Research quality</i>		<i>Relevance to society</i>				
<i>Demonstrable products</i>	<b>1. Research products for peers</b>			<b>4. Research products for societal target groups</b>				
	- Research articles refereed		<b>134</b>	- professional publications				<b>25</b>
	- Research articles non refereed		<b>0</b>	- publications aimed at general public				<b>26</b>
	- Scientific books		<b>13</b>					
	- Scientific book chapters		<b>37</b>					
	- PhD Thesis		<b>3</b>					
	- Conference papers		<b>26</b>					
	- Lectures aimed at peers							
<i>Demonstrable marks of recognition</i>	<b>3. Marks of recognition from peers</b>							
	- Science awards / prizes		<b>16</b>					
	- Research grants		<b>15</b>					
	- Key notes		<b>57</b>					
	- Editorial positions		<b>18</b>					
	- Memberships with scientific relevance							
	- Organisation of conferences / workshops		<b>15</b>					

## 6. VIABILITY

### 6.1 SWOT Analysis

<i>Internal organisation</i>	<b>Strengths</b>	<b>Weaknesses</b>
	<ul style="list-style-type: none"> <li>- International and national recognition of research</li> <li>- Strong relations with other (inter)national research groups</li> <li>- Strong presence in the internationally strongly growing field of Educational Neuroscience</li> <li>- Strong relations with societal partners</li> <li>- Multidisciplinary, with strong relation between basic and applied aspects and possible dissemination to educational practice</li> <li>- Clear societal visibility</li> <li>- Good earning capacity</li> </ul>	<ul style="list-style-type: none"> <li>- Relatively small senior staff</li> <li>- Somewhat divergent themes that are not all highly visible internationally</li> <li>- Not all groups equally able to obtain external funding</li> </ul>
<i>External context</i>	<b>Opportunities</b>	<b>Threats</b>
	<ul style="list-style-type: none"> <li>- Research on educational themes like diversity (in gender and culture), professionalization, executive functions has high societal priority</li> <li>- Education is high on the agenda of VUA</li> <li>- Education sciences are experiencing a rising tide in the Netherlands, with opportunities arising for LEARN! from both the sector plan and the national science agenda.</li> <li>- Strong interest in brain and behaviour in educational organizations and general public; necessity for educational reform; much interest in neuroscience in grant giving organizations</li> <li>- High societal relevance</li> <li>- Our network of schools for Developmental Education, Institutes for Initial Teacher Education and School counselling services provide opportunities for links with practice, and for collaboration in submitting bids</li> </ul>	<ul style="list-style-type: none"> <li>- Decline in overall amount of funding NWO/NRO, leading to increasingly fierce competition for research funds</li> <li>- Increased teaching and management loads for senior staff</li> <li>- Further decline of first-stream funding of research</li> </ul>

## 7. EARNING CAPACITY

### *Funding strategy*

In order to support and stimulate (interdisciplinary) grant applications the LEARN! management formulated an overall funding strategy for the years 2014-2017. This strategy shows the link between research and funding targets and describes the goals, conditions and directions for funding, together with a list of national and international grant providers and potential collaborators in the public sector. The overall funding strategy is worked out in action plans per research programme.

<b>Project description</b>	<b>Grant</b>	<b>2017</b>
3_Erasmus+ BASE	European Union	€ 48.000
3_Templeton A. Schinkel	Templeton	€ 828.000
Development of a Mentalization	ZonMW	€ 225.000
House of Skills WP1 Projectmanagement	European Union	€ 275.000
House of Skills WP4 Matching	European Union	€ 39.000
House of Skills WP6 Projectmanagement	European Union	€ 237.000
Inspectie van het onderwijs	Dutch government	€ 148.000
ministerie V&J onderzoek	Dutch government	€ 135.000
NeuroLabNL Ontwikkelingspsychologie	NWO	€ 131.000
NRO opdracht Veen	NWO	€ 16.000
NRO UCGB Sui Lin Goei	NWO	€ 38.000
NRO Veen De Kennisrotonde	NWO	€ 13.000
NWA startimpuls ruyter	NWO	€ 455.000
Scientist-practitioner Risicovol oudersc	Other	€ 80.000
<b>Total</b>		<b>€2.668.000</b>

## 8. COLLABORATIONS

### 8.1 National collaborations

Nationally, LEARN! researchers have close ties with professional organisations outside the university, such as universities of applied sciences (Saxion, HvA, InHolland, HU, iPabo, Windesheim), schools for secondary and primary education, municipalities (e.g. Foundation Flore, Foundation Tabijn, Ogo-schools, City of Amsterdam) school advisory organisations (e.g. De Activiteit, OBD Noord-West) and publishers (e.g. ThiemeMeulenhoff).

