# "Are They Ready?" Self-Directed Learning Readiness and Acceptance of e-Learning Tools: Comparing Non-Traditional and Traditional Students

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## Abstract

Accommodating 'Non-traditional' students' (NTS) needs (Kerres, 2012) is an increasing concern for traditional brick and mortar universities. This also applies to teaching and learning in the online distance education context: "As the online learning environment is characterized with autonomy, self-regulation becomes a critical factor for success in online learning" (Barnard et al., 2009, p.1). This paper investigates the differences in self-directed learning readiness of non-traditional and traditional students in German higher education as well as the acceptance of digital teaching and learning approaches with respect to their self-directed learning readiness.

**Keywords**: Lifelong learning; Learner needs, perceptions and motivations; Learning effectiveness; improvement of learning experience; self-directed learning readiness; non-traditional students

## Introduction

The profile of students attending traditional brick and mortar universities is increasingly diverse, which constitutes a challenge for the institutions that need to adapt their teaching practices, contents and learner support structures to accommodate these so called "non-traditional" students' (NTS) needs (Kerres, 2012). Albeit this challenge, taking this diversity and its changes that shape today's student profile into account to offer a successful learning experience to the students. Subsequently, Morrison, Ross and Kemp (2007) state: "As designers, we need to understand the relevant characteristics of our learners and how those characteristics provide either opportunities or constraints on our designs" (p.52). This also applies to teaching and learning in the online distance education context, for which the investigation of "the socio-economic background of distance education students, their different learning styles, critical thinking dispositions, and special needs" (Zawacki-Richter, 2009, p.9) was identified as a central research area. Successful and productive distance education depends on and demands learners – among other factors – to be intrinsically motivated and be capable of self-directed or self-regulated learning: "Individuals who are self-regulated in their learning appear to achieve more positive academic outcomes than individuals who do not exhibit self-regulated learning behaviors" (Barnard-Brak et al., 2010, p.61). This paper investigates the differences in self-directed learning readiness of non-traditional and traditional students in German higher education as well as their acceptance of web and e-learning tools and digital teaching and learning approaches. As self-directed learning is a crucial competency for students – and learners in general –, their attitude towards online tools and learning approaches may have consequences for the design of appropriate learning settings and environments. Whereas this study primarily focuses on one specific country, the consideration of results of international studies on the topic adds to situating this study within the broader discourse.

## Theoretical Background

"Self-directed learning" and "self-directed learning readiness" are complex constructs and there are many different definitions. A well-known definition by Knowles (1975) describes self-directed learning as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" (p.18). Consequently, self-directed learning readiness refers to the "attitudes, abilities and personality characteristics" (Wiley, 1983, p.182 as cited in Fisher, King & Tague,

2001, p.517) that the learner needs to apply to his or her learning process. Self-directed learning has been identified to be one of the central components in the theory of adult education (Merriam, 2001). In literature, several similar terms, e.g. self-regulated or self-organised learning, exist and are sometimes used synonymously for self-directed learning. This subsequent vagueness is addressed by e.g. Bucholc (2010), who attempts to distinguish more strongly between the terms and their different meanings. As early as 1978, Guglielmino developed a scale to measure this self-directed learning readiness, her scale being later subject of methodological criticism (Bonham, 1991; Field, 1989).

Despite being referred to a critical stance towards this topic can be observed as well (Kraft, 1999): "Theories on self-directed learning are not consistent, there is a lack of clear and precise theoretical definitions of terms and delineation, the arguments for this form of learning are of varying quality and plausibility, the empirical findings are diverse and the situation regarding data is diffuse and unclear" (translation by the authors) (p.834). This challenge cannot be addressed further in this study, but nonetheless has to be taken into consideration.

