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Perspectives

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Dutch experiences in new partnerships between science and practice in health promotion: toward a fourth-generation university

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Summary

For a long time already, attempts have been made to bridge the gap between research and practice. In this respect, society demands that universities should have a bigger social impact. University and society/societal organizations should work together (co-create) during the entire research process, from the articulation of the research question until the implementation of the results. There is controversy about the question whether it is possible for universities to work together with practice and at the same time to retain the academic quality standards. First, this article deals with the question what characteristics are important for universities in order to be able to work together with practice. In this respect, the Dutch scientist Steinbuch came up with a tantalizing idea arguing that universities may take a next step and develop into 'fourth generation universities'. Second, it is described how a process of co-creation between university and the health promotion practice has been developed, bottom up, at Tranzo, Scientific Center for Care and Wellbeing, Tilburg University, the Netherlands. The ideas developed by Steinbuch and the results of the bottom up processes in Tilburg are combined. Consequences of the Tilburg experiences for the characteristics of a fourth-generation university are discussed as well as consequences for the role of universities in society.

Key words: university, practice, evidence based

DEMAND FOR A SOCIAL RELEVANT CONTRIBUTION OF SCIENCE

Universities should contribute more to debates how society could deal with the big challenges it faces. On the one hand, world leaders like Trump have taken a largely apathetic or sometimes even hostile approach to science (Lewis, 2018). On the other hand, many politicians and other societal stakeholders demand from universities to show how they contribute to solutions for societal questions. The European Commissioner for Research and Innovation, Carlos Moedas, stated in 2016 that his three policy priorities are Open Innovation, Open Science and Open to the World (Moedas, 2016). The emphasis in (European) funding schemes is much more on social impact than before (Van den Akker and Spaapen 2017).

In the Netherlands, University research programs are evaluated on the basis of a so-called Standard Evaluation Protocol (VSNU, KNAW and NOW, 2014). Since a few years, this protocol pays more attention to societal relevance. In 2017, the coalition agreement (government policy accord) of the present government states that the financing of research will be linked stronger to research efforts, scientific quality *and* societal impact (Regeerakkoord, 2017–2021).

So, there appears to be a big and growing demand for social impact of research. The terms social impact and societal impact often seem to be used in an interchangeable way (Bornmann, 2013). Many definitions refer to the impact of research (Bruil, 2018). A comprehensive definition of the impact of research is given by the UK Research Excellence Framework 2015–2021 (see Bruil, 2018): 'any effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia'. Nowadays definitions of research impact are broader than in the past because of the rising awareness that there are many types of impact and that societal challenges are so complex that they may need input from many academic fields (Van den Akker and Spaapen, 2017). Impact may have different forms and degrees. Bornmann in this respect makes a useful (Bornmann, 2013) distinction in societal products (outputs), societal use (societal references) and societal benefits.

With this growing need for social relevant contribution and societal impact of research, it becomes important to look in more detail into how this can be achieved. In this article, we focus on the role of universities. How should universities proceed in creating more societal impact with their research?

THE CHANGING ROLE OF UNIVERSITIES IN SOCIETY

Education was the core task of the universities from the Middle Ages onwards, the Bologna university (1088) being the first one. The Humboldt University in Berlin (since 1810) is a well-known example of the so-called second-generation university: it tries to connect education and research as much as possible. At present, many universities belong to the third generation universities: they focus on education, research and valorization. As for societal impact, many definitions are used for the concept valorization. Although often valorization refers to economic impact only with the goal to make university products commercially marketable, a broader definition is that valorization means making (scientific) knowledge available for society.

University products are sometimes (economically) valuable for society, but often knowledge and products developed by universities are not directly useful for practice. Even more, in case knowledge is potentially useful, it is often not translated to society in a right way or it is not picked up in a right way in society. Two important gaps may be distinguished: first, ideas from basic research do not result in a timely development of new products and approaches and second, if new products and approaches are developed, an active implementation in practice is necessary, which is often not the case (Walshe and Davies, 2013).

