Study environment factors associated with retention in higher education

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ABSTRACT
There is a substantial body of research concerned with student retention in higher education. However, in regard to factors related to study environment, existing research is described as incomplete. Based on Tinto’s institutional departure model and a literature review of recent international articles on dropout in higher education, this article suggests a revised model for understanding dropout processes. The model envisages study environment as a concept consisting of overlapping domains of a social system, an academic system, and teaching. The article distinguishes between factors related to each of these three systems and discusses how they can be used to understand and prevent dropouts.

Since the establishment of formal education, student dropout has been a major focus of both educational practice and research (Aljohani, 2016; Union, 2015) and the body of research concerned with student retention in higher education is extensive. There are many reasons for wishing to minimize dropout. It can be personally and emotionally draining for the individual, economically costly for the institution concerned, and can challenge societal and political goals (Carnevale, Strohl, & Smith, 2009; DeAngelo & Franke, 2016; Mountford-Zimdars & Sabbagh, 2013, p. 1589; Trow, 2007).

In 1975, Tinto introduced his institutional departure model as a counter-response to models that focused strongly on the relationship between dropout and psychological factors and individual characteristics (Aljohani, 2016). That model is widely seen as spearheading a change in paradigm in the field of research on dropout, and today it remains one of the most widely used and cited models in understanding and explaining dropout (Braxton & Hirschy, 2004, p. 89). In his later work, Tinto (1997) established the classroom as the center of educational activity and therefore as a decisive determinant of the student’s academic and social integration and further of persistence. Today it is common practice to take institutional factors into account when trying to understand the reasons for dropout, but especially the nature of classroom activities and of their impact on dropout continues to be inadequately investigated both theoretically and empirically (Tinto, 2012, p. 4).

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With reference to Tintos (1987) version of the institutional departure model and a newly completed literature review of recent international articles on institutional factors and dropout in higher education (Qvortrup, Smith, Rasmussen, & Lykkegaard, 2018), this article specifies three institutional categories as spanning study environment – the social system, the academic system, and teaching – and discusses how they interact. Based on this, it revises the institutional departure model. The research questions of the article are:

(1) What knowledge about institutional factors can be found in recent studies of dropout in higher education?
(2) How can this knowledge contribute to the specification and understanding of the interrelatedness of factors as presented in Tinto’s institutional departure model?

The institutional departure model

Tinto’s Institutional departure model conceptualises dropout as a longitudinal process involving a complex matrix of interrelated variables. Tinto was inspired by the sociologist Spady (1970), who presented an analogy between dropout and Durkheim’s concept of the egoistic suicide. According to Spady, the lack of integration into a learning community, which can result in the individual choosing to drop out of school, can be compared to the lack of integration into a society, which, according to Durkheim, can result in an individual committing suicide (Durkheim, 1978, p. 65). On this basis, Tinto’s Institutional departure model proposes to understand dropout as derived from a student’s lack of integration into the institution. Integration is here seen as the product of the encounter between the individual and the institution, while institution refers to both the social system and the academic system. Tintos (1997) model (Figure 1) places classroom activities (classroom, labs, studios) as spanning the social system and the academic system, the suggestion being that classroom activities extend across both systems. In addition to influencing the student’s integration in or identification with the two systems, classroom activities are believed to have an impact on the student’s work efforts and learning outcomes, and in this way they can also themselves be understood as an additional study environment factor explaining dropout. In the 1997 model, the outcome of the longitudinal process is described with the word persistence (the choice to continue studying), as opposed to the word departure (the choice to drop out) used in earlier versions of the model. Both wordings, as well as the variables intentions and goal commitment, leave space for individuality and for dropout to be understood as the student’s active decision.

Tinto’s institutional departure model has been cited and thoroughly tested and validated (Braxton & Hirschy, 2004). While some studies have found the model to be a conceptually useful framework for thinking about student attrition (Bensimon, 2007; Chapman & Pascarella, 1983; DAmico, Dika, Elling, Algozine, & Ginn, 2014; Keup, 2005; Nora, Attinasi Jr, & Matonak, 1990; Pascarella & Terenzini, 1983; Terenzini & Pascarella, 1980; Weidman & White, 1985; Wortman & Napoli, 1996), others have suggested modifications to the model. Several studies have criticized the term ‘academic integration’ as theoretically imprecise (Braxton & Hirschy, 2004) and have suggested revisions and improvements of both this term and of social integration (Allen, 1999;
A number of other researchers (Bean, 1980; Murtaugh, Burns, & Schuster, 1999; Pascarella & Terenzini, 1977, 1979; Upcraft & Gardner, 1989) conducted studies indicating that a positive experience during the first year of college could be more important than social and academic integration. The low importance of academic integration does not, however, hold in all educational contexts. Troelsen and Laursen (2014) and Heublein (2014) show that in Denmark and Germany, respectively, the student’s relationship with, expectations of and identification with the academic content and subject are decisive for dropout. Holden (2018) finds that in an Irish medical school in the Arabian Gulf, the adaptation and application of learning skills and institutional habitus are pivotal (Holden, 2018). Kerby (2015) suggests that a shift from labor-intensive, information-age economies to a knowledge-based economy has created a competition between academic and social integration in efforts to retain students. A number of studies criticize the model for not capturing the influence of financial issues on student dropout (Andrieu & John, 1993; Cabrera, Nora, & Castaneda, 1992; John, 1991; St. John, Paulsen, & Starkey, 1996) and the dynamic influence of job markets, job opportunities, and work/family/schooling quandaries (Stuart, Rios-Aguilar, & Deil-Amen, 2014). Pascarella, Duby, and Iverson (1983) and Mallette and Cabrera (1991) suggest to include constructs from transfer theory into the model, while Barry and Okun (2011) find that Tinto’s model needs to be supplemented by two constructs from investment theory – satisfaction level and quality of alternatives – in order to explain variations in dropout. Weidman and White (1985) suggest considering pressures external to the educational setting in the case of non-traditional students, while Ugwu and Adamuti-Trache (2019) point to the importance of aspects of adaptation to social and cultural norms and building friendships in the case of international students. Regarding online students specifically, studies have suggested various different modifications.
(Grow, 1991; Kember, 1989; Rovai, 2003; Rowntree, 1995; Workman & Stenard, 1996). With reference to Bean and Metzners (1985) theory of adult learner dropout, Yob (2014) suggests integrating Knowless (1984) theory of adult learning. Kerby (2015) suggests that social unity, categorization, and enhancement serve to compel the individual student to fuse their personal characteristics with the shared experience of the group and thus may provide a more nuanced concept of social integration. Berger (1997) suggests using the concept of the student’s sense of community and advocates using concepts from the literature of community psychology to elaborate Tinto’s model. Mayhew, Selznick, Lo, and Vassallo (2016) also advocate an increased focus on the concept of personality and personality traits. Napoli and Wortman (1998) show that a comprehensive set of psychosocial measures – including life events occurring during the first semester of education, social support, self-esteem, social competence, personal conscientiousness, psychological well-being, and satisfaction with the academic, administrative, and social systems of the educational institution – have both direct and indirect effects on persistence. Jama, Mapesela, and Beylefeld (2008) argue that Tinto’s model fails to describe the life-worlds of students during their education. They propose a theoretical model describing the ‘circles of progression’ from pre-entry (school and family background), to initial entry into university (first few weeks/orientation), followed by completed entry into university (teaching and learning environment) through completion of studies.