Furthermore, researchers of LEARN! interact and collaborate closely with each other and other national research partners. A selection of the most important partners in 2017 can be found below per research programme.

Edu N	MEDS	PLDT	SAUME
Prof. dr. L. Verhoeven, Univ. Nijmegen Prof. dr. A. Aleman, UMCG Prof. dr. H. Swaab, UL Prof. dr. E. Crone, UL Prof. dr. P. van Geert, RuG Prof. dr. R. Goebel, UM Dr. R. de Groot, Open Univ. Prof. dr. R. Ridderinkhof, UvA Prof. dr. P. Leseman, UU Prof. dr. J. van Os, UM	Prof. dr. M.L.L. Volman & Prof. dr. M. Merry, UvA Prof. dr. K. Boersma, UU Dr. Bram de Muynck, Driestar Dr. R. Keizer & Dr. A. Boland, Ipabo, Prof. dr. Jan Hoogland, VIAA B. Pompert & N. Fijma, De Activiteit,	Prof. dr. M.L.L. Volman, UvA Prof. dr. M. Brekelmans, UU Prof. dr. F.J.J.M. Janssen, UL Prof. dr. W. van Joolingen, UU	Prof. dr. M.L.L. Volman, UvA Prof. dr. J Cohen-Schotanus, UMCG Prof. dr. C van der Vleuten, Prof. dr. A Scherpier., Prof. Dr. Walther van Mook, MUMC Prof. dr. A de Boer, Dr. A Koster, UU & Prof. dr. T.h.J. Ten Cate, Dr. H.E. Westerveld, UMCU Dr Robert Hulsman and Dr Gerard Spaai, Amsterdam Medical Center

### 8.2 International collaborations

Internationally, LEARN! researchers collaborate with:

Edu N	MEDS	PLDT	SAUME
Prof. dr. S. Shergill (King's college, London); Prof. dr. S.J. Blakemore (UCL, London)	Prof. Marilyn Fleer and Prof. dr. N. Veresov, Monash University Melbourne, Australia; Ghent University, Belgium, Prof. dr. P. Smeyers Clark University, Prof. S. Michaels	Prof. dr. W. Doyle (Univ of Arizona, US) Prof. dr. J. Grainger (Univ Aix-Marseille, France) Esther Canrinus & karen Hamerness (Univ of Oslo)	Prof. Dr. A. Teherani, University of California San Francisco, USA Dr. Marieke Koster and Prof. Dr. Timothy Smith, Harvard University, USA Prof. Dr. Liping Li and Dr. AN Min, Shantou Medical College, Shantou University, China Prof. Dr. J. Gonnella and Prof. Dr. M. Hojat, Sidney-Kimmel

			Medical College, Thomas Jefferson University, Philadelphia, USA Late Prof Dr KV Mann, University of Dalhousie, Canada Prof Dr I. Kramer, University of Bordeaux, France
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Moreover, as an institute LEARN! collaborates with:

- International research communities such as STEP AERA, RDC Professional Development of Teacher Educators ATEE, PESGB and AME; The Executive Committee of EARLI;
- GI4all European IT network with GIS research institute at the University of Salzburg;
- The International Mind Brain Learning Society (IMBES), specifically within the committee for the development of educational neuroscience, and the steering group Brain, Learning and Education instigated by the OESO (Centre for Educational Research and Innovation, CERI);

## 9. QUALITY CONTROL

Research institutes at Vrije Universiteit are increasingly expected to play a role in quality control. This includes guarding against ethical transgressions by its researchers, and making sure that data is stored in an appropriate way, safeguarding privacy of participants but archiving it and making it available as much as possible to the research community.