Whereas this holds true for many areas in academic research, this article focuses on how to overcome these gaps and integrate research and practice more closely in the area of health promotion. Several factors may contribute to the existing gaps between research and practice in the healthcare sector. . Professionals may not want to engage in scientific activities because these do not belong to their core function. Further, professionals may have the feeling that they are 'doing good work' and that an evaluation of their work is not necessary. They may think that the results of their activities are not measurable and/or that they do not have the power to act upon the results of a negative evaluation. And one might fear results of research in general, and of effect studies in particular, because a lack of positive results could lead to subsidy cutbacks or being forced to drop (fun) parts of their job. On the other hand, scientists may have insufficient knowledge of practical issues and might not be familiar with important context variables that could play a role. In addition, scientists and society/practice use a different language. Further, scientists are mainly rewarded for publishing in scientific journals and for guiding PhD research. An investment in valorization is not rewarded and because of that often lacking. At present, in valorization a one-way traffic from university to practice prevails (WRR, 2013).The present system in which universities and practice function could be improved in order to promote collaboration between science and practice. When universities develop products for society without sufficient knowledge of the wants and needs in that society, the contribution toward dealing with societal challenges will be inadequate.

McCabe *et al.* (McCabe *et al.*, 2015) address this topic clearly for the field of public health. Research production and dissemination should develop from research driven to dynamic, social and interactive processes. The context and the interactions between key stakeholders should have a powerful impact upon knowledge

production and implementation. Collaborative partnerships are suggested and it is felt necessary to create a 'shared space' where research and practice come together to generate and mobilize knowledge. Knowledge that is not only relevant to the academia but also actually contributes to dealing with societal challenges.

Steinbuch (Steinbuch, 2016) in this respect argues that universities should develop to 'fourth generation universities'.

TOWARD FOURTH-GENERATION UNIVERSITIES

The still quite conceptual idea of a fourth-generation university sparks the imagination on how fourth-generation universities may develop. Fourth-generation universities could outreach to society, and do more than just making knowledge available for practice. Table 1 gives a preliminary idea of characteristics a fourth-generation university should have according to Steinbuch (Steinbuch, 2016).

There are some important differences between the third (most of the present universities) and fourth-generation universities.

First, the development from an education, research and know-how exploitation into an open innovation university: a network university in which innovation takes place in cooperation with the other stakeholders involved. Next, the role of universities is not only value creation but also enabling local networks in developing value creation by themselves. Further, Steinbuch asks for multi-actor innovation and the cooperation between professionals, entrepreneurs, artists, customers and ecosystem participants. Professionals from practice should work partly in universities and scientists should partly work in practice. One should work together in multi-disciplinary teams. Working in an ecosystem implies working in a community in a geographically demarcated area. The focus of universities should be partly global, partly local and the main language used should be English. The work should not take place at separate institutes but parties should meet in 'innovation spaces'. Finally, Steinbuch mentions 'disruptors' without explaining the term. We operationalize it as the possibility that in experimental situations, innovators can achieve big changes in practice.

CO-CREATION BETWEEN UNIVERSITY AND PRACTICE IN TILBURG, THE NETHERLANDS

Tranzo, Tilburg University's scientific center for care and wellbeing of the Tilburg School of Social and Behavioral Sciences, could be seen as a 'fourth generation university avant la lettre'. Tranzo has the mission to build a bridge between science and practice. The objective is to promote an evidence-based approach by working in co-creation with practitioners to develop and exchange knowledge in the field of health and well-being (Garretsen *et al.*, 2007, 2015; Siesling and Garretsen, 2014; van de Mheen,2019). About 80 organizations from the health and well-being domain participate and invest structurally in the research of the academic centers. About 200 scientists, professionals and supporting staff work together within Tranzo and the practice organizations in multi-disciplinary teams.