Herrmann, Jensen, and Lassesen (2012) suggest the use of ‘study environment’ as an umbrella for the integration into institutional systems and the relationship to the study program (such as student perceptions of workload and requirements). They thus suggest that the social and academic integration presented by Tinto can be seen in terms of student strategies for gaining a sense of belonging and negotiating their identities. This leads them to talk of academic identification, a term we know from the field of domain identification (Osborne & Jones, 2011), as opposed to academic integration. Rendón (1994, 2002) contends that, at least for non-traditional and under-served students as well as for those in community college settings, validation (students feeling recognized, respected, and seen as valued) may be more important for the student’s success and persistence than integration.

**Method**

The basis of this article is a recently completed literature review on dropout in higher education (Qvortrup et al., 2018). Research question (1) will be answered by describing the institutional factors that have an impact on dropout and sorting them into analytical categories. Research question (2) will be answered by summing up theoretical and empirical knowledge about the factors, followed by a discussion and synthesis of the results that will offer a proposed revision of Tinto’s model.

The literature review was based on a search in the ERIC database (Education Resources Information Center) via the search string ‘dropout.’ The search was limited to peer-reviewed studies within the field ‘higher education’ published in 2013 and onwards. The search word ‘dropout’ was chosen rather than ‘institutional departure,’ ‘attrition,’ ‘retention’ or ‘persistence,’ all words used within different scientific traditions. A screening revealed ‘dropout’ to be a broader term than the other alternatives. Limiting the last-mentioned search to studies published since 2013
was done both to restrict the search and to ensure that the development of Tinto’s model with regard to institutional factors was based on recent knowledge of student participation in and dropout from higher education. To avoid losing relevant results, frequently cited articles published before 2013 were also included. The search resulted in 296 hits, which were all screened for relevance by reading abstracts. Sixty-five studies were deemed relevant. Furthermore, a number of review studies from before 2013 (Harvey, Drew, & Smith, 2006; Larsen, Kornbeck, Kristensen, Larsen, & Sommersel, 2012; Pascarella & Terenzini, 2005) were included to ensure breadth in the identification of institutional factors related to dropout (Qvortrup et al., 2018).

**Analysis strategy**

The analysis was based on a phenomenological review approach, where the goal was to arrive at the essence of the reviewed papers’ experiences with the studied phenomenon (Randolph, 2009). We applied an approach in which the studied phenomenon (dropout in higher education) was first specified by identifying meaningful statements (claims made about the studied phenomenon) and thereafter openly explored by giving meaning to these statements, interpreting them and paraphrasing them as three categories (Randolph, 2009).

The analysis process consisted of reading all the identified literature and then localized theoretical, methodological and empirical claims. We decided whether claims were central by referring back to the research question, categorizing each study according to whether it focused on institutional factors or not. The studies that focused on institutional factors were further categorized according to whether they were empirical studies, theoretical studies or review studies. After this, we reread each of the empirical and review studies’ claims, which then formed the basis for a thorough description and specification of the investigated phenomenon. We ascribed each study a ‘factor’ (code) referring to the institutional aspects that the claim in question deemed influential on student dropout. In the course of our reading more and more factors appeared, until all central claims from the studies could be categorized as belonging to at least one, and potentially more, factors. The coding was an iterative process in which the first writer did the initial ascription of factors and the second writer adjusted the factors subsequently. Finally, the writers together discussed and validated the factors. The conclusions we draw in this analysis are a result of the literature we have located and worked with. We acknowledge that other search criteria and time intervals might have led to different results.

**Results**

The literature review found sixty-five studies focusing on institutional factors. When compared to the fact that an immense amount of research has been conducted on dropout and persistence in higher education (Burrus et al., 2013), the article is confirming previous studies suggesting that institutional factors are underprioritised (Felby & Kristiansen, 2020; Tinto, 2007, 2012). The result of the initial categorisation of studies according to whether it was an empirical, theoretical or review study is shown in Table 1. Fourteen studies (of the 65) were theoretical or reviews of existing research.
Table 1. The result of the initial categorisation of studies according to whether it was an empirical, theoretical or review study.

