‘What Holland Can Offer’

Samuel van Embden and the Knowledge Exchange on University Campus Designs, 1947–1976

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Publication date
2024

Document Version
Final published version

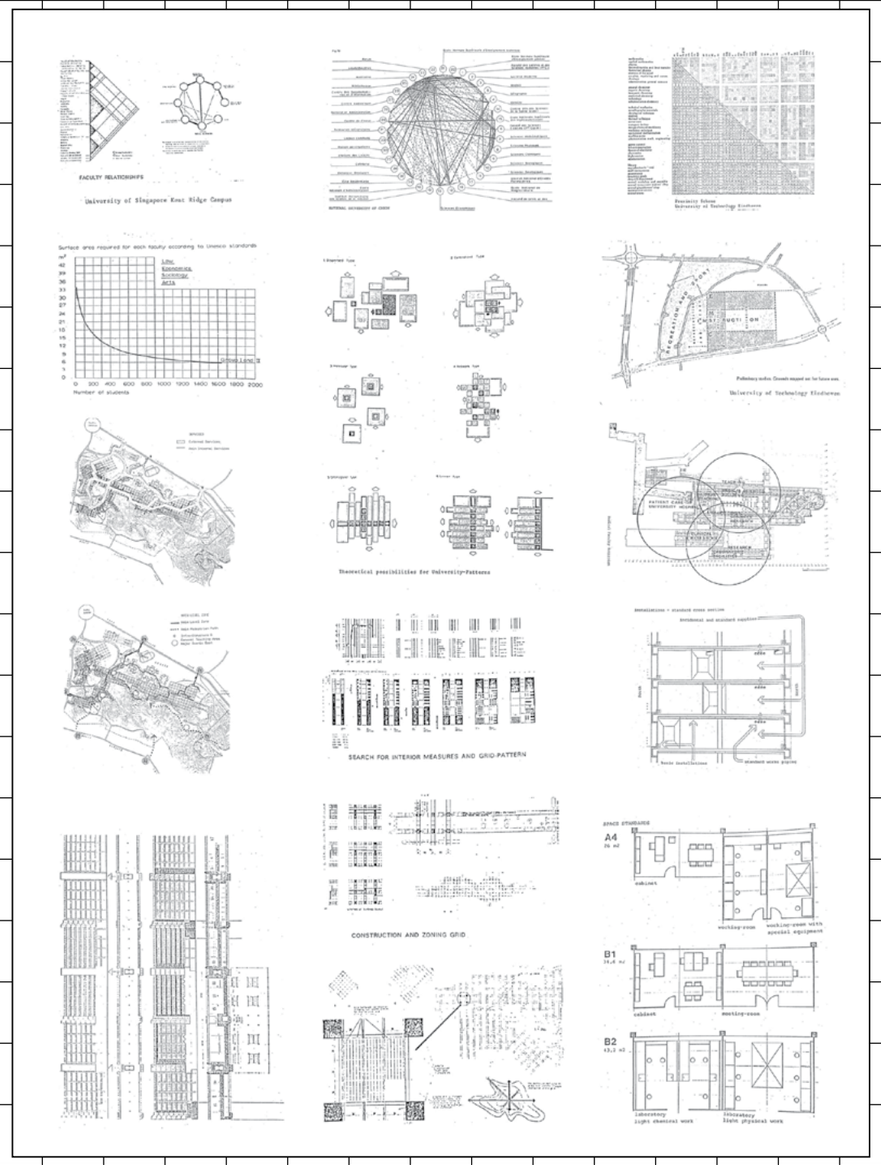
Published in
Staying with Modernity?

Citation (APA)
Gramsbergen, E. H., & Söylev, Y. (2024). ‘What Holland Can Offer’: Samuel van Embden and the Knowledge Exchange on University Campus Designs, 1947–1976. In D. van den Heuvel, A. Campos Uribe, S. Dingen, & W. van de Sande (Eds.), *Staying with Modernity?: (Dis)Entangling Coloniality and Architecture* (Vol. XI, pp. 109-114). TU Delft and Het Nieuwe Instituut.

Jaap Bakema Study Centre

STAYING WITH MODERNITY? (Dis)Entangling Coloniality and Architecture

Eleventh Annual Conference
November 2024



Diagrams included in the 'General Master Planning and Design Approach for Universities in Developing Countries' formulated by OD205 in 1976. Image source: Nieuwe Instituut, ODEE_d2509.