Table 1: Characteristics of universities according to Steinbuch (Steinbuch, 2016)

	First generation	Second generation	Third generation	Fourth generation
Objective	Education	Education and research	Education, research and know-how exploitation	Education, open innovation (research)
Role	Defending the truth	Discovering nature	Creating value	Enabling value creation
Method	Scholastic	Mono-disciplinary science	Inter-disciplinary science	Multi-actor innovation
Human capital development	Professionals	Professionals and scientists	Professionals, scientists and entrepreneurs	Professionals, scientists, entrepreneurs, artists, customers, ecosystem participants
Orientation	Universal	National	Global	Ecosystem
Language	Latin	National languages	English	English
Organization	Colleges	Faculties	Institutes and centers	Innovation spaces
Management	Rector and chancellor	Part-time academics	Professional management	Disruptors

Many of them work part time at the university and at the same time part time within a practice organization.

Tranzo can be seen as an attempt to work together in co-creation before the concept of co-creation became commonplace. In co-creation parties work together on the basis of their own expertise and all parties invest in and benefit from the cooperation ('win-win'). Tranzo has set up 12 so-called Academic Collaborative Centers: long-term cooperation's between Tranzo/Tilburg University and practice organizations like treatment centers, welfare organizations, youth and elderly care, local governments, (nationwide) knowledge institutes, etc. Within the academic collaborative centers, university and practice organizations together establish long-term research programs on the one hand and knowledge exchange programs at the other, both jointly established by university and practice. The academic collaborative centers form an answer to the, for a long time experienced, lack of co-operation between science and practice and as a consequence, the lack of evidence-based working in the healthcare sector. Both professionals and researchers often are not motivated to co-operate. Professionals and policy advisors may think that evidence is not necessary because 'they know already what to do'. Or one may think that results of their work are not measurable or that they don't have the autonomy to implement the results. In addition, they may be afraid of negative results—it may lead to budget cutbacks or loosing (fun parts of) the job. In addition, they may lack the knowledge and the time and money to undertake research initiatives. On the other hand, academic researchers often are not motivated to co-operate with practice; they also lack incentives to do so. Academic researchers are supposed to publish in high impact journals and to supervise PhD research. Furthermore they may lack knowledge of practice and context variables and they often are not capable of offering scientific information in a user friendly way (Garretsen *et al.*, 2005, 2010). In the academic collaborative centers however, both parties benefit—the co-operation leads to a large increase in scientific output and PhD studies as well as to an increase in applied research output and knowledge products useful for practice.

The academic center for public health is one of the first two centers of Tranzo and was founded in 2002. This center served as a model for an in 2005-formed national funding program to create a national network of Academic Centers of Public Health. The fact that Tranzo has 12 centers that together cover the entire field of care and welfare is a great benefit; the centers reinforce each other.

Tranzo's objective to promote an evidence-based approach implies that three types of knowledge sources (and three groups of stakeholders) are essential: scientific knowledge, the expertise of the professionals working in practice and the knowledge of the 'demand side'/ the end-users like clients/citizens/publics (Garretsen *et al.*, 2007). In case of treatment and care, the end users might be (groups of) individual patients/clients. In case of prevention, the end user often is a collectivity. Consequently, in this case researchers and professionals often collaborate with business minders/advocate groups for the demand side like local governments, clients' organizations and schools.

Three key principles underlie the cooperation within the academic centers (Garretsen *et al.*, 2007, 2010; Siesling and Garretsen, 2014; van de Mheen, 2019). The first one is complete equality between the university and the collaboration partners. The aim is to reach an optimal relationship between research and practice. Another key principal is that all parties invest in and benefit from the cooperation. Many investments in the centers are in kind: different parties do not pay each other for the services delivered. So-called 'science practitioners' have a central role. They work partly within a practice organization and partly within the university in order to conduct PhD or applied research or to be involved in knowledge exchange activities. The practice organization pays the salary costs of the science practitioner; the university provides the supervision, educational programs, housing, CT and library facilities, etc. Next to the science practitioners, senior academic researchers/ knowledge brokers have close contacts with the partnering practice organizations, they frequent these organizations regularly and see them as their second homes. Within these organizations they participate in committees and the like on a structural base. These seniors stimulate knowledge exchange and the implementation of research products (i.e. practical instruments and protocols) that stimulate working evidence based. In addition they answer questions of the professionals, listen to their experiences and together with professionals they discuss potential topics for research. Next to that professionals and researchers together discuss opportunities for embedding knowledge exchange, education and implementation in the organization's structure.

