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Changing learning environments at university? Comparing the learning strategies of non-traditional European students engaged in lifelong learning

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Abstract

With the importance of lifelong learning rising in our knowledge-based society, educators in higher education must meet the needs of an increasingly diverse student population. An important question within this context is how these students learn. Little research is yet to be found on the learning strategies of these groups of lifelong learners. This article fills this gap, providing research on the learning strategies of lifelong learners at three European universities. The analysis shows that distance learners and employed learners learn less through repetition and cooperation, compared to other groups of lifelong learners. Furthermore, these students revealed that they use active rather than reactive coping strategies. These results were confirmed for lifelong learners in all participating countries and only minor differences between countries were found.

Keywords: lifelong learning; learning styles; learning strategies; coping strategies; academic continuing education

1. Introduction

The demand for education and qualifications is rising in today's knowledge-based society. Lifelong learning (LLL) has emerged as a key theme in this context and is seen as a social necessity. LLL requires an improved integration of different educational pathways and this is leading to a diversification of the student population in higher education. This means that lecturers at universities must cater for a very diverse student population with regard to age, social background, educational pathways and prior knowledge. In this context, the term "non-traditional" student is often used, but remains a rather vague concept in the current literature (see for example Schuetze und Slowey, 2012). Therefore we do not use the term 'non-traditional student' when talking about our own research but rather 'lifelong learner' to mean those who come to university in a LLL context, referring to late learners (e.g. adult students), employed learners (students working full-time or part-time while studying) and vocational learners (e.g. those who come to university with or through prior work experience and/or vocational education). Further, as a result of their non-traditional circumstances, the number of alternative learners (e.g. those studying in distance study or blended learning formats) is rising.

For instructors it is important to know about the learning strategies of these students to be able to adapt curricula and methodology for the needs of this special group. Learning strategies to be researched within this article are the learning styles and coping strategies. Little is known about how lifelong learners learn; research in that area is mostly limited to distance-learners. There is also a lack of comparative and European research, although higher education is becoming increasingly international

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(Teichler, 2007). Eaves (2011) points out that despite this development only a small amount of research is available on the learning styles of different cultures. This article aims to fill these gaps and analyses the learning strategies of these groups of lifelong learners in more detail. It also deals with the question of whether the instruments used are valid for the populations studied.

2. The learning strategies of non-traditional students

As pointed out, most research within this area focuses on alternative learners. Findings argue that distance learners are more independent in their learning process because of a lack of face-to-face interactions and insufficient flexibility within the structure of distance study programs. Time planning/time management was proved to be the favoured learning strategy of these students (Keller et al., 2004; Trueman & Hartley, 1996). The lack of cooperative learning strategies has also been proven for employed students (Lundberg, 2004), but it was emphasized, that employed students learn with their colleagues rather than with their fellow students.

When researching learning styles of lifelong learners, three particular styles deserve special attention based on current literature within this area. First, cooperative learning is of special interest since the heterogeneity in age, background or other characteristics make it more difficult to contact and relate to traditional students. A second strategy of major interest is learning through schedules. Many lifelong learners work or have family responsibilities and therefore find the time that is left to study rather limited (see for example Lundberg, 2004). Hence, analysing the time planning and time management strategies of these students can give an important insight into a key source of possible problems. Thirdly and finally, repetitive learning strategies are usually not common in the workplace, where application-based, direct learning styles predominate. In the university context, repetition is a useful and necessary strategy to memorize the learning content and therefore employed students might have problems adapting to repetitive learning styles.

Taking the enormous barriers that lifelong learners face into account – e.g. shortage of time, non-familiarity with universities, and study overload (Giancola, Grawitch, & Borchert, 2009; Schuetze & Slowey, 2012) – appropriate and effective coping strategies are important, if not essential, to avoid drop-out and to be successful. Coping strategies, defined by Folkman (1984) as “cognitive and behavioural efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction” (Folkman, 1984, p. 843), can be divided into two subcomponents: active coping or adaptive coping and reactive coping or maladaptive coping. Active coping strategies involve a proactive, constructive way to handle stressful situations that leads to physical and psychological health and well-being. Reactive coping strategies in contrast, lead to avoiding stress by dropping out of a course or giving up one’s goal. Giancola, Grawitch and Borchert (2009) studied 159 adult students and found students using active coping strategies to have better life satisfaction and when using reactive strategies to have lower life satisfaction. If it is true that not only alternative learners, but also lifelong learners use cooperative learning strategies less, this could result in a higher rate of reactive coping (i.e. drop out) as social integration plays an important role for college persistence (Tinto, 1975).