Studies on learners' self-directed learning (readiness) are being internationally conducted in different fields – ranging from learners in later life (e.g. Robertson & Merriam, 2005) to students in business and nursing education (Beitler & Mitlacher, 2007; Smedley, 2007). Beitler and Mitlacher (2007) analyze US-American and German business students' willingness and motivation to share information and conclude that, while there are no differences in willingness and motivation due to the country of origin, the extent of students' self-directed learning readiness accounts for the respective attitude. The authors also mention that in tendency, „Persons with above average or high SDLRS scores usually prefer to determine their own learning needs, plan their learning, and then implement their learning plan" (Beitler & Mitlacher, 2007, p.527). Dynan, Cate & Rhee (2008) researched the influence of structured and unstructured learning environments on students' SDLR development and argue that students entering a course with a higher SDLR, do indeed prefer unstructured learning environments, meaning less teacher-directed ones. Furthermore, in their case study on Malay adult learners' SDLR, Ahmad and Majid (2010) take the participants' cultural background explicitly into consideration and conclude „that culture could be a strong influence in the development of SDL readiness of the respondents" (p.261).

Transferring self-directed learning readiness to online distance education means to directly addressing the fact that "studying at a distance requires maturity, a high level

of motivation, capacity to multi-task, goal-directedness, and the ability to work independently and cooperatively" (Brindley, 2014, p.287). Thus, self-directed learning plays an important role (Song & Hill, 2007). As a general fact, knowing learners' characteristics and abilities proves to be important in online learning when designing and offering web-based courses meeting these needs (Morrison et al., 2007; Zumbach, 2010); even more so given the fact that today's student population is increasingly diverse regarding age, professional and personal background, and prior education experience (Thompson, 1998; Guri-Rosenblit, 2012; Stöter, Bullen, Zawacki-Richter & von Prümmer, 2014).

Nevertheless a clear definition of the so called "non-traditional student", does not exist. A range of understandings, however, share some common points as the following exemplary definitions show but also differ in focus. Ely (1997) delineates non-traditional students through the following characteristics: "I am your adult student, age 25 or older, who has returned to school either full-time or part-time. While attending school I also maintain additional adult life responsibilities such as employment, family, and financial commitments" (p.1). More characteristics are included in the definition by the National Center for Education Statistics (NCES) in the United States: "delayed enrollment into post-secondary education, attended part time, financially independent, worked full time while enrolled, had dependents other than a spouse, was a single parent, did not obtain a standard high school diploma" (Horn & Carroll, NCES, 1996, p.2). Having at least one of these characteristics classifies students as non-traditional students in US statistics. The definition by Teichler & Wolter (2004), which is predominantly used in the German discourse on NTS, advanceds three major categories to describe NTS: mode of study (part-time, distance, or alongside with paid work), alternative ways to access higher education (without formal entrance qualifications), and recurrent learners coming to university at a later point in life. Although this definition is helpful for understanding students' ways into und through higher education, it does not offer clear criteria, which help to understand this group's needs and expectations. In an international, comparative study, Schuetze and Slowey (2012) identified seven different types of lifelong learners:

- second chance learners,
- equity groups (from under-represented groups in HE),
- deferrers (who start their study years after completion of formal entrance qualifications to higher education),
- recurrent learners (who return to university for another academic degree),
- returners (e.g. former drop-out students),

- refreshers (who upgrade their knowledge), and
- learners in later life.

These types are based on various international descriptions of NTS' ways into the higher education system; however, they do not provide special characteristics of this group. Classifications as such serve to enable handling or researching specific phenomena; thus also the definitions of the group "non-traditional students" vary because of different perspectives and research interests. For this study, the classification by Zawacki-Richter, Hohlfeld and Müskens (2014) was used because it allows differentiating between the specific attributes more thoroughly and thus increases the accuracy of discrimination between non-traditional and traditional students. This is deemed necessary, because the distinction between traditional, distance and so-called non-traditional students (NTS) remains diffuse (Thompson, 1998; Teichler & Wolter, 2004; Kerres & Lahne, 2009).

## Research Questions

The aim of this study is to analyse whether there exists a difference between the self-directed learning readiness of non-traditional and traditional students. Following the assumption outlined above, the diversity of today's students along the differentiation of being traditional or non-traditional possibly shows in their self-directed learning readiness.

