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Exploring the role of student diversity for the first-year experience

Abstract

The massification of higher education (HE) has raised concerns about student diversity and has led to various forms of interventions to support transition into HE. In order to investigate the meaning of diversity for the first-year experience this paper first reviews how diversity is accounted for in HE research. Second, it presents a study on transition into HE that seeks to explore how diversity is reflected in individual student profiles and in students' perceptions of first-year challenges. By revealing the manifold meanings of diversity factors and illustrating their complex interrelations from the students' perspective, the findings may inform the design of first-year interventions.

Keywords

Student diversity, first-year experience, critical requirements, non-traditional students

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Heterogenität in der Studieneingangsphase

Zusammenfassung

Steigende Studierendenzahlen haben zu wachsender Aufmerksamkeit für die Heterogenität der Studierendenschaft geführt sowie zu diversen Förderangeboten, die den Übergang an die Hochschule unterstützen. Um die Bedeutung von Heterogenität für die Studieneingangsphase näher zu untersuchen, wird zunächst der aktuelle Forschungsstand skizziert. Anhand einer Interviewstudie wird zudem beleuchtet, wie sich Heterogenität im Profil von Studierenden und in ihrer Wahrnehmung von Herausforderungen der Studieneingangsphase widerspiegelt. Der gewonnene Einblick in die Mehrdeutigkeit und das komplexe Zusammenspiel von Heterogenitätsaspekten liefert Anhaltspunkte für die Gestaltung von Fördermaßnahmen.

Schlüsselwörter

Heterogenität, Studieneingangsphase, kritische Studienanforderungen, nicht-traditionelle Studierende

1 Introduction

The massification of higher education (HE) has led to a general concern about student diversity in education policy (WOLTER, 2013). However, there are differing views of diversity resulting in various ways of responding to the diverse needs of first-year students. The term diversity is mainly used to focus on underrepresented student groups within the education policy discourse on social justice and equity. In the US tradition of affirmative action, for example, diversity mostly refers to race and ethnicity, while in Australia it is used to indicate a number of defined equity groups including “students from rural and isolated areas” (MCINNIS, 2003, p. 3). In Europe, policies in this domain promote the social dimension of HE and highlight students’ socio-economic backgrounds (EURYDICE, 2011). In addition to the various forms of social differentiation, the term also applies to individual

differences such as students' academic prerequisites, skills and objectives (ZERVAKIS & MOORAJ, 2014). And third, there is an organisational notion of diversity (ROWE & GARDENSCHWARTZ, 1997), when students are categorised according to their affiliation with a certain discipline or to the different stages in the student life cycle.

Although international HE policy highlights social, individual and organisational diversity factors differently, there is consensus that the diverse needs of students have to be accommodated, especially in the first year of HE. Yet approaches to supporting beginning students vary according to the underlying notion of diversity. Interventions tend either to focus on certain social subgroups, to promote the development of individual academic skills or to address students enrolled in distinct subject areas. At present, there is limited empirical evidence to inform academic development, and the implications of social, individual and organisational factors for the first year still need to be clarified.

In order to contribute to a research-based understanding of student diversity, this paper first provides a brief overview on how the international literature on the student experience and on transition accounts for diversity. Second, it draws on a research project on the first-year experience presenting an interview study that seeks to explore the meaning of diversity from the students' perspective.² The study was guided by three research questions:

1. How is social diversity reflected in the individual student profiles?
2. How is individual diversity reflected in students' perceptions of critical requirements?
3. What meanings and interrelations of diversity factors emerge from the student voices?

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2 Accounts of diversity in HE research

Following PASCARELLA and TEREZINI (2005), studies on the student experience can be distinguished into two main strands: a sociological or a psychological one. The first strand links transition to theories of socialisation, social identity and socio-cultural adjustment (ULRIKSEN, MADSEN, & HOLMEGAARD, 2010). Drawing on constructs of social and educational psychology in order to identify factors of student success (RICHARDSON, ABRAHAM, & BOND, 2012), the second strand of research regards transition as a process of individual development and learning. Both approaches account for student diversity, yet they differ in the priority assigned to social, individual and organisational factors.

