

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

Abstract To address teacher shortages, Dutch Universities of Applied Sciences strive to enhance the appeal and accessibility of their teacher education programs by making their curricula more flexible. Flexibility in education is conceptualized from multiple perspectives, namely the student, workplace, and societal perspectives. This study uses the term ‘responsive’ to refer to these three perspectives, which served as a lens to examine how responsiveness manifests in day-to-day practices in Dutch teacher education. A case study of twelve TE programs examined various practices within the enacted curriculum. Data were collected through semi-structured interviews. Data analysis revealed four distinct profiles. These profiles are interpreted as: customization-oriented, locally-oriented, community-oriented, and change-agent-oriented. The profiles could serve as a conceptual frame to better understand the concept of responsiveness in education. For practical application, these four profiles may assist in identifying the type of responsive curriculum that educational programs aim to achieve, thereby supporting curriculum developers in making more coherent and consistent decisions regarding curricular responsiveness.

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236

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1 Introduction

This article addresses the issue of flexibility in Dutch teacher education (TE). For many years, there has been an ongoing debate about flexibility in education and the necessity of designing more flexible curricula (Barnett, 2014; Kessels & Ehlen, 2006; Schellekens, 2004). The need for flexibility is particularly relevant in teacher education (TE), since teaching ranks seventh among labor-short occupations in Europe, with critical shortages now severely threatening the quality and stability of education (Di Battista et al., 2023; Meijer, 2021). In tackling teacher shortages, teacher education aims to attract new groups of potential teachers by enhancing the appeal and accessibility of their programs. The emergence of these new student groups enhances the diversity within teacher education and necessitates greater curricular flexibility to effectively tailor educational experiences to their varied needs (Ministerie van Onderwijs Cultuur en Wetenschap, 2022). In addition to being more flexible for students, TE must also consider the needs of the professional field, namely schools for primary, secondary, and vocational education (Daza et al., 2021). Schools vary in vision and approach, each with their distinct preferences and ideas regarding educating their future colleagues (Carlsson & Willermark, 2023; Hammerness & Craig, 2016). Furthermore, societal developments, such as advancements in artificial intelligence and growing emphasis on equity, affect educational practices and those working within the education sector (Ainscow, 2020; Holmes & Tuomi, 2022; Tahiru, 2021). TE programs prepare teachers to cope with the ever-changing demands of society.

The issue articulated with the need for flexible curricula is that TE needs to respond to three developments: student diversity, a variety of schools, and societal changes. This article uses the term ‘responsive’ to describe this need (Barnett, 2014; De Bruijn, 2006; Van Bommel et al., 2024; Vreuls et al., 2022). Although the urgency of a responsive TE curriculum is increasingly acknowledged, it is also seen as a wicked problem since responsiveness is quite abstract, providing little direction for designers to shape the curriculum (Barnett, 2014). Furthermore, TE programs must comply with various national and international frameworks and requirements and respond to change simultaneously. Therefore, designing a responsive curriculum is complex and can be a “risky undertaking” (Kessels & Ehlen, 2006). A thorough understanding of the concept of responsiveness increases the likelihood of successfully transforming the curriculum into a responsive one (Barnett, 2014; Kessels & Ehlen, 2006).

A curriculum, as the actual process of teaching and learning, consists of a range of day-to-day practices. These practices can be studied to deepen understanding of what responsiveness entails. Although limited research has systematically examined curriculum responsiveness in the daily practices of TE programs from the student, professional field, and societal perspectives,

237

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this approach could yield valuable insights. These insights could inform design practices in TE and beyond. Therefore, this study aims to deepen the understanding of responsiveness in education by examining how responsiveness manifests in day-to-day practices in Dutch TE using this three-dimensional lens.

2 Theory

2.1 The concept of responsiveness

Responsiveness occurs across various educational sectors and domains, albeit referred to by different terms and interpreted in various ways. The concept is similar to flexibility; however, they are not identical. To expand on our view of responsiveness, we can draw from the insights of others (Alinea, 2021; Andrade Snow, 2018; Hoeve et al., 2019; Vreuls et al., 2022). In literature, we distinguish three perspectives on responsiveness.

First, responsiveness can be viewed from the student's perspective (Collis & Moonen, 2002; Jonker et al., 2020; Palmer, 2011; Tucker & Morris, 2011). From the student point of view, responsiveness may include aspects such as granting students autonomy in selecting course content (Dekker, 2021), selecting the location and timing of their learning activities (Jonker et al., 2020; Tucker & Morris, 2011), allowing students to determine their own study pace (Howard & Scott, 2017), and incorporating learner focused pedagogical approaches (Jonker et al., 2020; Tucker & Morris, 2011; Valtonen et al., 2021).

Second, the workplace perspective is relevant to the conceptualization of responsiveness. Since the main purposes of TE are to prepare students for the complex task of teaching, support teacher identity formation, and qualify them for professional practice, TE can be seen as vocational. Given the substantial incorporation of workplace learning within the TE curriculum, responding to a variety of workplaces ensures that educational programs proactively and timely meet workplace needs (Hoeve et al., 2019; Onstenk & Westerhuis, 2017). Thus, curriculum responsiveness is also concerned with establishing a robust connection between learning in schools and in workplaces (Zitter & Hoeve, 2012; Zitter et al., 2016).

In current literature, a third aspect can be seen as relevant to responsiveness, namely responding to societal changes. This aspect refers to how educational programs can reflect the realities of students' lives and the world around them (Carlsson & Willermark, 2023; Gleason, 2018; Veltman et al., 2021). Since schools are embedded in society, curriculum developers are expected to anticipate societal developments, such as mass migration, equity, climate change, digitalization, and artificial intelligence, and the way it affects vocational practice (Hoeve et al., 2019).