All parties involved should benefit too, this means that both scientific outputs and societal outputs are important. For the university is important that curiosity driven ('fundamental') long-term PhD research takes place. Practice asks for applied research and for products/outputs valuable for them. A third key principle is to have personal contacts at various levels within the

organizations concerned. The science practitioners and senior academic researchers mentioned above have a central role. Next to that an important characteristic is that the collaborative centers are steered by the university and the practice organizations together in full harmony. This means contacts on board level at least a couple of times a year. Furthermore, more frequent personal contacts on the middle management level exist next to the daily contacts between the science practitioners and others involved from the work floor.

Within Tranzo's academic centers, university and practice collaborate on a really equal basis. In many other centers, e.g. other Academic Centers of Public Health in the Netherlands, this is not so much the case. Often, more or less, the university is still the dominant party. That Tranzo has succeeded in this equality is due to the three principles mentioned above: complete equality between the university and the collaboration partners, all parties invest in and benefit from the cooperation and personal contacts at various levels within the organizations concerned.

The win-win between university and practice plays out at the level of the academic center. Both parties invest in the center, financially and/or in kind, and both parties must derive sufficient benefit from the cooperation. However, it cannot always be the case that an equal win-win is present in each project: sometimes a project is more scientifically important, sometimes more practically. That is fine as long as the win-win is balanced on a center level.

Below two brief case studies, exemplify Tranzo's way of working over the years. Before these studies started, they were approved by the board of the engaged center and included in the centers work program by the center coordinator. In the first case study (Roelofs, 2018), a psychologist working in the nursing home sector was herself triggered by problems of love, intimacy and sexuality in nursing home residents with dementia and she asked permission to start to work as a science practitioner. Her employer payed the salary costs. In the second case study mentioned (Rozema, 2018), both the university and the public health organization involved felt that an evaluation of the subject of study was relevant. Jointly a grant was applied for and received from The Netherlands Organization for Health Research and Development. In both projects, the university provided the supervision, support by secretariat, interns, statistical support, ICT, library facilities, etc.

> Love, intimacy and sexuality in nursing home residents with dementia: An exploration from multiple perspectives. (Roelofs, 2018)

Questions concerning intimacy and sexuality of people with dementia regularly come up in the practice of nursing home care. The study is designed to make a meaningful contribution to both practice and science and is carried out by a science practitioner, working both in practice and within the university. The research question is: 'How can the wishes and needs of people with dementia in the nursing home be met in the best possible way when it comes to intimacy and sexuality'. A literature study was carried out, a qualitative study in which the client perspective was centralized by means of interviews, and a quantitative study in which the factors that influence the attitude of staff members about the sexuality of residents were central. Five international publications have appeared. The study led to taboo breaking recommendations to improve the quality of life of client and partner when it comes to love, intimacy and sexuality and received a lot of media attention. This project was nominated for the first Tilburg University Impact Award 2020.

> Schools as smoke-free zones. Implementation and the impact of outdoor school ground smoking bans at secondary schools. (Rozema, 2018)

Also this study is an example of the social relevant contribution of science to society. The aims of this study were to identify important determinants in the adoption, the implementation and the sustainability stage of an outdoor school ground smoking ban at secondary schools. In addition, the impact of an outdoor school ground smoking ban on adolescents' smoking behavior and the use of alternative tobacco products were investigated. This thesis is the first in the Netherlands on smoke-free school grounds. The study resulted in eight international publications and also this study received a lot of media attention. In 2020, changes in legislation were based on this study. Smoking on school grounds is now prohibited by law. This project was awarded with the first Tilburg University Impact Award.