The sociological research takes differences in students' social background as a starting point for exploring questions of educational equity and academic performance. Studies have typically compared predefined student subgroups with regard to their experience and performance in HE institutions. For example, in line with the political impetus to consider race and ethnicity, a study from the US compared White and African American students' adjustments to college (CABRERA, NORA, TEREZINI, PASCARELLA, & HAGEDORN, 1999). PASCARELLA and colleagues (2004) analysed another subgroup of interest, first-generation students, with respect to their college experience and outcomes. In the European context, the research on student diversity has primarily focused on non-traditional students (WOLTER, 2013). Generally, the sociological perspective has emphasised demographic variables as indicators for group membership and social diversity. Individual diversity factors have been of secondary importance and have served as variables for further analyses of unequal participation and performance in HE (PASCARELLA et al., 2004). Organisational diversity factors, such as the subject area or type of HE institution, are often neglected in large-scale surveys – unless they are of particular interest (e.g., engineering students' retention).

The psychological research, on the other hand, has focused on individual differences and their potential to predict academic performance (RICHARDSON et al., 2012). As individual diversity factors such as cognitive abilities and motivation

have been the main point of reference, this type of research has only considered social and organisational diversity factors in the second step, with the aim of examining differences with regard to student subgroups. For example, UK surveys on the first-year experience first depicted students' expectations and adjustment to university in general, before they examined the conditional effects of students' social background (YORKE & LONGDEN, 2008). German student surveys have additionally referred to organisational diversity when differentiating student experience – this encompasses the type of HE institution and subject areas (MIDDENDORF, APOLINARSKI, POSKOWSKY, KANDULLA & NETZ, 2013).

This brief overview illustrates that student diversity has been broadly acknowledged in HE research. However, current studies have not simply confirmed the increase in student diversity proclaimed by HE policy; there are findings that have contested the direct link between massification and social diversification. For Europe, for example, demographics reveal “only a weak correlation between the expansion of higher education and the heterogenization of the student composition” (WOLTER, 2013, p. 22). Referring to German student surveys, MIDDENDORF (2015) noted that the sociodemographic composition of the student body has become even more homogeneous over the last decade. Nonetheless, the author has pointed out the long-existing diversity regarding individual factors and assumes that the massive growth of student numbers has increased the visibility of differences in social background and individual academic competences. Recent reforms in German HE may have contributed to this visibility as they have led to more standardised study programs resulting in a higher pressure to conform. Thus, the growing awareness of diversity is not only a consequence of a changing student population, but needs to be further investigated with regard to the characteristics and transformations of HE institutions.

Furthermore, the current research is limited because the different research approaches and the different ways to identify student subgroups have resulted in a highly fragmented picture of diversity. For example, the various ways to define non-traditional students have made it almost impossible to compare research findings (WOLTER, 2013). Still, they have generally been portrayed as a “group at

risk” (SPIEGLER & BEDNAREK, 2013). Limitations have also emerged because the predominantly quantitative inquiries mentioned above have tended to focus on general and on selected conditional effects. Yet in order to capture the complexity of student diversity it is necessary to study interactive effects and to apply “a broad repertoire of approaches to inquiry” (PASCARELLA & TERENCEZINI, 1998, p. 155).

3 Study design

3.1 Conceptual framework

As both research strands provide valuable and complementary insights into the student experience and transition, our study integrated the sociological and the psychological approaches in order to develop a comprehensive conceptual framework (BOSSE, SCHULTES & TRAUTWEIN, in press). At its core, academic competence is defined as the ability to meet institutional study requirements and to accomplish individual study goals. On the one hand, this ability is shaped by the students' prerequisites and their individual objectives, on the other hand, it depends on the institutional environment including the requirements of the selected study programme. The framework further implies that the development of academic competence relies on how students perceive and how they cope with the formal and informal study requirements. Therefore, our research project explored the first-year experience focusing on critical study requirements.

3.2 Data collection and analysis

In a team of three researchers, we conducted 25 semi-structured interviews employing the critical incident technique (FLANAGAN, 1954) in order to explore students' first-year experiences. The interview mainly aimed at eliciting accounts of situations that first-year students experienced as challenging or difficult. After an initial question on critical incidents in general, the students were asked for

examples of challenges that arose in situations ranging from lectures and exams to student social life. The interviews lasted from 60–90 minutes, were digitally recorded and transcribed verbatim.