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'What Holland Can Offer': Samuel van Embden and the Knowledge Exchange on University Campus Designs, 1947–1976

INTRODUCTION

This paper is a report on the initial research on the global practice of university campus design by architect and planner Samuel van Embden (1904–2000). It outlines the first findings on the influence of Dutch expertise in planning and architecture as an export product and raises questions for further investigation.[1] Following WWII and the independence of the colonies of the Western countries, a foreign-aid-funded practice of university planning in the so-called developing countries was established.[2] Within this context, numerous projects and remarkable examples of modern architecture were realised in South America, Africa, the Middle East and Asia. These projects are important not only for their political and historical context but also for their outstanding architectural quality. Amongst others, the University City of Caracas in Venezuela and the Central University Campus of the National Autonomous University of Mexico are named UNESCO World Heritage. Additionally, the Middle East Technical University Campus in Turkey, the Ile-Ife Campus of Obafemi Awolowo University in Nigeria and the Chandigarh University Campus in India have been acknowledged for their quality by the Keeping It Modern initiative by Getty Research Institute.[3]

Recently, much has been written about the architects and planners who have served as experts in this context. Attention has been given to the works of Jacqueline Tyrwhitt, Otto Koenigsberger, Jane Drew and Maxwell Fry, amongst others as 'transcultural experts' that emerged in the – so-called –

1 Tom Avermaete, Viviana d'Auria, Klaske Havik, and Lara Lenders. "Crossing Boundaries: Transcultural Practices in Architecture and Urbanism," *OASE* 95 (2015).; and J. Gussenhoven, *Export of Intellect in Shaping the Future: 140 Years* (Royal HaskoningDHV Publication, 2021).

2 Jill Pellew, and Miles Taylor, eds. *Utopian Universities: A Global History of the New Campuses of the 1960s*. (Bloomsbury Academic, 2020), http://dx.doi.org/10.5040/9781350138667.

3 Since 2019, these projects have been analysed in the Campus Utopias Course run by the authors, in collaboration with Ayşen Savaş, at the Delft University of Technology, MSc program in Architecture. The results and students' works have been published in the journals of OverHolland and DOCOMOMO. See METU Analysis: Ayşen Savaş Sargın, "Campus Utopias I: Middle East Technical University Ankara, Creatief Herlezen." *OverHolland* 14, no. 22 (2023): 45–70. https://doi.org/10.7480/overholland.2023.22.242; Esther Gramsbergen and Yağız Söylev, "Campus Utopias II: UTwente, Twaalf Projecten, Dertien Ongelukken?," *OverHolland* 14, no. 22 (2023): 142–164, https://doi.org/10.7480/overholland.2023.22.246; Ayşen Savaş Sargın, Esther Gramsbergen, and Yağız Söylev, "Campus Utopias: A Visual Re-reading," *Docomomo Journal*, no. 69 (2023): 106–113, https://doi.org/10.52200/docomomo.69.12.

developing countries after decolonisation.[4] It is noteworthy that Van Embden's global practice and consultancy went unnoticed in this context. Van Embden was a Dutch architect and planner and the founder of the OD205 Architecture and Planning Bureau. In 1964, he was appointed a professor at Delft Technical College, now known as Delft University of Technology (TU Delft). Additionally, he established the International Society Of City and Regional Planners (ISOCARP) in 1965 and served as a UNESCO advisor on campus design in various countries, including Venezuela, Singapore and Nigeria. Although Joosje van Geest published a monograph on Van Embden, the global scope of the architect's practice could not be fully addressed due to time constraints.[5] The campus designs for TU Eindhoven and the University of Twente, along with Van Embden's contributions to TU Delft, were covered in a series of articles.[6] While these publications mention the architect's international work, they do not explore its full extent. Investigating Van Embden's foreign practice and the networks in which he operated will uncover new insights, particularly within the debate of knowledge exchange on architecture and planning in the postcolonial context.

ESTABLISHING THE EXPERTISE

The Technical College of Bandung (Bandung Institute of Technology, IBT) was opened in 1920 by Dutch entrepreneurs in Indonesia. It was the second Technical College in the Dutch Empire and closely related to the Technical College in Delft. From its foundation in 1842, one of the goals of the College in Delft was to educate the future civil servants to work in the Dutch East Indies. Streefland explains that the educational reform and changes in the tax system at the end of the nineteenth century resulted in the East Indies being 'perhaps even more than before, an investment area.'[7] The 'growing call for Indonesian independence' at the beginning of the twentieth century forced the Dutch government to 'encourage the spread of education' amongst other reforms. Putting education agenda together with the constant need for engineers in the East Indies led to the foundation of the TH Bandung.[8]