Thus, the central research questions of this investigation are:

- Do traditional and non-traditional students show different levels of self-directed learning readiness?
- Does a relationship exist between the self-directed learning readiness of these two groups and their acceptance of e-learning tools?

If this is the case, then

- how can this difference be described and what consequences arise for the development of educational settings that rely on the extensive use of e-learning tools?

## Method

### *Sample and Data Collection*

Data in this analysis is taken from a large quantitative study on students' use of media, which was conducted in 2012 in the framework of "Aufstieg durch Bildung – offene Hochschulen", a large-scale program funded by the German Federal Ministry of Education and Research and the European Social Fund (Zawacki-Richter, Hohlfeld & Müskens, 2014). The study aimed at identifying university students' usage patterns when deciding on which (digital) media, tools, and services to use in the context of their studies. In total, 2,339 students from over eleven German higher education institutions answered the online questionnaire between April, 25th and June, 18th, providing information on diverse aspects of their media use in the context of their university studies, their learning styles as well as central socio-demographic characteristics.[1] With a gender distribution of 61% female and 39% male participants, aged 25 on average, one of the central characteristics of the participant group is their differentiation along the line of being considered a non-traditional student or not.

Non-traditional students were defined in this study as such when meeting at least one of the criteria of: enrolment in an (online) distance education programme, studying part-time, being employed for at least 19 hours per week, or being 30 years and older (Zawacki-Richter et al., 2014). Following this definition, 789 students of the sample (34%), were identified as NTS. With 30 years in the mean, they are significantly older than the traditional students (22 years) ($N = 2.310$), $t = -30.95$, $df = 2308$, $p < .001$. All traditional students are younger than 30 years, while NTS being 55% ($N = 433$) under and 45% ($N = 352$) over 30 years old. The range lies between 18 and 75 years. On average, the participants ($N = 2279$) have studied five semesters (including the present). 25.7% of the NTS have children, 4.6% are single parents. In comparison, only 1.2% of the traditional students have children, and 0.5% are single parents. On average, NTS work alongside their studies three times longer than traditional students (hrs. / week).

One central result of the study emerged to be the classification of four media user types, described by Zawacki-Richter and Müskens (2013, p.11) entertainment user (51.6%), peripheral user (20.1%), advanced user (20.4%), and instrumental user (7.6%) ($N = 1715$). Here, Zawacki-Richter & Müskens (2013) show that: "NTS had a much

[1] For an extensive description of the questionnaire used and participating students' profile, see Zawacki-Richter, Hohlfeld and Müskens (2014) or Zawacki-Richter and Müskens (2013).

greater mean class probability for the 'instrumental users' class than TS. Users considered as 'instrumental' showed to be the most active ones in using software and e-learning tools for their studies, whereas they do not use social media or others tools in their free time. For the 'peripherals' class the mean class probability of the NTS was significant higher, too. However, the NTS had significantly smaller mean class probabilities than TS with regard to the classes 'entertainment users' and 'advanced users'" (p.12). So far, the survey's data on self-directed learning readiness of the participating students has not been analysed further.

Attention needs to be paid to the fact that the study participants are enrolled in higher education institutions in Germany, the structure and environment of which is distinctly different from that of other countries. Thus, this context is to be taken into consideration when analysing the data. Assuming that also culture does to some extent influence learning and learner characteristics, it is nevertheless argued that findings of this study can be relevant for educational systems similar to the German one and for furthering the international discussion of NTS' characteristics.

### *Instrument*

In the media usage study, questions concerning the participants' self-directed learning readiness were taken from Fisher's et al. (2001) self-directed learning readiness scale and were translated from English to German by the researchers. Fisher et al. (2001) developed their own self-directed learning readiness scale in response to the critique on the validity of Guglielmino's scale (Field, 1989) and Bonham's (1991) doubt on whether the scale measures readiness for self-directed learning or rather for learning itself (reliability of the scale). Primarily developing the scale for the field of nursing, they reviewed the existing literature and employed the Delphi technique to define and validate the scale's items. It was intended, however, that their scale be used in other contexts as well. The final scale comprises three subscales, "self-management", "desire for learning", and "self-control" and consists of 40 items related to these topics. Students can rate their perceived self-directed learning readiness on a five point Likert scale (ranging from 1 = strongly agree to 5 = strongly disagree).