To analyse our data, we coded all 25 interviews thematically using the QDA software MAXQDA (KUCKARTZ, 2014). In our research team of three, we started the coding process with thematic categories based on the topics of our interview guide; in this, all interviews were structured deductively. Second, we further developed and differentiated our category system inductively by paraphrasing and summarising the interview text, creating and defining codes for sub-categories based on our data, formulating rules for coding and selecting prototypical examples for each code. Third, we followed the “consensual coding” approach (KUCKARTZ, 2014, p. 47) to ensure rigor in the assignment of interview segments to categories. Repeatedly, each researcher coded a share of the interviews independently before we compared the results and revised the code definitions and assignments in order to achieve intercoder agreement. In this circular process the category system was revised three times: After revising the initial categories based on 20 percent of our data, the second revision included another ten interviews, and the final version covered all our material. To complete the systematic procedure of consensual coding we also developed thematic case summaries for each interviewee, which were first created independently and then discussed for further refinement.

In addition to the interviews, we collected sociodemographic data for the 25 participants using a structured questionnaire. It included questions to identify first generation students (i.e., students whose parents do not hold a university degree) as well as students with an “international background”, combining the German concept of “migration background” (SALENTIN, 2014) and international student status. The questionnaire also asked about the students’ age in order to identify mature students, who were older than 25 years at the time of enrolment (WOLTER, 2013). Finally, it included questions regarding the students’ vocational training/work experience and their alternative entry qualifications as well as their mode of study (i.e., part-time enrolment, work and domestic obligations).

Building on the results regarding the students' perception of critical requirements (BOSSE & TRAUTWEIN, 2014), I conducted an additional study to further analyse the data guided by the research questions introduced above. In order to answer the first question regarding social diversity, I created individual profiles based on the data provided by the questionnaire (see Table 2). For research question two, my analysis followed the taxonomy of critical requirements (see Table 3) resulting from the category system developed for coding the students' reports of critical incidents. In order to investigate individual diversity, I used a "thematic matrix" (KUCKARTZ, 2014, p. 66) to systematically compare the perception of critical requirements and to create individual case summaries. Finally, the results regarding social and individual diversity served as a lens for analysing the interview data in depth in order to detect the meanings and the interrelations of diversity factors emerging from the student voices.

3.3 Sample

The study used purposive sampling (PATTON, 1990) to recruit interviewees. This involved selecting students who could provide insights into the first-year experience from different disciplinary perspectives as well as from an in-situ and a retrospective point of view. As shown in Table 1, the sampling resulted in the recruitment of 25 students, who represented all faculties at the University of Hamburg and included beginner students (semester 1–3) as well as advanced students (semester 4 and above).

Table 1: Interview sample

Faculties	Beginner students	Advanced students	Total
Humanities	1	3	4
Mathematics, Computer & Natural Sciences	2	2	4
Education	1	3	4
Law	2	2	4
Economics & Social Sciences	3	2	5
Medicine	2	2	4
Total	11	14	25

While the interviews included a broad range of disciplinary perspectives, Table 1 shows a bias in our sample: fewer beginners (n=11) and more advanced students (n=14) were represented. Thus, the average age of the interviewees was relatively high (27 years), ranging from 20 to 44. Furthermore, we interviewed slightly more female (n=14) than male students (n=11).

4 Findings

The data analysis first revealed how the interview sample reflected social diversity in the students' social backgrounds, educational biographies and modes of study. Second, it provided insights into individual diversity by reconstructing the students' differing views of critical requirements. Finally, an in-depth analysis of the student voices showed the interconnectedness of diversity factors and their manifold meanings for the first-year experience.

4.1 Individual student profiles

As expected, the sample revealed organisational diversity due to students' affiliation to different faculties and their different stages of study (see Table 1); however, the sample also exhibits social diversity related to the various characteristics of traditional students (TS) and non-traditional students (NTS). Taking a broad definition of NTS that includes students' social backgrounds, educational biographies and modes of study as the key criteria (SCHUETZE & SLOWEY, 2002), six students showed no NTS characteristics, whereas 19 students could be classified as NTS based on one or more social factors, as Table 2 shows.³

³ Due to our qualitative approach, the sampling aimed at theoretical saturation and not at representing the German student population. However, most of the factors investigated resemble the national average reported in current student surveys (MIDDENDORF et al., 2013).