| Empirical studies | Theoretical/Conceptual studies | Review studies |
|--------------------|---------------------------------|----------------|
| Coates, 2014; DeAngelo & Franke, 2016; Arnold, 2015; Braxton et al., 2000a; Davis, Solberg, de Baca, & Gore, 2014; Gansemer-Topf, Zhang, Beatty, & Paja, 2014; Ishitani, 2016; Klapproth & Schaltz, 2014; Ma & Cragg, 2013; Pascarella & Terenzini, 2016; Pittendrigh, Borkowski, Swinford, & Plumb, 2016; Wahlgren & Mariager-Anderson, 2017; Shawver, 2015; Al Ghanboosi, 2013; Al Ghanboosi & Alqahtani, 2013; Ayyap, Çekiç, & Boyaci, 2012; Ballerini & Albarrán, 2013; Bers & Schuetz, 2014; Bishop, 2016; Cuevas, Campbell, Lowery-Hart, Mallard, & Andersen, 2009; de-la-Fuente-Valentín, Pardo, & Delgado Kloos, 2013; Grau-Valldosera & Minguillón, 2014; Jia & Maloney, 2014; Mendez, Ochoa, Chiluiza, & De Wever, 2014; Mestan, 2016; Rashid, Jahan, Islam, & Ratna, 2015; Remedios & Richardson, 2013; Roland, Frenay, & Boudrenghien, 2016; Shaw, Warren, & Gill, 2014; Turner & Thompson, 2014; Venuleo, Mossi, & Salvatore, 2014; Whannell & Whannell, 2014; Brown & Kenney, 2014; Costabile, Cornoldi, De Beni, Manfredi, & Figliuzzi, 2013; Ma & Frempong, 2013; Wolter, Diem, & Messer, 2014; Sneyers & De Witte, 2015; Bugge & Wikan, 2016; Entezari & Javdan, 2016; Esononou & Okeabia, 2016; Hardy & Aruguete, 2014; Heublein, 2014; Jayaprakash, Moody, Lauria, Regan, & Baron, 2014; Steiner, Dean, Foote, & Goldfine, 2013; Szabo & Bacsa-Ban, 2015; Xu, 2016; Hermann, Troelsen, & Bager-Elsborg, 2015; Christie, Barron, & DAnnunzio-Green, 2013; Van Zandt Allen, 2014; Adams & Woods, 2015; Ma & Cragg, 2013; Pike & Graunke, 2015; Carnevale & Strohl, 2013; Kaila, Kuvinen, Lokkila, & Laakso, 2016; Farnan, Hudis, & LaPlante, 2014. | Aljohani, 2016; Cotton, Nash, & Kneale, 2017; Kerby, 2015; Campbell & Mislevy, 2013 | Arce, Crespo, & Miguez-Alvarez, 2015; Bean & Eaton, 2002; Rodríguez-Gómez, Feixas, Gairín, & Muñoz, 2014; Burrus et al., 2013; Mah, 2016; Troelsen & Laursen, 2014; Larsen, Sommersel, & Larsen, 2013; Mayhew et al., 2016; Harvey et al., 2006; Pascarella & Terenzini, 2005 |

The further categorisation of the studies points to eight factors which relate to and can thus help specify the analytical category the social system; eight factors which specify the category the academic system, and thirteen factors which specify the category teaching (Table 2). In this paper, we propose the concept of teaching instead of Tinto’s concept of classroom activities (Tinto, 1997) to capture that the category covers both activities in and outside the classroom (e.g. preparation for classes). In the following we present the factors identified in three tables, one for each category. Some studies are referenced across categories, as a lot of them deal with more than one factor. After the presentation we describe the different factors, and here we differentiate between (1) theoretical definitions and references and (2)
The social system

On the basis of our analysis, we specify the social system as referring on the one hand to institutional characteristics and on the other hand to the available activities and the perceived social environment. The former includes the size of the institution and demographic composition of the student body (age, sex and ethnicity). The latter includes extra curricular activities, institutional integrity or the congruency between the institution’s declared goals and the actions of individual staff members and social integration or congruency between the individual and the social environment in the institution. Social integration is the factor whose impact on dropout is best supported by empirical data in the international literature (Braxton & Hirschy, 2004) (see Table 3). However, it seems that social integration has less impact on dropout processes in contexts that are ascribed a more individualistic culture (Hofstede, 1984; U. Larsen, 2000; Troelsen & Laursen, 2014). Referring back to Figure 1, many factors related to teaching and to the academic system must be expected to overlap with the social system, since many learning activities will also support the student’s social involvement when carried out with other students (Tinto, 1997, p. 615).

### Table 2. Factors related to the three analytical categories (not ranked).

| Social System                          | Academic System                          | Teaching                                      |
|----------------------------------------|------------------------------------------|-----------------------------------------------|
| Social integration                     | Academic integration and identification  | Teaching quality                              |
| Extracurricular activities             | Perception of learning community         | Study groups                                  |
| Institutional integrity                | Relation to, interaction with, and       | Alignment in the teaching                     |
|                                       | support from faculty                     |                                               |
| Social infrastructure                  | Workload                                 | Instructional clarity                         |
| Social aspects of the induction program| GPA and learning                         | Feedback                                      |
| Demographic composition of the student body (age and sex) | Prior results and experiences of and disappointment in exams | Active learning: engaging teaching with discussions and group work |
| Demographic composition of the student body (ethnicity) | Academic aspects of the induction program | Higher-order thinking |
| Size of the institution                | Support and guidance                     | Cooperative learning                          |

empirical studies and results. We have chosen this procedure to better clarify how the literature within the field addresses different theoretical approaches, and how the empirical findings must be understood in relation to these different theoretical approaches. Many of the factors identified do not have clearly theory-based definitions, particularly those factors stemming from reports and evaluations. Here, a more pragmatic definition is used.
Table 3. Factors related to the social system (not ranked).