The college campus was designed by the Java-born Dutchman and TU Delft alumni Henri Maclaine Pont (1884–1971). The campus design strongly resembled Javanese palace complexes, called kratons, and consisted of ten faculty buildings with attention to the open fields in between. The preliminary plans included a more detailed design for the first buildings with a roof structure which was 'a free interpretation of the traditional Sumatran Minangkabau roof system'.[9] Interestingly, Johannes Widodo suggests that although this roof system looked vernacular, it was a very modern structure based on mathematical calculations, which Maclaine Pont documented in his notes later in Delft. Widodo adds that the German Architect Frei Otto based his revolutionary tensile structures on the calculations of Maclaine Pont as he found them in his time in Delft.[10]

In 1947, Van Embden was asked to move to Indonesia to become the chair of the Department of Architecture to be established. Due to the 1942 Japanese invasion, the country was still undergoing reconstruction, and it was expected that 'the new spirit' of independence could influence the architecture with the new education programme. After making inquiries about the political situation, Van Embden accepted the task of developing a new curriculum and expanding the faculty of Technical sciences and designing several faculty buildings. However, at the end of 1948, after the proclaimed Indonesian independence, the Netherlands started the euphemistically called 'police actions' (in Dutch: politionele acties), which was criticised by many Dutch people in Indonesia, including Van Embden. He returned to the Netherlands in January 1949 due to the growing political tensions and his objection to the government policy.[11] Even though his designs are not confirmed to be realised, this experience wasn't fruitless. During his stay in Bandung, he gained familiarity with a new context and made new contacts that helped further his career. In the following decades, with the experience gained from Bandung, he became a master planner and architect with his practice OD205 for the university campuses of Eindhoven (1951–1974) and Twente (1961–1973) in the Netherlands, as well as Singapore (1967–1970), Surabaya, Indonesia (1976–1985) and several universities in Nigeria (1981–1983).

CONSOLIDATING THE EXPERTISE

In 1951, the Netherlands Engineering Consultants (NEDECO) was established to unite the efforts of Dutch experts under an umbrella and establish Dutch expertise in planning, particularly hydraulic engineering, in the post-colonial global market.[12] Under NEDECO, many joint ventures were formed, including Concarplan, a collaboration between Haskoning and Van Embden's OD205, which offered a total package of design and engineering services, including water infrastructure, traffic engineering, urban planning, and architectural design for university campuses, among

4 Tom Avermaete, Viviana d'Auria, Klaske Havik, and Lara Lenders. "Crossing Boundaries: Transcultural Practices in Architecture and Urbanism." *OASE* 95 (2015).
5 Joosje van Geest, *S.J. van Embden.* (Nai010 uitgevers/publishers, 1996). As mentioned to Esther Gramsbergen in conversation.
6 In 2017, a whole issue of OverHolland was dedicated to the campus designs of TU Eindhoven and TU Delft. The work of van Embden was especially addressed in the following article: Esther Gramsbergen, 2018. "Integrating the city and the campus. Samuel van Embden and the Technical Collages in Delft and Eindhoven". *OverHolland* 18/19 (2017):07–28. https://doi.org/10.7480/overholland.2017.18/19.2436; Following on this issue, in 2023 another issue of OverHolland was composed around the campus design of U Twente. Otto Diesfeldt, Esther Gramsbergen, Yvonne van Mil, Iskandar Pané, en Yağız Söylev, "Campus-Atlas Twente". *OverHolland* 22 (2023): 71–96. https://doi.org/10.7480/overholland.2023.22.243 and Yvonne van Mil, Yvonne and Yağız Söylev, "Timeline Delft, Eindhoven, Twente. A comparison of Three Technical University Campuses". *OverHolland* 22 (2023):97–110. https://doi.org/10.7480/overholland.2023.22.244.
7 Abel Streefland. *The Shared History of TU Delft and Bandung Institute of Technology* (Delft University of Technology, 2020), 4–5.
8 Ibid.
9 Ibid. 10–11.
10 J. Widodo, "SEAM Encounters Symposium | Johannes Widodo: Contextualizing Modernism: Asian Modernity," October 14, 2019, https://www.youtube.com/watch?v=edlbs2OnyW0.
11 J. van Geest, *S.J. van Embden* (Nai010 uitgevers/publishers, 1996), 46–47.
12 J. Gussenhoven, *Export of Intellect in Shaping the Future: 140 Years* (Royal HaskoningDHV Publication, 2021).

other programs. Together, the firms advertised their expertise under the motto “What Holland can offer” in brochures aimed at foreign governments and commissioners.[13]