## Preliminary Findings

The three subscales "self-management", "desire for learning", and "self-control" were summarized as one and labelled as "self-directed learning readiness total". The mean of this new variable was calculated for both non-traditional and traditional students. Non-traditional students were operationalized as such when fulfilling at least one of

the criteria that were listed and already used by Zawacki-Richter et al. (2014); traditional students are students who did not fulfil any of these criteria.

Table 1: SDLR_Total for non-traditional and traditional students (1 = strongly agree, 5 = strongly disagree)

| Student Type | N | mean | standard deviation |
|---|---|---|---|
| Traditional | 1,531 | 2.120196 | .4209775 |
| NTS | 789 | 1.975553 | .4245370 |
| total | 2,320 | 2.071005 | .4276279 |

The results show that with a mean of 2.0710, the level of total self-directed learning readiness is high for both groups. However, participants identified as non-traditional students perceived their self-directed learning readiness slightly higher (1.9756) than the traditional students (2.1202).

The group of non-traditional students was then more narrowly defined, operationalizing them through the fulfilment of the criteria of being 30 years and older **and** enrolled in an education program offered fully online in order to take into consideration that the various criteria of NTS may have a very different impact on students needs and learning styles.

Table 2: SDLR_total with 40 Items for NTS_narrow and TS+NTS_rest (1 = strongly agree, 5 = strongly disagree)

| Student Type_NTS_narrow | N | mean | standard deviation |
|---|---|---|---|
| NTS_narrow | 38 | 1.845308 | .3820796 |
| Traditonal+NTS_Rest | 2282 | 2.074763 | .4274123 |
| total | 2320 | 2.071005 | .4276279 |

Using a definition of NTS, which includes more than one criterion, the difference to TS regarding the self-directed learning readiness is still very small, although the narrow definition results in even higher SDRL ratings for NTS. In order to investigate if there could be a relevant implication the effect sizes were calculated.

Effect sizes are a quantitative measurement tool to give an idea of the practical relevance of differences in means, therefore the results can be compared in a more differentiated way (Bortz & Döring, 2006). According to Cohen (1988), as a first orientation, effect sizes of under d = 0.20 can be neglected, from 0.50 on they are considered as medium and from 0.80 on as high. The effect size for NTS_narrow is calculated to be d = 0.56589663. Applying the broad definition of NTS, the effect size of 0.34 indicates an effect, even though a small one. When specifying this definition

("narrow" definition of NTS: only online students and those older than 29 years old), the effect size increases: The value is within the medium range, however, it needs to be taken into consideration that only 38 cases were included.

### *Interpretation*

The results clearly indicate that differences in the self-reported estimate of self-directed learning readiness between the groups of NTS and TS exist, although they are rather small. In this case, this could be due to the fact that the criteria age and study format were used. Most likely, the fact of studying online accounts for this effect size. At the same time, the broad and initial definition of non-traditional students diminishes the difference between this group and the traditional students. It is possible that the definition of NTS used here is too broad to allow for discovering substantial differences to the TS group. This is supported by the result that, when using the narrower definition, a medium effect size (according to Cohen, 1988) can be found, i.e. a bigger difference concerning the self-directed learning readiness. It has to be recognized, that the criteria in the given definition of NTS do have different impacts: an age of more than 29 and being enrolled in an online-only-program is not the same and may indicate that inside the group of NTS a more differentiated approach is needed. Another explanation for these results could be that students in general show a rather high self-directed learning readiness. However, analyzing students' self-directed learning readiness is only the first step. An investigation of the domains in which this readiness plays a role when designing the actual educational settings and technology, is necessary.