| Phenomena                          | Theory                                                                 | Examples of empirical findings                                                                 | References                                                                 |
|-----------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Social integration                | Tinto (1975, p. 107) defines social integration as the degree of congruency between the individual and the social environment in the institution. Great variance in the operationalization of social integration has been found in the literature: from measurement of whether or not the student lives on campus, to psychometric scales tapping into the student's relation to the social environment. M. S. Larsen et al. (2012, p. 118), McQueen (2009, pp. 76) argues that the element of affect has been neglected in theories of persistence in general, which is problematic, since it is precisely the student's perception of being integrated which is central. | The effect of social integration on commitment to the institution, and thus persistence, is strongly supported empirically (Braxton et al., 1997, p. 131). In some contexts, integration into the Social System seems less connected to dropout (Larsen, 2000, p. 85; Troelsen & Laursen, 2014). However, social integration seems to be highly linked to the student's well-being. | Davis et al., 2014; Ishitani, 2016; Burrus et al., 2013; Aypay et al., 2012; Mestan, 2016; Al Ghanboosi, 2013; Roland et al., 2016; Bean & Eaton, 2002; Troelsen & Laursen, 2014; Wolter et al., 2014 |
| Extracurricular activities        | Social and academic activities linked to the institution, whether on or off campus (Trowler, 2010, p. 18). Extracurricular activities are considered part of the social system in the 1993 version of the institutional departure model. However, extracurricular activities can be said to be part of both the social system and teaching (see Tables 3). | (Cotton et al., 2017, p. 73) find that engaging in extracurricular activities strengthens social integration because it provides an opportunity to interact with fellow students. Participating in extracurricular activities (used as a measure for social integration) has been found to directly affect persistence through the first three years (Ishitani, 2016, p. 25). While the hypothesized relationship has not been empirically tested, it is based on two separate research findings: one concluding that fair administration of rules and manners has a positive relation to social integration (Berger & Braxton, 1998, p. 108), and the other finding that students who feel their experience of the institution lives up to their pre-entry expectations have higher levels of social integration (Helland, Stallings, & Braxton, 2002). | Aypay et al., 2012; Roland et al., 2016; Ishitani, 2016; Arce et al., 2015; Aypay et al., 2012; Al Ghanboosi, 2013; Venuleo et al., 2014 |
| Institutional integrity           | Institutional integrity is a concept proposed by (Braxton & Hirschy, 2004, p. 99), who are concerned with the congruence between the institution's declared goals and the actions of individual staff members. They suggest that a higher level of institutional integrity will lead to students feeling safer and thus increase social integration. | | |
| Social aspects of the induction program | Induction into the institution can take many forms: induction programs lasting around a week, more gradual inductions that are integrated in the courses, or first-year seminars (Harvey et al., 2006, p. 70). | Harvey et al. (2006, p. 76) conclude that induction is important for retention as it supports the integration of students. There is empirical evidence to suggest that an induction program lasting about a week is optimal (ibid. pp. 17). | Adams & Woods, 2015 |

(Continued)
| Phenomena                                      | Theory                                                                 | Examples of empirical findings                                                                                                                                                                                                 | References                  |
|-----------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Demographic composition of the student body (age and sex) | While many studies control for the influence of sex and age on the given results at an individual level, the level of group diversity regarding sex and age is also influential. | For mature students, a greater age diversity can have positive effects on retention (Lynch & Bishop-Clark, 1998). Female students have been shown to be at greater risk of dropout from courses with a greater proportion of women. This is not the case for male students on the same course (M. S. Larsen et al., 2012, p. 131). | Larsen et al., 2013          |
| Demographic composition of the student body (ethnicity) | Ethnic diversity.                                                      | African-American students have been shown to have higher retention rates in traditionally black institutions compared with traditionally white institutions (Pascarella & Terenzini, 2005, p. 393). | Ma & Cragg, 2013; Pike & Graunke, 2015; Carnevale & Strohl, 2013 |
| Size of the institution                       | The number of students at the institution.                             | Research on the effects of the size of the institution shows mixed results, but indicates that students in larger institutions are less socially integrated Pascarella and Terenzini (2005, p. 386). This is suggested in a qualitative finding as well, indicating that smaller institutions provide better opportunities for forming close relationships (Aypay et al., 2012, p. 108). | Pike & Graunke, 2015         |
The academic system

The phenomena that relate to the academic system overlap with both the social system (e.g. a work community) and teaching (e.g. workload). Despite both theoretically and empirically based critiques of the concept, (Braxton, Sullivan, & Johnson, 1997; Kuh & Love, 2000, p. 197), academic integration remains a central and widely applied concept (Aljohani, 2016) related to the academic system. It is also incorporated in dropout theories which are more oriented toward the individual (Bean & Eaton, 2002). Generally, the phenomena in Table 4 are assumed to have an impact on academic integration and identification; they are also assumed to have an impact on social integration, since, as previously mentioned, they involve interaction between students. In international settings, where students often attend many different disciplines without having fixed groups of fellow students, research in learning communities (see Pascarella & Terenzini, 2005, p. 422) has shown that there is a positive impact on students’ persistence when they take lessons together and are a part of a fixed community. The results have theoretical implications for the significance of academic communities in relation to both social and academic integration and identification, as well as the central role of the faculty in any institutionally initiated effort to minimize dropout (Tinto, 2007, p. 5). The results on learning communities highlight how the structuring of the academic system has an impact on the student’s possibilities for engaging in social and academic communities both with fellow students and with faculty. They also indicate that teachers can facilitate such learning communities through didactic initiatives, such as teaching which involves and engages students (see Table 4). This further highlights the fact that institutional factors related to the academic system generally, and teaching specifically, are central to understanding and preventing dropout. The role of the faculty is seen in Table 3 in phenomena such as relationship to, interaction with, and support from lecturers as well as support and guidance. The faculty also have an indirect influence on the other phenomena.