Is the structural cooperation of university and practice in the academic centers feasible and worthwhile for all parties involved? The output of Tranzo has been judged being more than satisfactory. Within the academic centers, agreements are made for 5 years periods. After an evaluation on the level of the center involved all parties decide together whether they together engage in a new 5 years period. Until now, these evaluations are positive; most centers are in their second or third period.

A few years ago, an evaluation study for Tranzo as a whole has been carried out. Data were collected by an intensive study of available publications and documents. Documents analyzed were two external audits for

Tranzo as a whole, audits/reports on the level of academic centers, Tranzo annual reports, newsletters and other public reports, and (scientific) publications. In addition, 16 in-depth interviews were held with key persons from Tilburg University and from collaborating organization/practitioners. For each interview, a written report was made and these reports were checked by the interviewees. Reports were analyzed with the use of AtlasTi (Siesling and Garretsen, 2014, Garretsen *et al.*, 2015). Results showed that it is possible for university and practice to work successfully closely together in a process of knowledge co-creation. Academic collaborative centers appear to be a good model to achieve a structural cooperation between the parties involved. The structural cooperation between the stakeholders involved has led to the development of long-term research programs resulting in high quality and useful knowledge products, to many knowledge exchange activities and to the implementation of many of these products.

Within Tranzo many benefits of this way of working are/were experienced, but some bottlenecks too.

The position of the science practitioners may be vulnerable. The double affiliation to the university and the practice organization requires continuous careful balancing. It is difficult and time-consuming to work for two different employers.

Another very important point of attention is the involvement of the demand side (clients/citizens/publics). Tranzo's objective to promote an evidence-based approach implies that next to scientific knowledge and the expertise of the practice professionals also the knowledge and input of the 'demand side' is necessary. Three groups of stakeholders should be involved as much as possible: scientists/researchers, professionals working in practice and clients/citizens/publics. The participation of the last group has developed less until now. Researchers and professionals working in practice work closely together in all academic workplaces. This however is not the case for the 'demand side'. Clients often are less organized and have less (financial and other) resources/means to cooperate on an equal base. Within some projects Tranzo succeeded very well in realizing involvement of clients. For some projects for instance subsidy was obtained to use clients as experienced experts/peer workers and/or as co-researchers. However, on the level of Tranzo as a whole involvement of the end user in a structural manner is not daily business yet, but good improvements have been made. Developments are among others participation of experienced experts in the board of a collaboration center and the installment of 'participation councils' consisting of end-users.

In case of public health and many prevention projects, the end user often is a collectivity. This causes not so much a problem, researchers and professionals then often collaborate with intermediates/business minders for the demand side like local governments. These intermediates in general have more (financial) possibilities. However, the distance between the collectivity and the end user may cause some difficulty also.

THE IDEAS OF STEINBUCH AND TRANZO EXPERIENCES COMPARED

Does Tranzo meet Steinbuch's idea for a how a fourth-generation university can work in daily practice? In addition, what are the consequences of Tranzo experiences for Steinbuch's thoughts and what are consequences for universities? Of course, Tranzo is not an entire university in itself but only a relatively small part of a university but still, it can be seen as a good experiment.

Next to (post graduate) education, research and 'traditional' valorization Tranzo successfully outreaches to society. Tranzo is a network organization in which innovation takes place together with professionals and users from the health and well-being practice in multi-disciplinary teams, to the satisfaction of all parties involved. The centers are a kind of innovation places in which university and practice meet each other to co-create. In addition, they can be seen as a kind of ecosystems in which value creation takes place. In the centers, innovators can achieve changes in practice based on the latest scientific insights, and accompany these by developmental and evaluative research which accelerates practice innovation.