### *Analysis of acceptance of digital learning approaches*

Thus, in the following the acceptance of digital learning approaches will be analyzed. The study by Zawacki-Richter et al. (2014, p.20) used the differentiation for media and tools provided by Grosch and Gidion (2011) according to which digital learning approaches are summarized as follows:

> *"1) course-complementing materials, 2) interactive, multimedia learning materials, 3) virtual seminars and tutorials with tele-cooperation, 4) lectures in the form of pod- or vodcast, 5) virtual practice and laboratories, 6) online tests and tutorials (e-assessment), 7) web-based trainings / trainings in the intranet or internet, 8) e-portfolios / learning diaries in the intranet or internet."*

A 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance digital learning approaches" (categorized) was conducted.

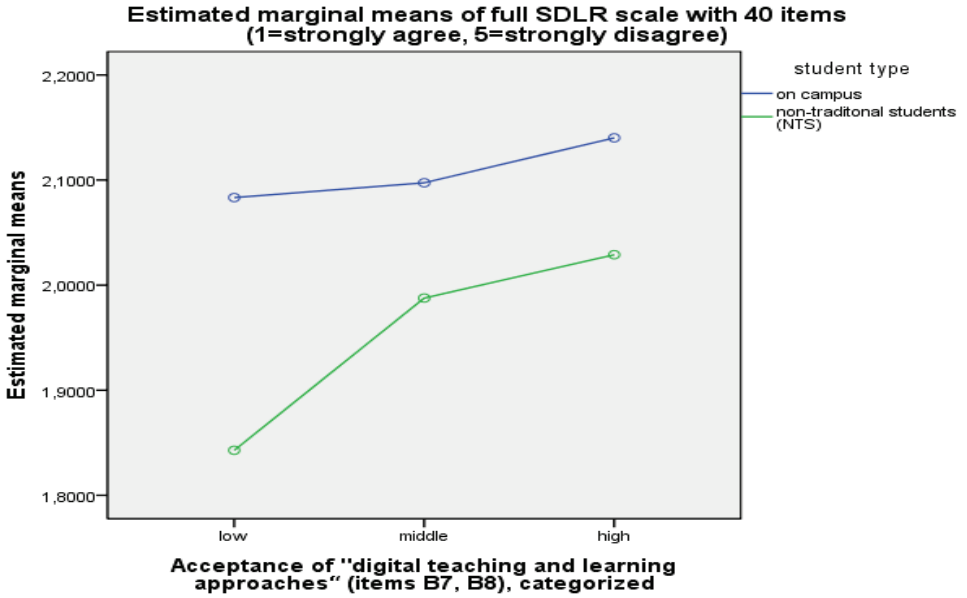


Figure 1. SDLR-scale as independent variable and the factors „student type" and „acceptance digital learning approaches"

The results show that there is a small difference, which is however not significant but does show some tendencies. NTS show more self-directed learning readiness whether the acceptance of digital teaching and learning approaches is low, middle, or high. Students with the lowest acceptance of digital teaching and learning approaches show the highest self-directed learning readiness. The higher the self-directed learning readiness, the lower the acceptance.

### *Analysis of acceptance of web tools and e-learning tools*

In the study of Zawacki-Richter et al. (2014), the term web tools refers to online tools, which are not e-learning specific such as email systems, Skype, search engines, blogs and wikis; whereas e-learning tools explicitly refers to tools for the support of learning such as learning management systems, file deposition systems, virtual seminars and ePortfolios.

A 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance of web tools" (categorized) was conducted (Figure 2).