Teaching

Teaching and general practice in the classroom have several times been pointed out as an area which is increasingly gaining attention, but still lacks research in relation to dropout (J. Braxton, J. Milem, et al., 2000, p. 570; Tinto, 1997; Tinto, 2007). Referring back to Figure 1, teaching has an impact on persistence through social integration, academic integration, and identification, as well as learning. Other than the classroom itself, the use of study groups and cooperative learning are obvious examples of teaching-related phenomena that are related to the social system. Teaching will ideally contribute to learning as well as normative academic integration by promoting intellectual development within the subject. Phenomena such as active involvement, feedback, alignment, and instructional clarity are central, since they can help foster engagement in and understanding of the subject. Finally, teaching contributes to academic integration in the sense that it prepares students in terms of meeting academic requirements. See Table 5.
Table 4. Factors related to the academic system (not ranked).

| Phenomena                                | Theory                                                                 | Examples of empirical findings                                                                 | References                                                                 |
|------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Academic integration and identification  | Tinto’s concept of academic integration consists of a structural part concerned with meeting explicit standards, as well as a normative part concerned with intellectual development and the congruency with the academic environment at the institution (Tinto, 1975, p. 106). According to Osborne and Jones (2011), academic identification is a psychologically based and theoretically precise concept describing the student’s relationship to their study program. It has been hypothesized by Finn (1989) that students who do not identify with the academic domain will have a higher risk of dropping out. It is, however, a relatively unexplored empirical concept (Walker, Greene, & Mansell, 2006, p. 3). | Despite only moderate support found by Braxton et al. (1997, p. 131) for the proposition that academic integration is influential on persistence, academic integration is still applied in contemporary empirical research on retention (Aljohani, 2016). Esomonu and Okeaba (2016, p. 207) have developed a survey instrument for measuring academic integration. This consists of three factors: students’ feelings of belonging at university, students’ acceptance of the rules and values of the institution, and students’ participation in classes. Here, the question of “belonging” is understood as the relationship to both peers and faculty, giving the indication that it is rather social integration which is being measured. Both studies illustrate the imprecision of the terms. A single empirical study has been found applying the concept of academic identification to the context of higher education (Elias, Masjuan, & Sanchez, 2012). However, the study’s use of the term resembles Tinto’s original conception of normative academic integration: congruence between the norms and values of the individual and the norms and values of the institution. (Herrmann et al., 2012) find that students who are engaged in study groups and who feel they can get academic support from peers have a higher sense of well-being. | Coates, 2014; Arce et al., 2015; Davis et al., 2014; Ishitani, 2016; Burrus et al., 2013; Aypay et al., 2012; Costabile et al., 2013; Ma & Frempong, 2013; Esomonu & Okeaba, 2016; Szabo & Bacsa-Ban, 2015; Venuleo et al., 2014; Bean & Eaton, 2002; Wolter et al., 2014; Aljohani, 2016 |
| Perception of                            | The learning community, e.g. study groups, reading partners, and general academic support from peers, must be placed in the institutional departure model along with the different types of teaching (labs, classes, studios) in Figure 1. A social community aiming at academic goals is thus a part of both the social and the academic system. |                                                                                                 | Whannell & Whannell, 2014; Steiner et al., 2013; Venuleo et al., 2014; Bean & Eaton, 2002 |
| learning community                       |                                                                        |                                                                                                 |                                                                           |

(Continued)
| Phenomena                                                                 | Theory                                                                                                                                                                                                 | Examples of empirical findings                                                                                              | References                                                                 |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Relation to, interaction with, and support from faculty                   | Tinto points to the importance of interaction with faculty. Originally this was seen as a part of the social system (Tinto, 1975, p. 109), but in later versions of the model it was seen as a part of the academic system (Tinto, 1987), see Figure 1. (Continued).  
Braxton and Hirschy (2004, p. 93) conceptualize the role of staff, faculty, and administrators as commitment of the institution to student welfare, making the general point that the commitment of faculty, staff, and administrators to the welfare of students has positive effects on the social integration of students. | Pascarella (1980) has developed a theoretical model which focuses on the student’s informal contact with faculty as being key to retention. This is supported by earlier empirical studies (Pascarella & Terenzini, 1977).  
Cotton et al. (2017, p. 69) find that supporting relationships with “an adult” either outside of university or among faculty can have crucial impact on retention since it facilitates both academic and social integration.  
Among contemporary studies, Aljohani (2016, p. 46) finds that the quality of student–faculty interactions is among the common factors associated with retention.  
Cotton et al. (2017, p. 69) conclude that a supportive relationship to an adult either outside the institution or among the staff is important for retention.  
Herrmann, Troelsen, and Bager-Elsborg (2015, p. 7) find that a strong relationship to teachers is associated with a lesser degree of study doubt. | Coates, 2014; Arce et al., 2015; Davis et al., 2014; Gansmer-Topf et al., 2014; Wahlgren & Manager-Anderson, 2017; Burrus et al., 2013; Aypay et al., 2012; Bers & Schuetz, 2014; Grau-Valldosera & Mingüillon, 2014; Turner & Thompson, 2014; Whannell & Whannell, 2014; Al Ghanboosi, 2013; Pascarella & Terenzini, 2016; Herrmann et al., 2015 |
| Workload                                                                 | How the students perceive workload can be categorized as related to either the study environment (Herrmann et al., 2012, p. 2) or to the individual student’s academic abilities (DMA-Research, 2002, p. 12). | Students who perceive the workload to be too big generally have a lower sense of well-being at their study (Herrmann et al., 2012, p. 7).  
Holm, Laursen, and Winslaw (2008) find that too-high demands can cause problems, especially for students with other obligations. | Gansmer-Topf et al., 2014; Costabile et al., 2013 Heublein, 2014 |
| Grade point average and learning                                          | The grade point average (GPA) can be seen as a measure of structural academic integration by indicating the student’s ability to meet academic standards (Tinto, 1975, p. 106).  
The GPA can also be said to reflect learning. Learning is a central concept in (Tinto, 1997, p. 615) revised model, presented in Figure 1, which is directly linked to retention. | A study concerned with the use of data mining to identify at-risk students finds that GPA is a significant predictor (Jayaprakash et al., 2014, p. 27).  
Similar links between GPA and retention are found in other studies (Al Ghanboosi & Alqahtani, 2013, p. 504), while Hardy and Aruguete (2014, p. 558) identify a range of psychological factors and institutional factors correlated with GPA. | Ma & Cragg, 2013; Jayaprakash et al., 2014; Al Ghanboosi & Alqahtani, 2013; Hardy & Aruguete, 2014; Al Ghanboosi, 2013; Jayaprakash et al., 2014; Klapproth & Schaltz, 2014; Al Ghanboosi & Alqahtani, 2013 |