Table 2: Sample structure by distribution of social diversity factors

	Social background		Educational biography			Mode of study		
	first-generation	international background	mature (> 25 years)	vocational training / work experience	alternative entry qualification	part-time enrolment	work (>15 hrs/week)	domestic obligation
1			x	x		x	x	
2		x					x	
3	x						x	
4	x							
5	x	x	x		x			x
6	x	x	x	x	x		x	
7	x							
8			x	x			x	
9		x		x			x	
10	x		x	x	x	x		x
11		x	x	x			x	
12		x			x			
13		x						
14		x						
15			x					
16	x			x	x			
17	x						x	
18		x						
19	x						x	

Table 2 shows the combinations of the various indicators of NTS within individual student profiles: while five students were categorised as NTS based on a single social background factor, eleven profiles combined various indicators including characteristics related to students' educational biographies and their modes of study. For example, interviewees 4 and 7 qualified as NTS because of their social background as first-generation students. In contrast, interviewee 6 was also a first generation student, but additionally he had a migration background and was a mature student with work experience who entered HE on the basis of his vocational qualification and continued to work over 15 hours per week alongside his studies. Thus, the distribution of diversity factors in the sample showed that NTS are a very heterogeneous group, meaning that multiple indicators are needed to adequately comprehend students' social diversity.

4.2 Students' perception of critical requirements

Regarding the second research question, the study revealed a broad range of challenges that students experienced during their first year at university (BOSSE & TRAUTWEIN, 2014). A thematic analysis of the reported critical incidents led us to identify 32 different critical requirements that were clustered thematically into four different dimensions: content-related, personal, social and administrative requirements.

As depicted in Table 3, the students' reports of first-year challenges regarding the content of their study programme and the subject matter of their courses were assigned to the content-related requirements dimension (A). Difficulties in terms of the students' self-management and their personal adjustment to university were summarised as personal requirements (B). Problems related to social interaction were allocated to the social requirements dimension (C). The dimension of administrative requirements (D) included all critical incidents referring to the university system with its rules and regulations.

Table 3: Taxonomy of critical requirements

(A) Content-related	(B) Personal	(C) Social	(D) Administrative
<ul style="list-style-type: none"> - meet curricular demands and pace - adjust to scholarly mode - acquire academic language proficiency - develop academic skills - identify performance and assessment standards - clarify study choice and study interest - modify initial expectations - generate subject related career goals 	<ul style="list-style-type: none"> - manage the workload - schedule learning activities - find mode of learning - follow the lectures - self-assess performance and capacity - cope with pressure to perform and exam nerves - cope with failure - balance areas of life - handle personal and financial problems - arrange housing 	<ul style="list-style-type: none"> - build peer relationships - collaborate in teams - interact with academic staff - cope with the social climate - defend study choice 	<ul style="list-style-type: none"> - gain an overall orientation - use information and support services - cope with formal regulations - handle course offer - manage course selection - reconcile subject areas and courses - deal with assessment conditions - cope with the quality of teaching and supervision - deal with institutional resources and restrictions

Regarding individual diversity, the cross-case analysis of our data showed both similarities and differences in the number and the type of challenges students were confronted with during their first year.⁴ While some students focused on a small number of content-related, personal and administrative challenges, others reported many more difficulties covering the whole range of critical requirements. Apart from a general concern with the content-related challenge of meeting high curricular demands, all 25 interviews revealed that the students felt especially challenged

⁴ Further details on the quantitative analysis of our data are contained in a previous study (BOSSE & TRAUTWEIN, 2014; TRAUTWEIN & BOSSE, submitted).

by personal requirements related to their workloads, learning activities and modes of learning. Additionally, most students struggled with administrative hurdles regarding teaching and supervision, and they were also concerned with the institutional resources and formal regulations. Overall, the students appeared to be less preoccupied with social requirements, yet for some students in our sample, building peer relationships and interacting with academic staff was very challenging. This individual diversity can be illustrated by two selected contrasting cases of two first-year students.

Michael, a traditional, 20 year-old, beginner student of medicine, perceived the critical requirements more minimally; he mainly reported personal challenges with regard to his learning mode and the scheduling of his learning activities. He pointed out, for example, that in school, his teachers mainly guided his learning, meaning that at university he found it very difficult to study independently and prepare for his exams in time. Apart from learning-related challenges, personal requirements were also critical for Michael because he had problems finding accommodation and managing his own household. Finally, he experienced critical content-related requirements because of the scholarly mode of his lectures and the difficulty in identifying performance standards.