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

Cumulatively, the three perspectives can be defined as three dimensions of responsiveness. Although there is a degree of overlap between ‘flexibility’ and ‘responsiveness’, they do not entirely encompass the same scope. Flexibility typically emphasizes the student’s dimension, whereas responsiveness also includes the other two dimensions. Following this reasoning, responsiveness in a TE curriculum is conceptualized as responding to and anticipating student diversity, a variety of schools, and the teaching profession in a changing society (Van Bommel et al., 2024).

2.2 The TE curriculum

The curriculum concept is firmly rooted in educational sciences and referred to as a plan for learning (Fung, 2017; O’Neill, 2015; Van den Akker, 2013). Conventionally, a plan for learning can be seen as a blueprint that supports student learning within an educational institute (Flores, 2016; O’Neill, 2015). In TE, student teachers learn to become a teacher. Since preparing students to cope with complex problems in the teaching domain, supporting teacher identity formation, and thus qualifying them for occupational practice are the main purposes, TE can be considered vocational in nature. Vocational education encompasses teaching and learning within an institute and in other settings, such as the workplace (Bouw et al., 2019; Zitter & Hoeve, 2012). In vocational education curricula, the focus is on meeting the needs of both students and workplaces (Carvalho & Goodyear, 2018; Schellekens, 2004). Empirically seen, these curricula consist of a range of components referred to as ‘practices’ intended to create opportunities for learning how to become a professional, such as a nurse, accountant, or teacher (Zitter & Hoeve, 2012; Zitter et al., 2016). Given the vocational nature of TE, we adopt the concept of a curriculum from vocational education for the TE curriculum. Thus, in this article, a TE curriculum is viewed as a range of practices in the TE institute and workplaces.

A curriculum has three representations, each providing a unique view on the educational process. These are commonly referred to as intended, implemented, and attained curriculum (Van den Akker, 2013). The implemented curriculum refers to the curriculum as enacted (Goodlad, 1979; Priestley, 2011). The enacted curriculum provides opportunities to learn how a concept, as envisioned in the intended curriculum, is operationalized by its users in the context of a specific educational program. Enactment of the intended curriculum varies between contexts as it is interpreted by teachers with a certain degree of autonomy to implement the curriculum according to their interpretation (van den Akker et al., 2012). Since this study aims to deepen the understanding of how responsiveness manifests in curricula, the focus is on systematically capturing practices that manifest responsiveness in the enacted TE curriculum. Studying these daily practices is essential before evaluating whether the responsiveness as intended, is implemented.

239

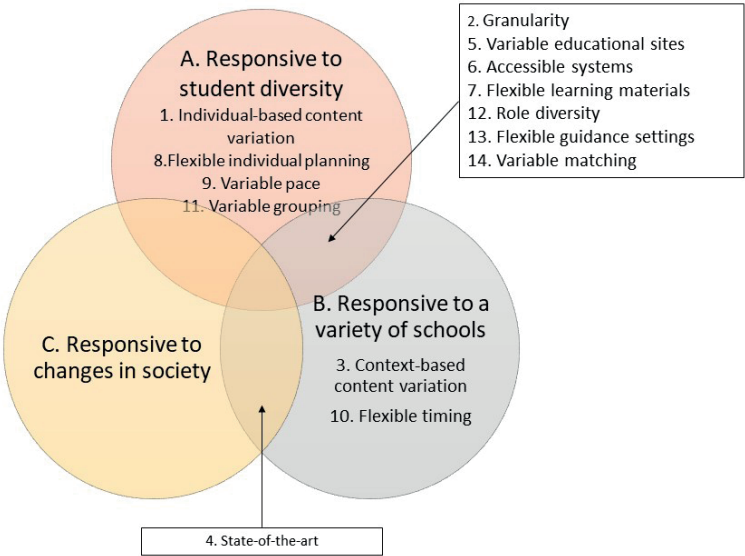
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A curriculum that creates opportunities for learning in both school and workplace contexts can be intentionally designed from various design perspectives (Bouw et al., 2021; Carvalho & Goodyear, 2018; Zitter et al., 2016). These perspectives relate to what will be taught (content), where it will be taught (institute/workplace), when it will be taught (timing, sequence, pace), who is involved (actors from school and the workplace), and which resources and materials are needed. Responsiveness could emerge from all these perspectives and the interplay between them. In previous research, we used the design perspectives to thematize responsiveness in TE curricula into fourteen themes (see Figure 1) (Van Bemmelen et al., 2024). The fourteen themes refine the articulation of responsiveness in TE curricula. Please, refer to *Appendix A* for a detailed description of these themes and examples. This study uses the themes to identify the practices that manifest responsiveness in the enacted TE curriculum.

Figure 1
The three dimensions and fourteen themes of a responsive TE curriculum



How does responsiveness manifest within the enacted curricula of teacher education
in the Netherlands: a multiple case study.

R. van Bemmelen, I. Zitter and E. de Bruijn

This study's **research question** is: How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands? We use the framework in Figure 1, with its three responsive dimensions and fourteen themes, as a lens to study the enacted curriculum.

3 Method

To answer the research question, a qualitative approach with an embedded case study design was employed (Merriam & Tisdell, 2015; Yin, 2018). In this study, a case is defined as the enacted curriculum of a TE program. The enacted curriculum captures the lived reality of teaching and learning and therefore, how curriculum responsiveness takes shape within that lived reality. An embedded case study design is suitable for this study since it considers contextual conditions (Yin, 2018). It enables a deep and comprehensive understanding of how responsiveness takes shape *within a specific context*. As explained in the theory section, we approach the enacted curriculum as consisting of a range of practices. This study focuses on identifying practices within a case that can be seen as manifestations of responsiveness. These practices serve as the units of analysis. To find profiles of curriculum responsiveness, the interrelations between practices, i.e., manifestations of responsiveness, across cases are analyzed.

Context, cases, and participants

This study was conducted in the context of Dutch TE. In the Netherlands, most TE programs are provided by Universities of Applied Sciences (UAS, ISCED level 6), which is the focus of this study. These programs include full-time, four-year curricula and shorter part-time, dual and alternative routes (Inspectie van het Onderwijs, 2020). In this research, we refer to the UASes as *teacher education institutes* (TEIs) and to workplaces as *schools* responsible for primary education, junior general, pre-vocational, and senior vocational education. Students are guided by institute-based teacher educators (IBTE) in the TEI context (a university tutor) and by school-based teacher educators (SBTE) in the school context (a professional mentor).