(Continued)
Table 4. (Continued).

| Phenomena                                      | Theory                                                                 | Examples of empirical findings                                                                                                                                                                                                 | References                                      |
|------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Previous results,                                  | Examinations influence how students approach their studies and learning (Biggs & Tang, 2011, p. 163). | Examination methods which are focused on connecting previous knowledge to the disciplinary content and on activating students have positive motivational effects and lead to higher course completion and lower dropout (M. S. Larsen et al., 2012, p. 110). Yorke and Longden (2004, p. 114) find that one in three students who have dropped out has done so either because of failing to meet academic demands or assessing that they would eventually do so. | Hardy & Aruguete, 2014; Larsen et al., 2013     |
| experiences of, and                               |                                                                        |                                                                                                                                                                                                                                |                                                 |
| disappointment in exams                           |                                                                        |                                                                                                                                                                                                                                |                                                 |
| Academic aspects of the induction program         | Induction into the institution can take many forms. Induction programs can last about a week, or can take a more gradual form and be integrated in the courses or first-year seminars (Harvey et al., 2006, p. 70). | Harvey et al. (2006, p. 76) find empirical support for the positive effects of informal contact with staff during the induction period and for integrating the induction into the classes (e.g. by dedicating the first lesson to induction). | Jia & Maloney, 2014; Al Ghanboosi, 2013; Christie et al., 2013; Van Zandt Allen, 2014. |
| Support and guidance                             | The services of the institution concerned with support and guidance for students such as tutors, mentors, and student counseling. These services can be theoretically linked to Braxton and Hirschy (2004, p. 93) concept of commitment of the institution to student welfare, thus framing these services as the expression of a desire to assist students in their adjustment to the institution. | The allocation of personal tutors and relationships with staff at the institution increase persistence (Cotton et al., 2017, p. 69). A general point about these services is that students need to be aware of their existence and also need to feel entitled to receive help and support in order for them to use them (Cotton et al., 2017, p. 72). Bishop (2016, p. 213) finds that low-risk students (based on background variables) who use counseling services lower their risk of dropping out – as opposed to high-risk students who use counseling services. No differences were found between high-risk students who use counseling services and high-risk students who do not. (Ishitani, 2016, p. 32) problematizes how the dominant focus on support systems for first-year students may create problems with lack of ongoing support for second year students. | Coates, 2014; Arnold, 2015; Arce et al., 2015; Davis et al., 2014; Gansemer-Topf et al., 2014; Wahlgren & Måriås-Anderson, 2017; Burrus et al, 2013; Mah, 2016; Ballerini & Albarrán, 2013; Bishop, 2016; de-la-Fuente-Valentín et al., 2013; Grau-Valldosera & Mingullón, 2014; Rashid et al., 2015; Whannell & Whannel, 2014; Ishitani, 2016; Sneers & De Witte, 2015; Brown & Kenney, 2014; Shaw et al., 2014; Turner & Thompson, 2014; Al Ghanboosi, 2013; Bers & Schuetz, 2014 |
Table 5. Factors related to teaching (not ranked).

| Phenomena            | Theory                                                                 | Examples of empirical findings                                                                                     | References                                                                                     |
|----------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Teaching quality     | Teaching quality is a broad concept operationalized in varying ways.   | A positive relation between retention and teaching quality is found by Braxton et al. (2000),                         | Arce et al., 2015; Mestan, 2016; Rashid et al., 2015; Szabo & Bacsa-Ban, 2015; Venuleo et al., 2014; Xu, 2016 |
|                      | A few studies measure teaching quality through the student’s perception |                                                                                                                                 |                                                                                               |
|                      | of the skills and abilities of teaching staff, with surveys asking about |                                                                                                                                 |                                                                                               |
|                      | the realization of didactic principles (Braxton, Bray, & Berger, 2000; |                                                                                                                                 |                                                                                               |
|                      | Nora, Cabrera, Hagedorn, & Pascarella, 1996).                           |                                                                                                                                 |                                                                                               |
|                      | A range of British studies utilize external evaluations of teaching    |                                                                                                                                 |                                                                                               |
|                      | quality (Arulampalam, Naylor, & Smith, 2005; Johnes & McNabb, 2004; J. |                                                                                                                                 |                                                                                               |
|                      | Smith & Naylor, 2001).                                                 |                                                                                                                                 |                                                                                               |
| Alignment            | Alignment or constructive alignment is concerned with the alignment    | While alignment is well supported as an influential factor on learning outcomes in higher education (Hattie, 2015,     | Troelsen & Laursen, 2014; Mendez et al., 2014; Mestan, 2016                                                                                       |
|                      | between intended outcomes, teaching/learning activities and evaluation/ | p. 87), fewer studies have looked at the relation between alignment and retention. Looking at institutional practices, an |                                                                                               |
|                      | examination (Biggs & Tang, 2011, p. 50). Alignment has been hypothesized | EU report finds that alignment is the key idea behind teaching initiatives implemented to improve retention rates.    |                                                                                               |
|                      | to reduce dropout by encouraging deep learning (Marton & Säljö, 1976). | By applying learning analytic methods to curriculum data, Mendez et al. (2014, p. 116) point to the importance of       |                                                                                               |
| Instructional clarity | The concept of instructional clarity is concerned with the teacher’s    | the general alignment of a study program, meaning that individual courses should be evaluated in terms of their        |                                                                                               |
|                      | ability to present subject matter clearly and comprehensibly (Braxton   | usefulness to the overall goal of the study program.                                                            |                                                                                               |
|                      | et al., 2000, p. 219).                                                | One study finds instructional clarity to be positively associated with intent to re-enrol – both directly and            |                                                                                               |
|                      |                                                                      | indirectly mediated by social integration (Braxton et al., 2000, p. 223). Another study, however, finds no effects on   |                                                                                               |
|                      |                                                                      | persistence of the scale academic experience, consisting of multiple items measuring instructional clarity (Nora et |                                                                                               |
|                      |                                                                      | al, 1996, p. 435).                                                                                               |                                                                                               |
### Table 5. (Continued).