The case of the Kent Ridge Campus of the National University of Singapore (NUS) is significant as a total work of Concarplan and a project which helped establish their expertise in the South East Asian market. The lack of space for necessary expansions in the Bukit Timah Campus of NUS led to the development of the Kent Ridge Campus to provide room for all faculties and future expansions. Although the initial idea for the University was to remain in Bukit Timah, the university contacted UNESCO for advice in 1968. UNESCO committee, consisting of various experts, recommended the university to move to a new site, namely Kent Ridge. UNESCO pledged to support the university expansion plans with a three-year funding program of one hundred and fifty million dollars. The aid included ‘the move to a new and bigger campus; establishing a natural science museum; setting up a science and technology documentation centre; and expanding technical teacher training programmes’.[14]

Following the approval of the state to move to a new campus, Samuel van Embden was recommended to UNESCO for the role of consultant and master planner. He visited Singapore between 1969–70 and prepared the master plan for the new campus.[15] The ‘Kent Ridge site of four hundred and seventy-three acres’ was claimed to ‘provide space not only for an estimated student population of ten housand eight hundred by 1980 but further extension’.[16] The idea was to allocate all the faculties on ‘one basic structure, continuous and extendable’.[17] The campus facilities, with the Library and Great Hall in the centre, would form a horse-shoe layout and were envisioned to be connected by ‘a public learning street’ weaving the campus together on changing levels with a distinctive double height and viewpoints.

Van Embden had planned to leave Singapore once the master plan was complete. Yet, according to Tan, he was convinced by Vice-Chancellor Toh Chin Chye to continue his role to ensure the continuity and realisation of the campus. Van Embden’s practice OD205 was contracted to continue his involvement from the Netherlands and Meng Ta Cheang ‘a China-born architect and urban planner’ from OD205 was appointed ‘as chief designer and coordinator for the project’ until 1976.[18] It is understood from the notes of van Embden that the term ‘knowledge transfer’ was being discussed at the time and the critique of a one-way transfer ‘from the developed to the developing’ was already made. Therefore collaborating with local partners who would bring their expertise to the table was key for Concarplan to establish a mutual knowledge exchange.[19] Even though Van Embden was confident that the local architects could realise the ideas for the master plan[20], it was ‘Meng who, despite his young age, ensured that the project stayed on course true to the master plan’s vision and fleshed out the abstract planning guidelines’ in the end.[21]

The University of Singapore Development Unit (USDU) was established on 15 September 1970 for the project implementation. The unit was responsible for the realisation of the project and its ‘financial and administrative control’. The scope of this control included the liaison with the World Bank, which offered a loan of over seventy million dollars for the first two phases of the campus development.[22]

Despite the efforts to ensure the competent implementation of the master plan, the interviews with Meng Ta Cheang and Lee Tuan Seng reveal that vice-chancellor Toh Chin Chye was highly influential in steering design decisions, in directions that were detrimental to the success of the development, pressured by the political landscape, student protests at the time and the energy crisis in 1973.[23]

DISSEMINATING THE EXPERTISE

Besides UNESCO, the World Bank was another important organisation that funded development projects and commissioned architectural firms in the 1970s. One of these projects was the University complex in Surabaya, Indonesia, in 1976, where OD205 was one of the six shortlisted teams to propose a concept out of hundreds of designers who applied. Hans Wittermans, partner at OD205, who grew up in the Dutch East Indies, stated that the proposal which awarded them the contract for Surabaya was the work by him and Van Embden in condensing all the firm’s knowledge into one document in three weeks.[24] The authors believe this document was one of the first versions of the design guidelines entitled ‘General Master Planning and Design Approach for Universities in Developing Countries’.[25]

The thirty-seven-page document formulates straightforwardly and rationally all the aspects that need to be considered for the master planning and design of university campuses. It is a typical ‘total design’ approach with an emphasis on integrating land use zoning, infrastructure, and the allocation of