Ethical vetting occurs within the faculties that are part of LEARN! Each faculty has its own ethics committee, while the SAUME programme makes use of the ethics committee of the association for research into medical education (NVMO, [http://www.nvmo.nl/ethische\\_toetsing\\_onderzoek](http://www.nvmo.nl/ethische_toetsing_onderzoek)). However, this does not cover all aspects of good science practices. LEARN! therefore in 2016 developed an ethics self-check that results in a green, yellow or red light on the aspects of data management, sensitivity to privacy, and overall ethics. This checklist was completed by most researchers within LEARN! in December 2016; a second round of self-assessment through this tool will occur in fall 2018, with follow-up conversations planned with those researchers that continue to score red on one or more aspects. In this round, the checklist will be updated to reflect the new LEARN! policies on data management.



## APPENDIX

### A: List of researchers per programme

#### *Educational Neuroscience*

Atteveldt, N.M. van  
Altikulac, S.  
Colijn, S.M.  
Fan, M.L.F.  
Fett, A.J.  
Forrer, M.L.  
Huizinga, M. (Mariëtte)  
Iliás, M.A.H.  
Jansen, I.L.J.  
Janssen, T.  
Jolles, J.  
Kesteren, M.T.R. van  
Koning, B.B. de  
Kooijmans, E.M.E.  
Krabbendam, A.C.  
Kraker-Pauw, E. de  
Lee, N.C.  
Lieshout, E.C.D.M. van  
Meulen, A.N. van der  
Mohamed, A.R.  
Nieuwenhuis, S..  
Nieuwenhuijzen, M. van  
Oosterman, M.  
Pronk, J.  
Rest, M.M. van  
Schipper, B.  
Schoot, M. van der  
Tuyll van Serooskerken, J.M. van  
Schuengel, C.  
Vu. V.T.  
Willemen, A.M.  
Wouda, M.C.

#### *Personalized Learning & Differentiated Teaching*

Avest, K.H. ter  
Beishuizen, J.J.  
Berg, E. van den  
Bisschop, E.M.  
Boerma, I.E.  
Bosma, T.  
Brederode, M.E. van  
Cornelisz, I.  
Cremer, M.  
Croix, A. de la  
Dengerink, J.  
Dijkstra, F.S.  
Donszelmann, S.  
Eegdeman, I.

Geraedts, C.L.  
Glasbeek, H.A.  
Goei, S.L.  
Halem, N. van  
Handelzalts, A.  
Haring, M.M.G.  
Hoencamp, M.L.M.  
Jong, W. de  
Kaal, A.A.  
Karkdijk, J.  
Klaveren, C.P.B.J. van  
Kroes, B.  
Landa, I.  
Lieshout, E.C.D.M. van  
Lunenberg, M.L.  
Malinen, O.P.S.  
Meeter, M.  
Oeveren, C.D.P. van  
Ottenhof, K.W.  
Pauw, I.  
Pullen, A.G.  
Ramdas, S.K.K.  
Rens, E.E.M. van  
Sapountzi, A.  
Schee, J.A. van der  
Snell, J.J.  
Swennen, J.M.H.  
Terwel, J.  
Visser, L.B.  
Vries, B. de  
Westbroek, H.B.  
Wierik, M.L. te  
Zwet, M. van der

### *Meaningful Education in a Diverse Society*

Bertram-Troost, G.D.  
Dobber, M.  
Exalto, J.  
Gerdes, J.  
Groenendijk, L.F.  
Hoeke, M.K.  
Hogenes, M.  
Koster, M.P.  
Kruistum, C.J. van  
Laar, A. van  
Melchers, M.E.H.L.  
Miedema, S.  
Nieuwmeijer, A.C.  
Pels, T.V.M.  
Rezende Da Cunha Júnior, F.  
Rietveld-van Wingerden, M.  
Ruyter, D.J. de  
Saane, J. W. van

Schinkel, A.  
Stekelenburg, M.H.M. van  
Tavecchio, G.L.  
Terwel, J.  
Valstar, J.G.  
Veen, M. van der  
Vetten, A.J. de  
Wardekker, W.L.  
Wolbert, L.S.

***Socially Accountable Undergraduate Medical Education***

Agtmael, M.  
Brinkman, D.  
Burgt, S. van der  
Caris, M.  
Croiset, G.  
Isik, U.  
Jacobs, A.  
Kusurkar, R. A.  
Lankveld, T. van  
Peerdeman, S.  
Schutte, T.  
Tichelaar, J.  
Visser, C.  
Wouters, A.  
Mak- van der Vossen, M

**Affiliated member LEARN!**

Graaf, G. de  
Konijn, E.