We selected cases where we expected to find many practices relevant to our study. We aimed for maximum variation (Miles et al., 2018; Suri, 2011) in school type and region. Starting with the nationwide regional alliances between TEIs and schools (Vereniging Hogescholen, 2023), we contacted the project managers to initially select cases. This resulted in a list of 16 potentially responsive TE curricula and a key person from the TE program who had intimate knowledge of the curriculum. We checked the following two criteria with the key person: 1) the TE curriculum reflects an intention to be more responsive, 2) the curriculum

241

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is enacted at the moment of data collection. After this check, twelve cases were selected (see Table 1). The first step of the data collection (see below) verified again whether the criteria were met.

Table 1

Selected cases and data collection per case

Case	Type of TE			Interview participants		Interview The interview's length in minutes
	Primary education	Secondary (junior general) education	Secondary (pre)vocational education	School-based teacher educator	Institute-based teacher educator	
c1		x		1	1	88
c2		x		1	1	99
c3	x	x	x	2		85
c4	x	x	x		1	105
c5	x				1	78
c6	x				1	106
c7		x	x		2	99
c8	x			1	1	92
c9		x	x	1	1	105
c10		x	x		1	81
c11	x	x	x		1*	112
c12		x	x		1	80

*The interview participant requested a student to be present.

We conducted semi-structured interviews to identify practices that are possible manifestations of responsiveness within the twelve cases (see Table 1). Interviews are suitable because participants can be extensively questioned about how responsiveness manifests in the case. Purposeful sampling was employed (Suri, 2011) to recruit interview participants with an overview of the curriculum. These participants were closely involved and could extensively describe practices that manifest responsiveness within the enacted curriculum. Some participants indicated that they had the overview together with another person. Such a person was included on request, if that person could provide essential information, for example, about the day-to-day activities at schools/workplaces. Participation was voluntary, and participants' informed consent was obtained at the individual and organizational levels. Ethical approval was given by the ethical committee of the first and third authors' first affiliation.

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

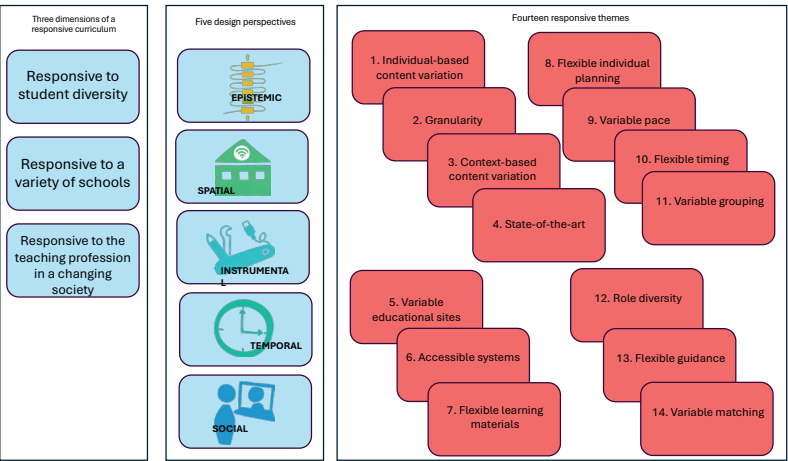
R. van Bommel, I. Zitter and E. de Bruijn

The interview instrument

The interview instrument was based on our theoretical framework. It consisted of three sets of cards, representing the three dimensions of a responsive curriculum (see Figure 1), the five design perspectives and the fourteen responsive themes. The responsive themes were used as triggers to encourage participants to elaborate on all practices that manifest responsiveness. Follow-up questions were asked until the enacted curriculum was fully understood. The interview instrument was piloted, and, as indicated by the feedback received, it effectively prompted participants to describe their practice in detail.

Figure 2

The interview instrument



Data collection

Data collection took place between October 2022 and April 2023. Before the interview, curriculum-related documents were collected to facilitate the interview, focusing on finding distinct practices within an enacted curriculum that can be seen as manifestations of responsiveness. In preparation for the interview, a site visit was conducted.

Data analysis

The units of analysis were distinct practices that manifest responsiveness within the enacted TE curricula. To familiarize with the cases, the first author explored the interviews, documents, and observations and organized them in a case-ordered descriptive meta-matrix (Miles et al., 2018). The interviews were analyzed in a four-step procedure, as depicted in Figure 3.

Figure 3

Four-step data analysis process



Step 1: Segmenting the interviews

The interviews were transcribed verbatim. The first author read the transcripts carefully and divided them into segments. Each segment holds a distinct practice that manifests responsiveness within an enacted curriculum long enough to independently understand without the specific context of the case (Bogdan & Biklen, 1998). This resulted in 482 segments for analysis.

Step 2: Coding the interview data (within case analysis)

The first author deductively coded the 482 identified practices with the help of ATLAS.ti software. The coding scheme was based on the theoretical framework (see Figure 1) and consisted of three main codes (the responsive dimensions) and fourteen sub-codes (the responsive themes). Each segment was labeled with at least one main code and one subcode. Ten percent of the data were coded independently by the first and second author to ensure the quality of our coding. The second and third authors functioned as critical friends during the entire coding process. After coding all 12 interviews, we composed an overview of frequencies of practices based on the main codes, i.e. the responsive dimensions (see Table 2).

Table 2

Frequencies of practices that manifest responsiveness organized per responsive dimension

Cases	Responsive to student diversity	Responsive to a variety of schools	Responsive to the teaching profession in a changing society
C1	11	26	3
C2	14	23	0
C3	16	19	5
C4	22	23	2
C5	29	9	5
C6	22	10	1
C7	13	33	11
C8	4	25	5
C9	11	28	0
C10	24	7	1
C11	24	9	13
C12	26	8	0
Total	216	220	46

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

Step 3: Identifying profiles (across case analysis)

To reduce the data, the next step was to identify patterns in the data (Miles et al., 2018).