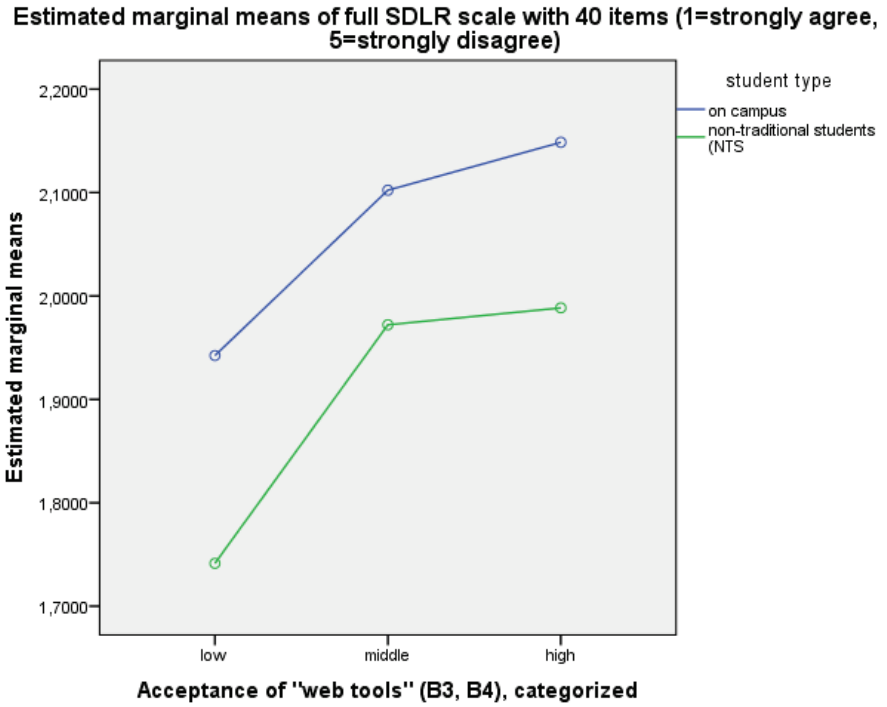


Figure 2. SDLR-scale as independent variable and the factors „student type" and „acceptance web tools"

Comparable to the results depicted in Figure 1., there is a small difference between the traditional and non-traditional students, again, not significant but indicating tendencies. NTS always show a higher SDLR, whether the acceptance of web tools is low, middle, or high. Again, students with the lowest acceptance show the highest SDLR, and there is merely a difference between middle and high acceptance. Finally, a 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance of e-learning tools" (categorized) was conducted (Figure 3).

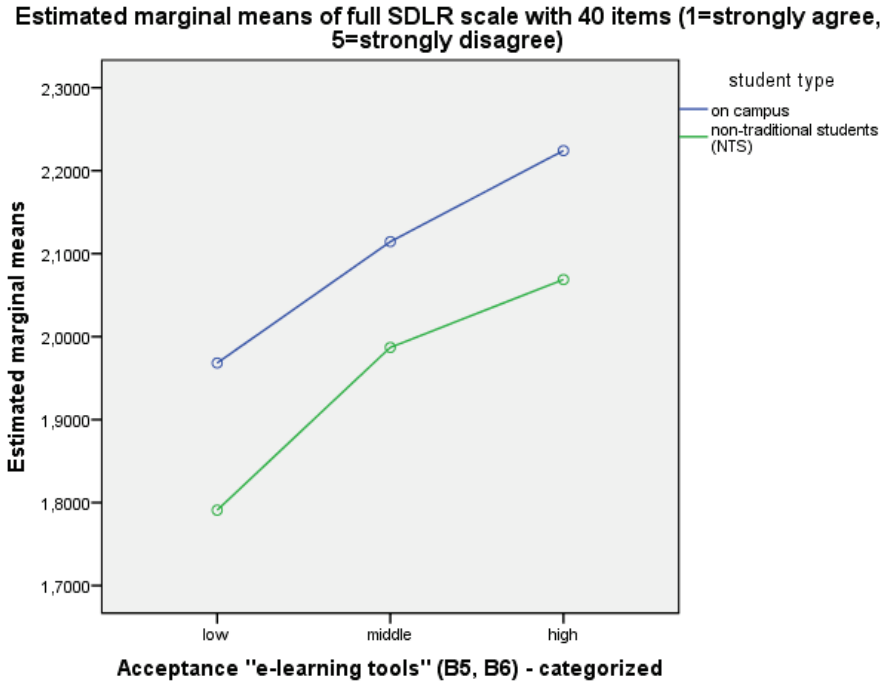


Figure 3. SDLR-scale as independent variable and the factors „student type" and „acceptance e-learning tools"

The difference between the traditional and non-traditional students is found to be even smaller than in the first two analyses. With respect to the e-learning tools, both groups seem quite similar: Again, with high SDLR, acceptance of e-learning tools is lower. Decreasing SDLR is attended by increasing acceptance of e-learning tools.