One discrepancy exists between the thoughts of Steinbuch and the experiences within Tranzo. Steinbuch advocates the use of English as working language. The experiences of Tranzo point out that both English and the mother tongue (in our case Dutch) are essential. Both Steinbuch and Tranzo value a global positioning. On the one hand, a worldwide positioning is essential. Science does not know boundaries and for Tranzo that means among others that major scientific publications are written in English. On the other hand, co-creation takes place in Academic collaborative centers, which are mostly locally/regionally oriented. The language used in the centers therefore most of the time is Dutch. Not all participants are used to the English language and participants of practice and end-users of Tranzo's products like professionals working in practice, clients and citizens are used to speak their mother tongue. Advocating English as the only working language would seriously harm the process of co-creation. A consequence of this

line of thinking is that websites and the like and some products should be presented in both English and the mother tongue and that money should be set aside for translations.

Within the Academic collaborative centers, people from very different backgrounds participate: scientists, professionals from practice and clients/citizens/publics. Steinbuch also mentions groups who can be seen as 'users/co-workers' but he does not really elaborate on this aspect.

Steinbuch advocates that professionals from practice should work partly in universities and scientists should partly work in practice. Within Tranzo, science practitioners are very successful in this respect, though their position may be vulnerable. Every science practitioner forms an bridge in itself between science and practice.

A major point of attention is Tranzo's objective to promote an evidence-based approach in which three types of knowledge sources are essential: scientific knowledge, the expertise of the professionals working in practice and the knowledge of the 'demand side' like citizens and clients. As described earlier, the involvement of the demand side (clients/citizens/publics) is a very important point of attention within Tranzo.

EXPERIENCED QUESTIONS/DILEMMA'S FOR UNIVERSITIES

Within universities, debates about the desirability of universities developing into fourth-generation universities take place. Often one understands the increasing societal demand for a social relevant contribution of science. However, questions are raised too. Two issues in particular are prevalent: what about curiosity driven 'fundamental' research and what about the integrity of university researchers?

Curiosity driven, fundamental research is one of the basic aims of universities. What about fundamental, curiosity-driven research within fourth-generation universities? Will this type of research be threatened? This of course should not be the case. Curiosity-driven research should be possible in order to increase the possibility that unforeseen, even unintended, new valuable innovations could take place. One answer to the questions posed above is that fundamental/basic research is always necessary within universities next to applied research and next to the research in co-creation between universities and practice in for instance academic centers. The latter form of research often is mission driven.

However, the study of Bruil (Bruil, 2018) showed that nowadays experts do not always consider the division between basic and applied research as adequate or productive anymore. Bruil undertook an explorative study toward the role of the national research council with regard to the societal impact of research. A literature study was carried out and nine experts working in policy, private companies and universities were interviewed. All experts agreed that research with societal impact can be fundamental/curiosity driven and can be applied/mission driven Both mission driven/problem-solving research and curiosity-driven research should take place, next to each other. The experts recommend abandoning the terms basic and applied research, as a sharp division is not helpful. Also basic research, in the long term, may eventually serves a societal goal. And they recommend that also in basic research, if publicly funded, total academic freedom, i.e. without legitimating own research, should be avoided.

The integrity of researchers is another important issue. If practice organizations are involved in research and/or (financially) invest in it, is it for the researcher (often working in both the university and the practice organization) in question then possible to keep his integrity to a full extent all the time? The study of Bruil (Bruil, 2018) showed in this respect that the respondents thought that the integrity of the researcher is of enormous importance and should be guaranteed, but surprisingly not much concern was raised about this issue. Of course, the group of interviewees in this study was small.