Guided by our theoretical framework consisting of three responsive dimensions, we observed different ratios in the frequencies of practices among the three dimensions. We characterized each case based on its rationale. Table 3 indicates the frequencies from less frequent (light shade) to more frequent (dark shade). The color scheme illustrates the rationale. We clustered cases with similar rationales and identified four profiles. The clustering of the cases was extensively discussed with fellow researchers and the second and third author. Cases with a diffuse profile were thoroughly debated until consensus was reached.

Table 3

Clustering of cases with similar responsive profiles
Profile 1

Case	Responsive to student diversity	Responsive to a variety of schools	Responsive to the teaching profession in a changing society
C4	22	23	2
C6	22	10	1
C10	24	7	1
C12	26	8	0

Profile 2

Case	Responsive to student diversity	Responsive to a variety of schools	Responsive to the teaching profession in a changing society
C1	11	26	3
C2	14	23	0
C9	11	28	0

Profile 3

Case	Responsive to student diversity	Responsive to a variety of schools	Responsive to the teaching profession in a changing society
C3	16	19	5
C7	13	33	11
C8	4	25	5

Profile 4

Case	Responsive to student diversity	Responsive to a variety of schools	Responsive to the teaching profession in a changing society
C5	29	9	5
C11	24	9	13

Step 4: Signifying the data

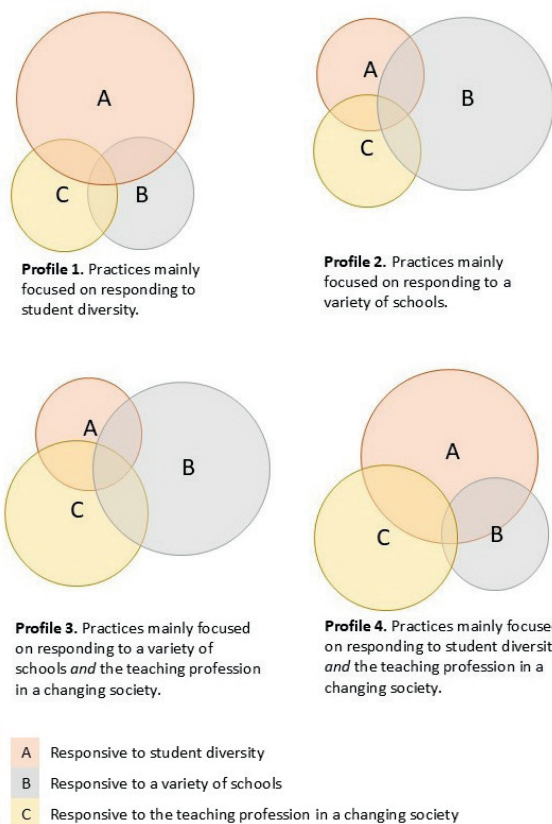
After the cases were clustered into four profiles, the sub-codes (the fourteen responsive themes) were used to further signify the practices that manifest responsiveness within each profile. As a refinement of the dimensions in the context of teacher education, the themes helped us make a more detailed analysis of the practices within a profile. The analysis involved fellow researchers and the second and third authors as reflective partners. The next section will explain how responsiveness manifests within each profile and illustrate the profiles with meaningful quotes.

4 Results

In total, 482 segments of practices that manifest responsiveness were found within the 12 cases. After analyzing the frequencies of the dimensions of responsiveness, we were able to cluster the 12 cases into four profiles. In profiles one and four, responding to student diversity is the prevalent dimension. Profile four distinguishes itself from profile one by emphasizing responding to societal changes. In profiles two and three, responding to a variety of schools is the prevalent dimension. There is a difference in how responding to societal changes is present, giving the profile a different nuance. In the subsequent paragraphs, the four profiles (see Figure 4) are presented by the practices that manifest responsiveness that make up the profile.

Figure 4

Four responsive profiles



247

PEDAGOGISCHE
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Profile 1

In this profile, practices that manifest responsiveness mainly focused on responding to **student diversity**.

After each semester, students fill out a form ... and provide their reflection on the competency requirements. It is a bit of a self-scoring, so to speak. Like, where do I stand now, and why do I think so? Their SBTE also fills it out and they discuss it together, resulting in new learning goals and intentions for the next period. The student also discusses it with the IBTE, resulting, for example, in a focus on classroom management ... So they continue working on it very specifically, while others, for example, yeah...

well, pursue entirely different goals, such as focusing on more engaging teaching methods, mastering the subject matter, or speaking up more in team meetings. Well, it can be highly diverse and deeply personal. However, direction is provided within that triangle of IBTE, SBTE, and the student. (c12)

The quote above illustrates practices that respond to the diversity of students. In this profile, the curriculum content is tailored to students' individual needs and aspirations, and the program enables students to personalize their education. A logical route that serves as a *backbone* (c4) may be provided. Still, the sequence of program components is variable, components can be combined, and students may pursue a program-independent learning pathway (c12). Responsiveness manifests as aligning with the students' development. We noted temporal components in this profile, such as fluidity between modules and phases. Content is delivered *just-in-time* (c6) or can be accessed multiple times throughout the year to accommodate students' schedules. Exemptions can shorten programs, and individual student routes are documented in what is known as a *learning agreement* (c4), *education contract* (c6), or *study plan* (c10). The modular curriculum allows for specialization options, such as selecting minors. Broad learning outcomes encourage students to take responsibility for shaping their learning progressions, for example, by working with individual learning questions.