| Phenomena                                      | Theory                                                                                                                                                                                                 | Examples of empirical findings                                                                                                                                                                                                 | References                                                                                     |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Feedback                                      | Feedback is a central factor according to Hattie (2015) meta-analysis of factors influencing the student’s learning and learning strategies in higher education. Emphasis is put on the kind of feedback which the student perceives as formative. | Hardy and Aruguete (2014) have developed an instrument for measuring feedback and support from teachers which showed significant correlations with interaction with teachers, participation in teaching and grade point average. This supports Tintos (1997) argument that teaching has an effect on the student’s relationship to both the social and the academic system. Furthermore, Osborne and Jones (2011, p. 147) argue in a theoretical analysis that feedback increases academic identification. | Hardy & Aruguete, 2014                                                                 |
| Active learning: involving teaching with discussions and group work | Active learning can basically be defined as students “doing things” and thinking about the things they do in class (Braxton et al., 2000a, p. 571). This can include discussions, questions arising from the teaching, role playing, etc. | Several studies find positive correlations between persistence (J. M. Braxton et al., 2000a) and engaging in group work and discussions during class (Umbach & Wawrzynski, 2005). | Arce et al., 2015; Entezari & Javdan, 2016; Braxton et al., 2000a; Shawver, 2015 |
| Higher-order thinking                        | Higher-order thinking entails that the students think about the content/curriculum on higher taxonomic levels. This includes thinking critically and being able to engage in arguments about the content/curriculum – as opposed to teaching that promotes rote learning (Lewis & Smith, 1993). | An American study finds higher-order thinking to be positively correlated with retention and social integration (Braxton et al., 2000b). The study explores several phenomena related to teaching and reaches the conclusion that the actions of the teacher have an influence on dropout (Braxton et al., 2000b, p. 581). | Remedios & Richardson, 2013; Costabile et al., 2013 |
| Cooperative learning                         | Based on Vygotsky’s understanding of learning, cooperative learning entails active interaction between the students in the classroom. It is suggested that students working with the academic content through social interaction with other students are more integrated in both the social and the academic system. | Studies exploring the relationship between cooperative learning and dropout generally find a lessened risk of dropout (Mayhew et al., 2016; Pascarella & Terenzini, 2005). With group work in general, Braxton et al. (2000, p. 580) find a small negative correlation with persistence, while Nora et al. (1996, p. 442) find no correlation between dropout and the teacher encouraging the students to engage in group work. | Kaila et al., 2016 |
Table 5. (Continued).

| Phenomena | Theory | Examples of empirical findings | References |
|-----------|--------|--------------------------------|------------|
| Courses on study technique and introductory courses | Courses that introduce the student to study technique and university life can take many forms. In the research, the most prevalent form is so-called first-year seminars, which communicate both practical information and information on techniques for studying (Harvey et al., 2006, p. 73). | A number of American studies have shown that sessions on study strategies taught by very skilled students have a positive impact on retention (Pascarella & Terenzini, 2005, p. 339). A supply of courses on study technique can improve the student's academic performance and thereby reduce dropout (Costabile et al., 2013). First-year seminars are prevalent in the United States and have been shown to increase persistence (Harvey et al., 2006, p. 73; Mayhew et al., 2016; Pascarella & Terenzini, 2005, p. 400). | Pittendrigh et al., 2016; Mah, 2016; Ballerini & Albarrán, 2013; Cuevas et al., 2009; Costabile et al., 2013; Brown & Kenney, 2014; Turner & Thompson, 2014; DeAngelo & Franke, 2016; |
| Student research programs | Student research programs involve students doing research as part of the teaching. | A review of the literature on student research programs finds a reduced risk of dropout (Pascarella & Terenzini, 2005, p. 406). | Farnan et al., 2014 |
| Perception of difficulty | “Academic failure” is often used to describe cases of dropout where students fail to meet the academic standards of the program (Tinto, 1975, p. 89). A significant proportion of dropout is caused by students either failing to meet academic standards or judging that they would eventually do so (Yorke & Longden, 2004, p. 114). This suggests that course difficulty is a relevant factor in dropout processes. | A study analyzing historical academic data for a computer science program finds that failing difficult courses is associated with higher dropout rates than failing less difficult courses (Mendez et al., 2014, p. 115). | Mendez et al., 2014 |
| Coherence between courses in the study program | Alignment between the different courses in the study program, clarifying academic progression throughout the study program and/or relating course content to what the students have learned in other courses. | A study based on administrative data on grades and course descriptions finds that alignment between the individual courses in a study program is an important factor for the quality of teaching and thus for retention (Mendez et al., 2014). | Mendez et al., 2014; Mestan, 2016 |

(Continued)
Table 5. (Continued).

| Phenomena               | Theory                                                                 | Examples of empirical findings                                                                 | References                                      |
|-------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------|
| Active participation in class | Tinto (1975) suggests that participating in class strengthens the student’s involvement in their studies and lowers their risk of dropping out. | Cotton et al. (2017, p. 74) find that participation in class strengthens the student’s involvement in their studies and lowers their risk of dropping out. This is also confirmed by a Spanish study that qualitatively explores the influence of involving students in teaching. They find that the student’s identification with both the social and the academic system was strengthened (Elias et al., 2012). The use of learning technologies can also be viewed as a form of participation. Based on machine learning, Jayaprakash et al. (2014, p. 27) found that the number of sessions in an online learning management system was a predictor for the person’s risk of dropping out. | Cotton et al. (2017), Entezari & Javdan 2016; Jayaprakash et al., 2014 |
Discussion