Susanne was a beginner student of socio-economics and a non-traditional student due to her non-academic family background, her age of 42, her work experience, her vocational entry qualification and her domestic obligations as a mother of a teenage girl. In Susanne's case, she experienced the full range of critical requirements. Upon enrolment, she struggled with the administrative hurdle of finding out how to qualify for university and how to gain an overall perspective on the rules and regulations. Later, she not only experienced critical personal challenges with regard to learning, but her domestic obligations also led to the additional challenge of balancing her different areas of life. Furthermore, she struggled with content-related requirements, as the curricular demands in her classes exceeded her knowledge and skills. With regard to social requirements, the interview revealed a challenge in developing peer relationships, as there were fewer mature students to relate to than Susanne had initially expected. Furthermore, she had to defend her

decision to go to university, as her friends wondered how she could give up her job without knowing what she was going to do after graduation.

Comparing the two cases, Michael and Susanne mainly differed with respect to the range of challenges perceived. Both shared a concern for content-related and personal requirements, yet only for Susanne were there additional social and administrative hurdles. However, further analysis of the data revealed differing patterns regarding the number and type of first-year challenges. For example, some TS in our sample broadly perceived the critical requirements as Susanne did, while there are cases of NTS who, like Michael, focused on a more limited number of challenges. Still, the student voices indicated a certain interrelation of social and individual diversity factors as NTS often related the challenges they experienced to the indicators of social diversity presented above. Further analysis therefore focused on the meaning and the interplay of diversity factors emerging from the student voices.

4.3 Student voices

For the third research question, the findings above suggest examining closely how the students related their individual perception of critical requirements to social diversity factors. The first finding is that the students' social backgrounds played a role in their individual perception of critical incidents, because NTS referred to their families' lack of understanding. For example, a first generation student described her difficulties in managing the workload and coping with the pressure to perform. She further related these critical personal requirements to her non-academic family background and the additional social challenge of defending herself against the image of "lazy students":

Well, in my family, there is nobody who goes to university, my brothers and sisters don't go to university, my parents didn't go to university. And it's always like this: 'Oh, the lazy students, they always get to go on such long semester breaks!' and so on. And then to justify this: You yourself are completely stressed out, always at home crying at your desk, because you

just don't know how to get everything done. And then you hear that you are lazy! (Int_19/61)

While this quote suggests that defending the choice to study was an exclusive concern for first generation students, other statements provided evidence that this experience did not solely arise for social reasons. For instance, students of humanities reported that their course choice was a concern among family and friends because of uncertain job prospects. Thus, the perception of the critical requirement to stand up for your choice of an academic career depended on the students' social background and/or on their chosen discipline, which is an organisational factor.

Apart from the students' social background, the in-depth analysis also revealed that the students' educational biographies were relevant for their perception of critical requirements. Some NTS in the sample highlighted the challenge of meeting curricular demands, pointing out their age and their alternative entry qualification. For example, a first-generation student who entered university on the basis of her vocational qualification referred to her educational biography when asked about critical incidents in her first year:

[...] my school days are a long time ago and I left school after 10th grade. And then, in my first-semester math and statistics classes I realised that there are demands, well, the lecturer assumed a certain basic knowledge. And for me the demands were too high. I simply had to catch up and read-just. (Int_10/41)

While this student explicitly positioned herself as a mature student in order to account for her difficulties, another interview indicated that the challenge to meet curricular demands was caused by misleading initial expectations and also existed for students who had just completed secondary school:

I think it was my first lecture on higher mathematics during the very first week. I took computer science in my school leaving exams, I took physics and maths as (...) Well, I had done it all. And then I sat there in higher mathematics and within about 10 minutes the professor went through EVERYTHING I had ever heard about maths. The lecture went on for 90

minutes and the remaining 80 minutes he only talked about things that I had NEVER even heard of. He even used formula symbols that I had never seen before. And I sat there in the lecture hall and thought: “Oh my GOD! It will go on like this for the rest of your studies.” (Int_01/17).