The issue may be tipped upon in all cases where university and practice work together. Within Tranzo all precautions have been made, among others in written agreements, to make sure that the researcher can undertake his work in an integer way, but still, it could be possible that sometimes he/she may be blamed for the *appearance* of a conflict of interest. To prevent unnecessary debates and to give researchers and stakeholders involved a handle on how to deal with this issue; perhaps national research councils could have an important role. They could develop guidelines and/or protocols on how to deal with this issue, they could support in developing consortium agreements and they could organize (expert) meetings on the issue.

DISCUSSION/CONCLUSION

This article argues that there is an increasing demand for a social relevant contribution of science and that new partnerships between science and practice are needed. First, this article deals with the question what characteristics are important for universities in order to be able to co-create with practice. Especially the Dutch scientist Steinbuch has developed ideas about this (Steinbuch,

2016). Steinbuch argues that universities should develop into 'fourth generation universities'. Second it is described how a process of co-creation between university and practice has been developed, bottom up, at Tranzo, Tilburg University, the Netherlands. The ideas developed by Steinbuch and the results of the bottom up processes in Tilburg are compared. Consequences of the Tilburg experiences for the characteristics of a fourth-generation university as mentioned by Steinbuch are discussed as well as consequences for the role of universities in society.

Within universities, debates about the desirability of universities developing into fourth-generation universities take place. There is controversy, especially about the question whether it is possible to co-create between parties and at the same time to remain the academic quality standards. Furthermore in particular two other questions are raised. First, what about fundamental, curiosity-driven research: How does this research relate to the approach of the fourth-generation university? Second: what about the integrity of researchers: Can their independence and objectivity still be warranted when researchers are intensively involved in and committed to 'the object' of their study?

The experiences of Tranzo are in line with important worldwide developments which have taken place over the years. First of all of course developments regarding evidence based practice within healthcare. The ideas of Sackett regarding evidence-based healthcare underpin to the basic concepts of Tranzo. Furthermore Tranzo's work fits in the ideas of community-based participatory research, a partnership approach to research that may involve community members, organizational representatives and researchers in all aspects of the research process and in which all partners contribute expertise and share decision-making and ownership (Wikipedia; Israel *et al.*, 1998). Tranzo's experiences are also in line with the work of the Patient-Centered Outcomes Research Institute. This institute funds research which includes patients and other healthcare stakeholders throughout the entire research process (https://www.pcori.org).

This article argues that the Tranzo working model, actually being an operationalization of Steinbuch's thoughts 'avant la lettre', makes it possible that university and practice meet each other in 'innovation places' (the academic collaborative centers) to co-create and that Tranzo in this way successfully outreaches to society. The academic collaborative centers themselves seem to be an example of wide spread impact—at least in the Netherlands many organizations in many fields have developed centers with similar aims. However, within Tranzo's academic centers, the strong application of guiding principles (complete equality between the university and the collaboration partners, all parties invest in and benefit from the cooperation and personal contacts at various levels within the organizations concerned), has been the basis for the success of Tranzo's model. Where in many other academic centers the university still has a dominant role, in the Tranzo academic centers equality prevails.

Another important success factor is the embeddedness of Tranzo in society. In the article, this embeddedness is described. With about 80 organizations from the health and wellbeing domain participating and investing in the research of the academic centers, there is a very strong societal engagement that fosters Tranzo's place as an academic center with important societal impact.

Based on the output of Tranzo and the evaluation studies mentioned, the conclusion seems justified that Tranzo's way of working clearly meets the academic quality standards and at the same time actually increases the social relevant contribution of science to society. Research actually is used by care organizations and in policy, in different ways: more indirect to solve problems in the long run, to find evidence, or not, for existing views, to pinpoint on new ideas but also a direct use takes place.

We expect that the Tranzo way of working really helps in reducing the '17-Year research to practice gap' (Often it is argued that it takes 17 years to move evidence into practice; Munro and Savel, 2016).