We observed differentiation practices that enable students to achieve learning outcomes individually by using reference tools like criteria statements. One participant explained that the curriculum is similar to *making standard cars, but everything you want to add, such as lights, mirrors, and air conditioning, must be highly customizable* (c6). Resources are available to help students make choices, such as road maps and flowcharts. Students can choose how and when they are assessed, which allows for variety in demonstrating their competency. Students can choose where to learn: on-campus, online, or in practical settings. An online platform serves as a library; students can search for information and share educational materials. Guidance, known by various terms in the interviews—such as *coaching* (c10), *tutoring* (c4), or *study-career guidance* (c12)—is provided in individual or small group settings, both at the TEI and in schools, with online options available. These sessions help students find the best learning path, receive feedback, and make curriculum choices. Students are guided by a team of teacher educators who fulfil multiple roles, including IBTEs, such as coaches, teacher-experts, and assessors, and SBTEs, such as mentors and school coordinators. There is a continuous flow of feedback from IBTEs, SBTEs, and peers. Although the curriculum centers on the individual, this does not suggest that students are expected to handle everything independently. One participant highlighted the advantages of grouping students and stated *as soon as it can become a group, we will form it into one* (c10). The matching of students

and workplaces is based on the students' preferences and needs, such as their preferred type of school. Students apply for a placement at a school of their choice.

The ratio of practices that manifest responsiveness to **school variety** was low in this profile, yet some did emerge. For example, participants mentioned that the curriculum is practice-oriented, informed by schools, and incorporates demanding themes from the field. The curriculum aligns with school developments through representation from the field in the curriculum committee. Specialized elements, like vocational education-focused minors and regional issues such as language problems and reading promotion, integrate the needs of both the professional field and students. Students can contextualize learning outcomes, as explained by a participant: *Learning outcomes provide greater scope for authentic situations to guide the educational process* (c6). Within schools, students are grouped with fellow students from different cohorts, tracks, and programs. In one of the cases, the participant called this grouping at the school a *teachers' nest* (c6), a term used for students and educators collaborating within a specific school. SBTEs receive guidelines for providing feedback and have access to students' digital portfolios, allowing them to give feedback digitally and make it accessible to all.

In this profile, the ratio of practices that manifest responsiveness to **the teaching profession in a changing society** was low. Participants noted minors anticipating professional developments like e-learning and citizenship in (vocational) education.

Profile 2

In this profile, practices that manifest responsiveness mainly focus on a **variety of schools**.

Students may raise these issues because they are currently relevant, for example, poverty or themes related to acceptance of the LGBT community, which is the focus this Friday. This theme is significant in our school, where a considerable number of students are Islamic. Managing these dynamics is not always straightforward. Thus, students bring up these issues since it is a current question. Our curriculum is designed to accommodate such questions and innovations, broadly interpreted, find their way into the curriculum through that route — thus, via students' inquiries. (c1)

The example shows how, in this profile, the focus of the curriculum is on the workplace, i.e., schools for primary education and junior general, pre-vocational, and senior vocational education. The TE program is embedded and partly located in schools, aligning with their vision and culture. The school-based part of the TE program reflects themes that are relevant to schools, such as *diversity* (c9), *engaging with big questions* (c1), and *poverty* (c1). Thematic sessions are

249

PEDAGOGISCHE
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prepared collaboratively by the IBTE and SBTE. Typical manifestations are using students' practical experiences and *concerns* (c2) as curriculum content. For instance, a participant mentioned that discussions about pupils were utilized as a *practice context* (c1) for organizing sessions to discuss how to prepare and conduct them. Standardized assignments do not fit this curriculum. A participant clarified that with standardized assignments, you *cannot fully utilize workplace context* (c1). Instead, students can explore learning questions within a broad framework concepts. Together with their teacher educators, students decide how to demonstrate the learning outcomes using professional practices. Typically, within this profile, attention is paid to finding secluded spaces for guiding students, preferably in practice settings, which are indicated with words like *quiet* and *transparent* (c2) with *coffee readily available* (c2) that *do not feel like a school* (c9). In this profile, from the workplace perspective, it is crucial that actors in schools, including students, have access to school-specific information. The emphasis is on accessible systems for students like the school's ICT platform. Agreements exist between TEIs and schools, and between schools and students, for meetings that match the school's schedule. IBTEs and SBTEs connect the TEI and school, collaborating to oversee the curriculum, co-prepare student sessions, design materials, and communicate regularly with stakeholders. The emphasis is on matching through initial interviews. A participant observed that rotating among schools (c9) enables students to consider various options for *informed decision-making* (c9). Once matched, students commit to the school and become integral to the school team.

The ratio of practices that manifest responsiveness to **student diversity** was low in this profile. We already mentioned that curriculum responsiveness is manifested in the absence of standardized assignments. From the students' perspective, customizable assignments enable choices, such as selecting themes and literature. Collaboratively, IBTEs and SBTEs work with students to tailor the program to their learning questions, needs, and preferences. They communicate this approach by saying, *we will look at the program together, identify your needs and learning questions, and see what you would like to be reflected in the program* (c9). Regular conversations with students identify their learning interests. Students are encouraged to take responsibility for their learning progress, leading to the development of school-specific materials for evaluation and reflection. While there is a general schedule, SBTEs adjust the pace to best align with each student's development, allowing them to complete workplace learning components at their own pace. In school, students are grouped heterogeneously, allowing them to learn from each other regardless of proficiency level. An example of this is peer classroom observations. Multiple teacher educators guide students they encounter across contexts (TEI and school), consistently questioning their needs.

The ratio of practices that manifest responsiveness to **the teaching**

How does responsiveness manifest within the enacted curricula of teacher education
in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

profession in a changing society was also low for this profile. Nonetheless, participants noted that students are considered members of the school team and are actively involved in innovations, such as developing a cross-curricular curriculum.

Profile 3

In profile three, the practices that manifest responsiveness to **a variety of schools** are most prevalent, similar to profile 2. However, in this profile, the practices that manifest responsiveness to **the teaching profession in a changing society** are more prominent than in the previous profile.