In addition to the relative significance of social diversity, both examples suggest that the perceptions of critical requirements also depended on organisational factors since both students referred to maths classes and thereby pointed to discipline-specific challenges. In fact, the student voices illustrate how the perception of administrative requirements relied on both the students’ educational biography and the institutional context. For example, a mature student referred to his work experience and former studies before highlighting his difficulties upon re-entering university as follows:

I had a job and I studied computer science, you know, but when I started again here in Hamburg in education, it felt like going to school. Attendance was checked everywhere [...] And there was, well, homework is exaggerated, but there was always a fixed workload from one week to the other and basically I had no choice with regard to my classes. [...] I found it depressing, because there was just no way to follow my own interests. (Int_01/60)

This quote refers to the critical administrative requirement of coping with formal regulations, which the interviewee first related to social factors. However, his last statement reveals that the formal regulations conflicted with his individual study goal of following his interests. Again, this example shows the interrelatedness of diversity factors: the difficulty of adjusting to formal regulations may be an effect of both the students’ educational biography and their individual study goals.

This varied picture of the significance of social diversity also applied to statements on the students’ mode of study. For example, the personal requirement to balance different areas of life partly depended on obligations such as childcare or part-time work. However, the interviewees provided further explanations that were not necessarily linked to NTS characteristics; they also reported political engagement or time-consuming leisure activities as interfering with their studies.

Overall, the analysis revealed that for students, their social background, educational biography and mode of study had an effect on their perception of the critical requirements they identified (i.e., the difficulty of defending their choice to study, meeting curricular demands, coping with formal requirements, balancing different areas of life). However, the challenges our interviewees faced were not exclusively interrelated with social diversity factors, but proved to also be linked to organisational diversity as well as to the institutional context and individual study goals.

4 Discussion and conclusions

Drawing on a research project on the first-year experience, this paper presented a study exploring the role of student diversity from the students' perspective. Regarding the first research question on how diversity is reflected in the interview sample, the data analysis revealed a multiplicity of social diversity factors characteristic of the individual student profiles. This finding calls simple distinctions between TS and NTS into question, because the latter showed a remarkable intra-group variance and individual student profiles tended to differ gradually rather than categorically. Secondly, based on a taxonomy of content-related, personal, social and administrative challenges for first-year students, the interview analysis provided insights into the students' differing views of critical requirements. The comparison of selected contrasting cases indicated that social diversity had an impact on the individual perception of critical requirements, but not in a univocal sense. Finally, a closer analysis of the student voices revealed rather complex interrelations of diversity factors and their manifold meanings for the first-year experience. The findings therefore showed the value of an in-depth analysis of student voices and suggest going beyond simplistic distinctions of student subgroups such as TS vs. NTS.

The findings are in line with prior research that questions the arbitrary distinctions between student subgroups, resulting in the construction of "groups at risk" (SPIEGLER & BEDNAREK, 2013). Instead of researching pre-defined social groups, I suggest investigating critical requirements that reflect student diversity

within the institutional context, including structural and situational circumstances. Shifting the perspective from single diversity factors towards more complex “risk scenarios” may prevent future research from simply attributing first-year students’ difficulties to individual deficits. Critical requirements could serve as a starting point for research seeking to account for the characteristics and current transformations of HE institutions in order to analyse the “structural problems inherent in the organisation of education” (SPIEGLER & BEDNAREK, 2013, p. 331).

Despite the limitations due to the small sample size and the focus on a single HE institution, the study contributes to the research on the student experience and transition as it combines the sociological focus on social diversity with the psychological interest in individual diversity factors. The qualitative approach has served as an alternative route of inquiry facilitating a holistic account of student diversity and providing insights into the interactive effects of diversity factors. From the students’ perspective, the first-year experience depends on a complex interplay of the social and educational background, the individual perception of critical requirements and on organisational factors such as the chosen discipline. Thus, the study complements the prevailing quantitative inquiries that tend to examine the student experience with only limited reference to diversity.

While further research is needed to validate and expand the findings, they may already inform academic development. The results principally suggest carefully re-examining interventions that limit the notion of diversity to single social, individual or organisational factors. As SPIEGLER and BEDNAREK point out with reference to first-generation students, directing support at special subgroups indicates “that our educational institutions, to an extent, fail to include a legitimate group of students in their daily routines” (2013, p. 331). In line with the suggestions for future research, I therefore argue for an inclusive approach to diversity (KNAUF, 2015) by using critical requirements as a reference point for academic development. Instead of targeting selected student subgroups, the identification of first-year challenges could guide both the design of first-year interventions and their integration into the curriculum.

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