This article may be a starting point for a further development of Tranzo's working model of co-creation in academic collaborative centers. It will be very worthwhile to undertake more research regarding the feasibility and effectiveness of the Tranzo model as useful prototype for a 'fourth-generation university' approach. Not all academic centers are organized in exactly the same way and research on the effectiveness of differences seems useful. If possible, we will compare Tranzo with other approaches in universities/organizations that also aim to produce social impact by doing socially relevant research, preferably internationally. We are interested in any opportunities and will explore possibilities to do so.

REFERENCES

Bornmann, L. (2013) What is the societal impact of research and how can it be assessed? A literature survey. *Journal of the American Society for Information Science and Technology*, **64**, 217–233.

Bruil, J. (2018) *De maatschappelijke impact van sociaal- en geesteswetenschappelijk onderzoek en de rol van de nationale wetenschapsfinancier. Een explorative studie. Thesis*

Master of Health Business Administration. Erasmus Centrum voor Zorgbestuur Leiden, 29 April 2018.

Garretsen, H., Bongers, I. and Rodenburg, G. (2005) Evidence–based work in the Dutch welfare sector. *British Journal of Social Work*, **35**, 655–665.

Garretsen, H., Brouwers, E. and van de Goor, L. (2010) Towards evidence based policy regarding drugs and mental health. *Mental Health and Substance Use*, **3**, 4–9.

Garretsen, H. F. L., Bongers, I. M. B., de Roo, A. A. and van de Goor, I. A. M. (2007) Bridging the gap between science and practice: do applied academic centers contribute to a solution? *Journal of Comparative Social Welfare*, **23**, 49–59.

Israel, B., Schulz, A., Parker, E. and Becker, A. (1998) Review of community-based research: assessing partnership approaches to improve public health. *Annual Review of Public Health*, **19**, 173–202.

Lewis, T. (2018) A year of Trump: science is a major casualty in the new politics of disruption. *Scientific American*, January 19.

McCabe, K., Wallace, A. and Crosland, A. (2015) A model for collaborative working to facilitate knowledge mobilization in public health. *Evidence & Policy: A Journal of Research, Debate and Practice*, **11**, 559–576.

Moedas, C. (2016) Presentation of the report 'Science, research and innovation performance of the EU 2016', Lisbon Council, March 10.

Munro, C. and Savel, R. (2016) Narrowing the 17-Year research to practice gap. Editorial. *American Journal of Critical Care*, **25**, 194–196.

Regeerakkoord. (2017–2021) Vertrouwen in de toekomst. VVD, CDA, D66 en ChristenUnie 10 oktober 2017.

Roelofs, T. (2018) *Love, intimacy and sexuality in nursing home residents with dementia: An exploration from multiple perspectives. Doctoral thesis*. Tilburg University, the Netherlands.

Rozema A. (2018) *Schools as smoke-free zones. Implementation and the impact of outdoor school ground smoking bans at secondary schools. Doctoral thesis*. Tilburg University, the Netherlands.

Siesling, M. and Garretsen, H. (2014) De cocreatie van wetenschap en praktijk: twaalf jaar Tranzo. *Tijdschrift voor Gezondheidswetenschappen*, **92**, 150–153.

Steinbuch, M. (2016) Towards the 4th generation university. https://steinbuch.wordpress.com/2016/07/23/towards-the-4th-generation-university/.

van de Mheen, D. (2019) "De kunst van co-creëren": Kennis die ertoe doet! Inaugural speech Tilburg University, the Netherlands.

Van den Akker, W. and Spaapen, J. (2017) Productive interactions: societal impact of academic research in the knowledge society. LERU position paper.

VSNU, KNAW and NWO (2014). Standard evaluation protocol 2015–2021. Protocol for Research Assessments in the Netherlands.

Walshe, K. and Davies, H. (2013) Health research, development and innovation in England from 1988 to 2013: from research production to knowledge mobilization. *Journal of Health Services Research & Policy*, **18**, 1–12.

WRR, Wetenschappelijke Raad voor het regeringsbeleid. (2013) *Naar een lerende economie*. Amsterdam University Press, Amsterdam, the Netherlands.