A group of students from the equine department... were allowed, ... to think about how the equine sector could contribute to maintaining the nature reserve. Then, the students from the equine department came up with the idea of organizing a huge event where large numbers of riders would gallop over those dunes to break up the ground and restore the dynamics of the shifting sands. This was carried out for several years, to the satisfaction of all involved, and yes... this is a practical example where students used their creativity and worked with the school, Staatsbosbeheer (Dutch Forestry Commission), and several other companies. (c7)

This example of a vocational TE program highlights that the profile emphasizes the embeddedness of schools in a local environment and, accordingly, responds to a variety of schools. Within this profile, the curriculum encourages students to engage in projects based on local challenges in professional contexts such as *vital citizenship* (c3), *learning for sustainable development* (c7), and *interprofessional education* (c8). The curriculum addresses real-world problems and is aligned with the needs of the school and its environment. Students engage in projects and activities that extend beyond traditional classroom learning, focusing on local challenges in their community. Projects do not necessarily have to take place in schools. For example, when students learn how to contribute to local challenges, they may start by consulting stakeholders in companies and organizations to identify relevant issues. A participant noted how a sports canteen was a *central point in the neighborhood where the students, teachers, and community sports coaches come together* (c3). The planning is adjustable to align with the timing of project partners. In this cluster, manifestations in the social design are marked by interdisciplinary collaboration. One of the participants referred to this phenomenon as a community mix (c8) and explained how teacher assistants, TE-students, teachers, researchers, and managers work and learn together. The interdisciplinary collaboration can extend beyond the school by collaborating with students from other programs or disciplines, actors from companies, and community organizations. Regularly, expertise is brought in from outside the school, such as professionals from the

251

PEDAGOGISCHE
STUDIËN

[https://doi.](https://doi.org/10.59302/7ezw2e90)

[org/10.59302/7ezw2e90](https://doi.org/10.59302/7ezw2e90)

field serving as guest lecturers. The role of the IBTE is to facilitate connections among actors, such as by establishing (local) collaborations.

The ratio of practices that manifest responsiveness to **the teaching profession in a changing society** is medium in this profile. The challenges mentioned above cover a wide array of innovative topics in the domain for which the student is being educated, ranging from *sustainability and citizenship* (c7) to *digital literacy, robotics, virtual reality* (c8), and *healthy aging* (c3). An innovative approach focuses on teaching methods to prepare students for participation in settings such as *innovation labs* (c3), where they can contribute to solving problems within and beyond the school. The curriculum focuses on a type of didactics stimulating capabilities such as *value development, creativity, and courage* (c7), which are, according to a participant, *professional in nature, because they occur in the professional context* (c7). Innovative projects require innovative materials in the curriculum that *circulate between students* (c3) or can be *borrowed by students* (c8), ensuring that students have the materials they need.

Although the ratio of practices that manifest responsiveness to **student diversity** is low in this profile, there is a strong focus on autonomy, for example, in choosing challenges, modules, minors, and research projects. Furthermore, there is student initiative in the assessment process, as the specific form of assessment, products, and literature are hardly standardized. Usually, curriculum components are not sequential, so students can shape their learning route. Teacher educators fulfill various roles to support students in their decision-making process. Guidance, referred to as *fluid guidance* by one of the participants (c7), takes place in small, informal settings. Students and supervisors collaborate closely, fostering equality and equitable interaction.

Profile 4

This profile highlights practices responsive to **student diversity** and features a stronger focus on the practices that manifest responsiveness to **the teaching profession in a changing society** compared to profile one.

Over time, the demand from the field for teacher education has arisen, indicating that the match with students from the teacher training program is not always perfect. It does not always fit. Furthermore, can we work together to train students who can ultimately keep up and meet the expectations of the field? ... students who could have a broader perspective, not just focusing heavily on subject-specific content to shape their teaching. However, rather looking at it more broadly and being able to think more critically, which has been fully implemented in the curriculum from day one. (c11)

The example shows that schools expect TE to educate a different type of professional. The focus on responsiveness to student diversity and the evolving teaching profession upholds that TE is personalized and future-oriented. This

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

combination is reflected in the active role of students in innovative teaching settings in TEI and schools. For example, students help design, implement, and evaluate their education in collaboration with teacher educators as part of the curriculum design team. One of the participants mentioned the *student voice* (c11) in this context and explained: *That is also an innovation, students contributing ideas and innovating their education with the design team* (c11). The student's voice reflects in the curriculum through peer assessments, sharing expertise, and serving as ambassadors of the TE program. The TE program intentionally emphasizes critical thinking to empower students. It covers current topics and societal developments through a curriculum component called *reading the news* (c11), where students and IBTEs discuss events and their impact on education. A participant noted *no year has been the same as previous years* (c11). Societal and professional developments can swiftly be incorporated into the program *rather than still having an entire curriculum to complete before discussing new ideas* (c11).

The curriculum encourages students to make choices within the program's framework. They can decide how to learn, the program sequence, specific focus areas, and how and when to be assessed. In the digital learning environment, resources are exchanged between teachers and students. Students can set their own pace using (digital) portfolios to track their progress. Students are encouraged to obtain multiple qualifications and broaden their horizons. A participant said that students *also have the option to select other 15-credit units within a different profile* (c5) and *they can put together their entire curriculum* (c5). There is a broad understanding that learning occurs in various spaces inside and outside the TEI. One participant mentioned using unconventional environments, like museums. When students asked, *"Why are we going to a museum? I've never been before,"* their reaction was, *"Yes, that is precisely why"* (c11). A key aspect of the curriculum is the collaboration between students and teacher educators within the TEI and in schools. They form diverse groups as *communities of learners* (c5/c11), with students from various TE program stages collaborating.

This profile shows a low ratio of practices that respond to **a variety of schools**. However, two noteworthy manifestations emerge. First, by establishing curriculum content at a higher abstraction level, students can adapt it to their specific school or context. Second, there is a careful selection of partnership schools. One participant explained that students are matched with schools *open for or enthusiastic about* (c5) the program's characteristics. Another mentioned that they prefer innovative schools prioritizing renewal and innovation, providing our students *rich learning environments* (c11).