With reference to Tinto’s proposal to include institutional factors when understanding dropout, the article examines what knowledge about institutional factors can be found in recent studies of dropout in higher education. The examination shows a multitude of factors. The sorting of these factors using the institutional departure model helped us to show the variation between factors within the overall concept of study environment, to highlight the complexity of this concept and to specify the interrelatedness of factors. Particularly factors in the teaching category were related to both the social and the academic system, as well as to integration in and identification with these two systems. Integration in and identification with these two systems therefore seems to be mutually interdependent. Such dependencies can be illustrated by looking at two factors, extracurricular activities and the concept of higher-order thinking. Extracurricular activities, though placed here in Table 3, could also have been placed as part of the academic system or teaching, as both these categories can support academic integration and identification and can also be said to be part of the teaching. To illustrate this, one study activity model has been widely used in a Danish context to make it clear that teaching, especially in the context of higher education, cannot be limited to the kind of teaching initiated by a teacher in a classroom. The students continuously seek meaning as individuals, in the teaching they receive, and in the contexts of which they are otherwise a part of. Higher-order thinking is placed as part of teaching (Table 5), because it is discussed in the literature in contrast to teaching methods that orient toward rote learning. However, it could also be located as part of the social system, as research (as mentioned in Table 5) indicates that there is a positive correlation between higher-order thinking and social integration. In addition to integration in and identification with the two systems, the social system and the academic system, Tintos (1997) model points to learning as an important mediating variable in the relation between the student’s encounter with the institution and the decision to drop out. Here another point of critique can be added concerning the broad theoretical term ‘academic integration,’ which appears in Tintos (1997) revised version of the model. If academic integration entails both intellectual development and the extent to which the student lives up to objective academic requirements, one can ask the question how this is distinct from learning, which is also a part of the model. Tinto (1997, p. 614) himself suggests that learning be operationalized by testing the student’s understanding of the content or ability to think critically, which again indicates a significant overlap with intellectual development. Here the term academic identification (Osborne & Jones, 2011) could be a more precise theoretical alternative in understanding the student’s relationship to the academic aspects of their study. Academic identification can be understood as the student’s intrinsic valuation of the study and understanding of it as being part of their identity (Osborne & Jones, 2011, p. 133), or as an identification with different cultures (Holmegaard, 2013, p. 170).

The revised model maintains the original logic of the institutional departure model. We have changed only the parts of the model that deal with institutional communities and their impact on the student. Under the umbrella term study
environment, we have added social system, academic system and teaching, together with the various factors identified in our explorative phenomenologic literature review. As in Figure 1, the category teaching overlaps the social and academic system to indicate that teaching is part of or interacts with both systems. Academic identification has replaced academic integration as a mediating variable for the encounter with the institution and perseverance. The model is drawn up without the causal arrows present in Figure 1. This is to indicate that we expect causality to be less rigorous than in the original institutional departure model. This is not to say that the model in Figure 2 does not presuppose relationships between the different parts of the model, but these can vary. For example, Figure 1 implies that the effects of the individual’s predispositions on integration is mediated through their intentions and obligations, but academic identification is affected not just by phenomena in the academic system, but also by phenomena related to teaching and to the social system. The arrows of the original model are thus left out to avoid indicating that the causal relationships are fixed in the apparent patterns.

**Limitations**

Several studies point to the importance of differentiating between students who change study program and students who drop out of the educational system completely (M. S. Larsen et al., 2012, p. 96; Tinto, 1975, p. 116), as these groups can differ (Hovdhaugen, 2011, p. 244). However, many of the empirical studies we have analyzed do not make this distinction – probably for pragmatic reasons, as it can be difficult to obtain this information. For this reason, we also refrain from making this distinction between different types of dropout. Most of the empirical research done on dropout is quantitative and based on sectional approaches. This entails that the correlations that can

![Figure 2](https://example.com/figure2.png)

**Figure 2.** Revised and elaborated version of the institutional departure model.
be found between dropout and the relevant factors do not prove causal relationships. This is also the case for the studies that make up the empirical basis for this article, and thus our conclusions are also marked and limited by this fact.

**Conclusion**

In our literature review we have phenomenologically identified an array of factors in the study environment that are related to dropout. Our exploratory approach focused on capturing the variation of different factors related to dropout, not to pinpoint the most significant/effectfull predictors of dropout. The identified factors are grounded in existing theory and discrete empirical studies. All in all, the studies examined show that the educational institution plays an important role in dropout processes, and that a focus on background factors as well as selection in admission procedures (ONeill, Christensen, Vonsild, & Wallstedt, 2014; O'Neill, Hartvigsen, Wallstedt, Korsholm, & Eika, 2011) can be supplemented by analyses of the student’s encounter with the institution. The factors we identified can be categorized into three systems: the academic system, the social system, and teaching. We argue that there is a need for a new and broadened way of viewing the study environment in which the three systems overlap, as it has become evident that teaching in fact forms part of both the social and the academic system. Particularly with regard to social integration it should be noted that the institution can make a difference. If one wishes to minimize dropout, social integration may be ‘integrated’ into teaching by way of initiatives that focus on, for example, group work (see **Table 3**) rather than addressing the students alone. Furthermore, quality in teaching – both generally and with a focus on concepts such as alignment and feedback – has an impact on the students’ dropout processes. This points to an argument made by Tinto (2007, p. 7) that more information is needed about the kind of impact that further training and education of faculty might have on dropout or other outcomes. What the connection and mutual impact between the suggested categories and factors really looks like must await future empirical testing. Intervventional studies and longitudinal studies are ideal supplements to the many studies based on ex-post facto (after the dropout has occurred) interviews and or studies identifying correlations between dropout and administrative data. Intervention studies would be of especial help in translating the results of research into plans of action.

**Note**

1. The measures of teaching quality in all three studies are based on the teaching quality assessment carried out by the Quality Assurance Agency for Higher Education.

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