13 Concarplan, *Physical Planning in Developing Countries,* Collection Nieuwe Insituut / ODEE_d2453.
14 “Unesco Chief Pledges Aid for S’pore.” The Straits Times, February 7, 1969, p. 4.
15 Kevin Y.L. Tan, Peck Thian Guan and Lee Fook Nigan, “The Building of the National University of Singapore.” Essay. In *Kent Ridge: An Untold Story*, 243–85 (Ridge Books, 2019).
16 “All this - and room to grow too…” *The Singapore Herald Friday*, July 24, 1970, p. 3.
17 Ibid.
18 Kevin Y.L. Tan, Peck Thian Guan and Lee Fook Nigan, “The Building of the National University of Singapore,” Essay. In *Kent Ridge: An Untold Story*, 243–85 (Ridge Books, 2019).
19 Collection Nieuwe Insituut / ODEE_d2474.
20 Pie Jin Lim, “Positioning the Role of the State in the Kent Ridge Campus Master Plan: An Architectural History of Our University.” MArch thesis, National University of Singapore, 2009. p. 30.
21 Ibid. 30–1.
22 Kevin Y.L. Tan, Peck Thian Guan and Lee Fook Nigan. “The Building of the National University of Singapore.” Essay. In *Kent Ridge: An Untold Story*, 254–56 (Ridge Books, 2019).
23 Meng Ta Cheang was interviewed by P.J. Lim and Lai Chee Kien for Lim Pin Jie’s MArch thesis in 17 June 2009. Lee Tuan Seng was interviewed for the book Kent Ridge: Untold Story by Peck Thian Guan, Judith Holmberg and Edgar Liao on 15 Dec. 2010.
24 J. van Geest, *S.J. van Embden* (Nai010 uitgevers/publishers, 1996), 67–69.
25 OD205, *General Master Planning and Design Approach for Universities in Developing Countries,* Collection Nieuwe Insituut / ODEE_d2509 and d2477. Versions of the document can be found in different folders.

key buildings in the plan. It advocates the exploration of different theoretical compositions before shaping the design in relation to the landscape setting of the site. The concept of planning for change was crucial, and attention was given to flexibility and adaptability in all design scales. Furthermore, it emphasises the importance of dialogue with the client in the decision-making process and advises forming a steering group for the planning and implementing process and a locally-based design team.[26]

A rationalised design grid system was seen as a prerequisite for adapting the abstract guidelines to the conditions of a specific design task. However, as we know the meaning of design elements such as the grid is dependent on specific cultural, social, and political conditions. For instance, a similar design grid has guided the designs of the University of Twente (UT) and the National University of Singapore's (NUS) Kent Ridge campus. While the guidelines stressed the significance of gathering and community spaces, the results were influenced by different political realities in both contexts. The UT grid and student-empowered education aimed to promote a democratic academic community by encouraging socialising and student gatherings; however, the political landscape in Singapore forced the NUS directors to limit gathering spaces and decentralise students to prevent protests.[27] This illustrates the discrepancy between the diagrams and their landing in specific locales.

To conclude, a further investigation of the different aspects of the design guidelines seems to be quintessential to grasping the architectural knowledge exchange that was practised in the work of OD205. While the literature has extensively covered the 'what' and 'who' of knowledge exchange, the 'how' of knowledge exchange has only recently received attention.[28] We are particularly interested in the role of the design guidelines in sharing architectural knowledge among different countries and actors involved in university campus design and planning. The investigation leads to further questions. What was the influence of UNESCO and the World Bank on the guidelines? How can the design guidelines be contextualised to some of the other university guidelines around the same period, such as those of Giancarlo de Carlo and ARUP Associates?[29] How did these generic and abstract design guidelines land in different locales? Answering these questions will help to contextualise the work of Van Embden c.s. in the transition between the colonial past and the emergence of the post-colonial global market.

26 Ibid.

27 For Twente case: Benneworth, P. S. "Decoding University Ideals by Reading Campuses: Exploring Beyond the Democratic Mass University." In *The Physical University: Contours of Space and Place in Higher Education*, edited by P. Temple, 217–242. New York: Routledge, 2014. For Singapore case: Tan, Kevin Y.L., Guan, Peck Thian, and Ngian, Lee Fook. "The Building of the National University of Singapore." Essay. In *Kent Ridge: An Untold Story*, 243–85. Singapore: Ridge Books, 2019.

28 Rajesh Heynickx, Ricardo Costa Agarez, and Elke Couchez. "Introduction: The Mobile Landscape of Post-war Architectural Thought." In *Architecture Thinking across Boundaries: Knowledge Transfers since the 1960s,* edited by Rajesh Heynickx, Ricardo Costa Agarez, and Elke Couchez, 1–12 (Bloomsbury Visual Arts, 2021). http://dx.doi.org/10.5040/9781350153202.0005.

29 Giancarlo de Carlo, Giancarlo, ed. *Pianificazione e disegno delle universita.* Edizioni Universitarie Italiane, 1968; and Arup Associates. "Loughborough University of Technology, Grande-Bretagne." *Architecture d'Aujourd'hui* 137 (1968): 53–56.

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Published by Delft University of Technology and Nieuwe Instituut, Rotterdam, November 2024.

ISBN number: 9789083438344