5 Discussion

This study aimed to deepen the understanding of responsiveness in education by examining how responsiveness manifests in day-to-day practices in TE using a three-dimensional lens that includes responsiveness to students, workplaces, and society, and fourteen themes (see Figure 1). The research question was: How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands? We have systematically identified and analyzed practices that manifest responsiveness in Dutch TE curricula. Our data showed that the three dimensions were reflected in our analyzed practices. We revealed four responsive profiles based on the rationales among the three dimensions. In what follows, we will summarize the key findings, interpret the results, draw inferences and relate them to what is currently known in this field.

Profile 1 is a curriculum that responds to students' needs and preferences. Similar to most studies about flexibility, our findings confirm the relevance of the student perspective in a responsive curriculum (Collis & Moonen, 2002; Howard & Scott, 2017; Jonker et al., 2020; Tucker & Morris, 2011). We characterize this profile as a customization-oriented curriculum. Notably, in our study, we observed two different approaches to customization. These different approaches can also be recognized in the literature about flexible education, where the focus sometimes shifts to logistical aspects, such as blended learning (Boelens et al., 2018; Howard & Scott, 2017; Jonker et al., 2020), and at other times to fostering students' development and autonomy (Dekker, 2021; Ting & Lee, 2012). We conceptually introduce a nuance regarding the meaning of responsiveness concerning students' needs, clarifying that customization includes both organizational and pedagogical aspects. Given the distinction between two substantively different approaches within this profile, we could further break down the *customization-oriented curriculum into logistically-oriented and development-oriented*.

Profile 2 explicates how a curriculum can be responsive to schools as (future) workplaces for students. Within TE, partnerships between TEIs and schools have been strengthened recently (Daza et al., 2021; Peercy & Troyan, 2017; Willegems et al., 2023). Although our results show that responsiveness can be meaningful in this context, responsiveness does not always play a role within the partnerships. Like VE, a responsive TE curriculum could be informed by what happens in schools and respond to what is needed in local practices. Therefore, explicitly defining a *locally-oriented* curriculum broadens the concept of responsiveness.

In profiles 3 and 4, manifestations within the dimension of responding to the teaching profession in a changing society are more apparent. This aligns with the trend in vocational education, which is shifting its focus to the world outside the educational institution and becoming more adaptive to societal

254

PEDAGOGISCHE
STUDIËN

[https://doi.](https://doi.org/10.59302/7ezw2e90)

[org/10.59302/7ezw2e90](https://doi.org/10.59302/7ezw2e90)

How does responsiveness manifest within the enacted curricula of teacher education
in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

developments. As shown in the result section, the third profile pertains to curricula designed to prepare students for working in schools embedded in a broader community, such as a neighborhood or region (Cremers et al., 2016; Veltman et al., 2021). In our view, schools are not isolated but embedded in society. Consequently, future education professionals may increasingly engage in interprofessional settings that address issues within the school's neighborhood, community, or region. In light of our findings, it is worth exploring responsiveness further within a *community-oriented* curriculum that explicitly aims for TE students to collaborate with professionals from various fields in projects to solve complex problems or foster local innovations.

Profile 4 empowers students to act agentically and respond to societal changes (Andrade Snow, 2018; Baldwin & Baumann, 2005; Keesing-Styles et al., 2014; Lund & Aagaard, 2020). According to Barnett (2004), preparing students for an uncertain future requires more than acquiring knowledge and skills. Instead, the focus should be on cultivating human qualities and attitudes, such as resilience, adaptability, critical thinking, creativity and the ability to learn and adjust in new and unfamiliar situations (Barnett, 2004; Goel & Goel, 2010). In literature, adopting, modifying, or even opposing the present teaching state is called teacher agency (Cong-Lem, 2021; Priestley et al., 2015). Teacher agency is associated with school improvement, innovation and change, enabling schools to adapt to the ever-changing society. Strategies to develop teacher agency include professional development, professional collaboration, and reflexive practices (Cong-Lem, 2021). We observed these strategies in curriculum practices of profile 4, which we can label as *change-agent-oriented*. Table 4 presents the four profiles and how they are interpreted in a broader context.

Table 4

Four profiles within responsive TE curricula

Profile	Interpretation
Customization: Logistically-oriented	Focus on the organizational aspects of a curriculum, specifically the logistical elements that facilitate flexible education.
Customization: Development-oriented	Focuses on pedagogical aspects of a curriculum, such as fostering students' personal growth and autonomy.
Locally-oriented	Focuses on the importance of aligning the curriculum with schools' specific needs and practices as (future) workplaces.
Community-oriented	Focuses on the curriculum's embeddedness within a broader community, such as a neighborhood or region, preparing students for interprofessional collaboration to solve complex problems.
Change-agent-oriented	Focuses on student agency and curriculum prepares students for an uncertain future by developing their ability to learn and adjust in new situations.

In this study, we have shown how responsiveness manifests in the curriculum in action. To the best of our knowledge, this is the first study to empirically investigate how a curriculum responds to student diversity, a variety of schools, and the teaching profession in a changing society. We identified four responsive curriculum profiles by examining the responsive manifestations from these three dimensions.

This study has some limitations. Firstly, we did not find equal manifestations of responsiveness across all three dimensions. Although the societal aspect indeed manifested in the curricula we studied, the number of practices that manifest responsiveness in the societal dimension remained limited. A possible explanation for this could be that our participants were teacher educators. Although the participants were selected for their familiarity with, and overview of the curriculum, their insider perspective might explain why we found fewer manifestations in the societal dimension. To better understand the profiles that include this dimension, it could have been beneficial also to incorporate external viewpoints. Nevertheless, we believe that the participants in our study were best positioned to describe how responsiveness manifests in TE, given their proximity to practical teaching experiences and firsthand curriculum knowledge. In future research, this dimension could be further highlighted.