### *Interpretation*

According to the acceptance of digital learning approaches of non-traditional students, it can be found that especially the students with very high SDRL rates have a lower acceptance for online learning formats. The small differences in the SDRL ratings between the two groups are not influenced by the acceptance of digital learning formats and the degree of acceptance is not an appropriate criterion to show differences of SDRL ratings within the groups. The same estimation applies to the acceptance of web and of e-learning tools. All results show a slightly higher SDLR for NTS and at the same time for both groups a higher acceptance with lower SDLR. According to Dynan et al. (2008) students with higher SDLR prefer less teacher-directed or less structured learning environments. Since e-learning programs are often

very structured, this study's findings on a higher SDLR related to lower acceptance (of el-learning tools/approaches etc.) do fit into Dynans results.

The statistical insignificance could be due to the broad definition of NTS, and due to the fact that results are obtained by analyzing data solely from students enrolled in German higher education. Thus, an internationally applicable generalization is not possible. Nevertheless, the tendencies indicated by the study findings could be a starting point for further research, and they additionally indicate which areas are of relevance for further analysis.

## Conclusion

The results of this study allow for different conclusions and lead to further hypotheses: it is possible that the group of university students as such – and irrespective of being traditional or non-traditional – has (generally) a higher willingness to learn in a self-directed manner. Regarding the construct of self-directed learning, it would thus be interesting to compare the values/indexes of the students to those of other societal groups or learners in other educational settings (e.g. secondary schools, vocational education).

Considering the design of teaching and learning in higher education, this would mean that non-traditional and traditional students are or will be rather similar in some characteristics relevant for the instructional design and share a lot of the same needs regarding study modes; an example being the wishes for more e-learning tools from both groups that Zawacki-Richter, Hohlfeld and Müskens (2014) point out in their study. Increasing the flexibility of educational offerings in higher education will therefore be an advantage for all groups of students. The results of the study „STUBE"[2] support this interpretation by showing that traditional students, in addition to non-traditional ones, would like to have more flexible learning opportunities in terms of time and tools (e.g. Stöter, 2013).

As the study by Beitler and Mitlacher (2007) as well as the one by Dynan et al. (2008) suggest, SDLR is not an end in itself but rather serves as a component in shaping future behaviour, e.g. sharing information in working teams (Beitler & Mitlacher, 2007) or, in the case of Korea, being influential on affection-based commitment to one's employing organization (Cho & Kwon, 2005). Ahmad and Majid (2012) as well as Beitler and Mitlacher (2007) refer to culture as one aspect to also be taken into

[2] http://mediendidaktik.uni-due.de/stube [30.01.2015]

consideration when SDLR is concerned. Taking a closer look on how the relationship between SDLR and an individual's cultural surroundings is mutually influential is another step to be taken. Guglielmino and Guglielmino (2006) attempted such a comparative analysis between five different countries and based on Hofstede's model of dimension of culture. As culture also becomes influential when it comes to designing face to face and online learning environments, keeping in mind the interplay between SDLR and a student's cultural background is deemed necessary.

To what extent the construction of the scale might have influenced the results needs also to be taken into consideration. All items are positively phrased. (e.g. „I enjoy studying", „I learn from my mistakes", "I am able to focus on a problem" etc.), making a bias (in positive direction) predictable when rating the statements. A tendency to rate items according to social desirability is likely as well. Criticism that was already directed at Guglielmino's (1978) scale (e.g. Bonham, 1991) also leads to the question of what exactly is measured by the scale provided by Fisher et al. (2001): is it self-directed learning or rather e.g. the attitude towards learning itself? A subsequent review of this scale in terms of its validity and reliability should be considered, and if necessary, it should be adapted or modified accordingly.

Finally, future research could possibly include comparative studies on students' self-directed learning readiness who are enrolled in higher education systems other than the German one. Taking into consideration different learning styles, cultural aspects could here be a fruitful addition to investigate this important construct.

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