Secondly, all cases in this study were part of the Dutch education system and situated in Dutch Universities of Applied Sciences. It is not self-evident that responsiveness will manifest similarly in other educational systems. Our results are contextual, and cannot simply be transferred to other contexts. Despite differences in teacher education contexts across countries, the need to make teacher education more accessible and attractive is widely recognized. Nevertheless, conceptualizing a responsive curriculum by presenting four responsive curriculum profiles may facilitate the international debate on enhancing the attractiveness and accessibility of TE curricula by making them more responsive (Caena, 2014; Morrison & Pitfield, 2006).

This research shows how a curriculum can be responsive in various ways. While curriculum responsiveness may enhance the attractiveness and accessibility of TE and as such has the potential to reduce teacher shortages, it is not the only solution. Other factors, such as increasing the status of teachers and raising salaries, also play a crucial role (Flores, 2017). Nonetheless, responsive TE curricula appear to be a promising approach to improving the overall responsiveness of educational systems. We have demonstrated how responsiveness manifests in the daily practice of teacher education programs. While teacher education programs have to navigate various national and international frameworks and requirements, we have observed that they find ways to incorporate responsiveness into the curriculum. We suggest that educational programs could consider which type of responsive curriculum they seek to achieve. The four responsive curriculum profiles may enable curriculum

developers to make more consistent choices regarding the responsiveness of the curriculum and encourage curriculum designers in TE and other domains to make their curricula more responsive.

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257

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R. van Bommel, I. Zitter and E. de Bruijn

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Appendix A

Fourteen responsive themes in TE, described and illustrated with an example.

	Theme	Description	Example
Epistemic design	1 Individual-based content variation	Students have the ability to customize the curriculum to suit their individual needs. Tasks are designed that take individual preferences of students into account.	Students can choose a specific specialization.
	2 Granularity	The level of detail and prescriptiveness of tasks and assignments allows for various interpretations.	Mandatory assignments are mostly absent; instead, open-ended tasks are utilized.
	3 Context-based content variation	The tasks or educational activities in the curriculum are relevant to, aligned with, and applicable in various school practices.	The content of the curriculum is coordinated with schools.
	4 State-of-the-art	The curriculum includes both current and up-to-date content as well as (pedagogical-didactical) innovations. It takes into account the latest developments in education and in schools.	Research findings are used to keep the curriculum up-to-date.
Spatial design	5 Variable educational sites	There is room for a variety of locations within the curriculum, with continuous evaluation of which location (both physical and digital, and both at the TEI and in schools or public spaces) is most suitable. The location can be adjusted to the preferences or needs of the actors involved.	Thematic sessions are organized on-site in collaboration with the school.
Instrumental design	6 Accessible systems	(Digital) systems are accessible to all involved actors and provide them with up-to-date and timely information relevant to the guidance and progress of learners at various locations and times.	There is a system in which feedback is accessible to all involved actors.
	7 Flexible learning materials	The educational instruments are flexible and can be used by various actors in a range of school practices.	An adaptable form is available for tracking students learning progress in practice/at the school.

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

Temporal design	8	Flexibele individual planning	Involved actors have the ability to create a customized planning, including scheduling assessment moments.	Students and teacher educators co-create a suitable learning path.
	9	Variable pace	Students have the freedom to learn at their own pace, with the option to accelerate or slow down as needed.	Students are provided with time to deepen their learning.
	10	Flexible timing	The activities can be aligned with the work rhythm of the school as workplace.	Student meetings are not scheduled when relevant and educational activities are happening at the school.
Social design	11	Variable grouping	Involved actors are flexibly grouped based on various logics, such as content, organization, and occasion.	There are learning communities in the schools where students from different stages of the TE program collaborate.
	12	Role diversity	Actors take on various roles and responsibilities while having a clear overview of the curriculum.	Teacher educators (from both the institute and the training school) collaborate in various roles, including designer, mentor, supervisor, instructor, contact person, and coordinator.
	13	Flexible guidance setting	The guidance setting focuses on individual learning paths and customization, with a continuous dialogue between educators and practitioners about the curriculum content.	There are many individual guidance sessions.
	14	Variable matching	Matching of actors occurs based on various approaches (from the involved actors or from practice) and according to various criteria.	An event is organized to support students in selecting a school that that best fits their needs..

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264

Samenvatting

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Hoe manifesteert responsiviteit zich in uitgevoerde curricula van Nederlandse lerarenopleidingen: een multiple case study.

Om het lerarentekort aan te pakken, streven Nederlandse hbo opleidingen er naar hun lerarenopleidingen aantrekkelijker en toegankelijker te maken door meer flexibiliteit in het curriculum te bieden. Flexibiliteit in het onderwijs wordt vanuit verschillende perspectieven belicht, namelijk vanuit het student-, werkplek-, en maatschappelijk perspectief. In dit onderzoek hanteren we de term 'responsief' voor flexibiliteit vanuit deze drie perspectieven. De drie perspectieven zijn in deze studie gebruikt als lens om te onderzoeken hoe responsiviteit zich manifesteert in de dagelijkse praktijk van Nederlandse lerarenopleidingen. In een case study met twaalf lerarenopleidingen werden verschillende onderwijspraktijken bestudeerd van het curriculum-in-actie. Data werden verzameld met semi-gestructureerde interviews. De data-analyse laten vier verschillende profielen zien. Deze profielen kunnen worden geïnterpreteerd als: maatwerk georiënteerd, lokaal georiënteerd, gemeenschapsgeoriënteerd en change agent georiënteerd. Deze profielen kunnen worden gebruikt als conceptueel kader waarmee we responsiviteit in het onderwijs beter kunnen begrijpen. We impli-

How does responsiveness manifest within the enacted curricula of teacher education in the Netherlands: a multiple case study.

R. van Bommel, I. Zitter and E. de Bruijn

ceren dat deze vier profielen helpen om een afweging te maken over welk soort responsiviteit lerarenopleidingen willen bereiken en dat ze curriculumontwikkelaars in staat stellen om consistentere keuzes te maken met betrekking tot de responsiviteit van het curriculum.

Kernwoorden curriculum, lerarenopleiding, flexibilisering

265

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