3. Methodology

3.1. Research questions

Based on the above knowledge and hypotheses, the following research questions are to be explored within this paper:

- (1) Do alternative and employed learners cooperate less with others when learning than other groups of lifelong learners?
- (2) Do lifelong learners learn less through repetition because of their vocational background?

- (3) Do lifelong learners use reactive coping strategies more than active coping strategies?
- (4) Is there a positive correlation between cooperative learning and the use of active coping strategies or is this correlation rather weak for the group of lifelong learners?

3.2. Participants

Respondents were non-traditional students in programs especially designed for this target group. Students in traditional and special LLL programs (N=991) who are vocational or employed learners were interviewed at the University of Southern Denmark (DK), the Open University at the University of Helsinki (FI) and Leuphana University Lüneburg (DE). Included in the analysis were 170 students from Leuphana University of Lüneburg (Mage = 29.4; SD= 6.9), 508 students from the University of Southern Denmark (Mage = 38.90; SD= 10.0) and 313 students from the OU Helsinki (Mage = 38.2; SD= 11.8), thus making up a total sample of 991 students. The majority of respondents were women. Vocational learners were the dominant learning type at all the universities. Late learners were defined as those aged at least 30 and vocational learners are those who either have a vocational education and/or two years or more of work experience². Around three quarter of the students were late learners or employed learners. Only 49 percent of the students were alternative learners. The highest percentage of these learners was to be found at the OU Helsinki since this university, as pointed out beforehand, is most developed within this area. At Leuphana University of Lüneburg alternative study formats are only slowly developing and many non-traditional students are still to be found in the regular study programs.

3.3. Measurements

In addition to collecting data on socio-demographic and study-related characteristics to group the respondents into the various groups of lifelong learners, students were asked about their learning strategies (see table 1). A short version of the LIST developed by Wild and Schiefele (1994) that covers the learning styles considered most important for non-traditional students – repetition, scheduling and cooperative learning – was used. The scale consisted of 15 items and answers were measured on a Likert-type scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”. Coping strategies were measured with four items from the Student Coping Instrument (SCOPE) based on the work of Carver, Scheier and Weintraub (1989) and further developed by Struthers, Perry and Menec (2000), and five items from a coping scale developed by Mehta, Newbold, and O’Rourke (2011). The items were measured on a Likert-type scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”. All questionnaires were translated from German (LIST) or English (Coping Strategies) into German, Danish, and Finnish, respectively. Translations were done by professional translators and also re-translated into the original language to assure the accuracy of translations.

Table 1. Measurements

Measurement	Subscale	Number of items	Item example
Learning styles	Scheduling	4	I keep to a fixed timetable when studying
	Cooperative	4	If something is unclear to me, I turn to fellow students
	Repetition	7	I memorise rules, specialist terms or formulas
Coping strategies	Reactive	5	I consider dropping out of university

² This follows the categorization of the Eurostudent data (Orr, 2011).

coping strategies		
Active coping strategies	4	I engage in physical activities

3.4. Data analysis

The learning strategies of non-traditional students have been analysed on a univariate and bivariate level. In a first step, for the existing scale of the LIST, confirmatory factor analysis was calculated to assess the number of assumed factors for the countries. Based on this evaluation, composite scores were calculated to evaluate agreement to the strategies presented. For the items measuring the coping strategies, a factor analysis was calculated to assess the underlying structure on which composite score were calculated. Calculations were done with IBM SPSS 20 for univariate and bivariate statistics. Confirmatory factor analyses were made with the confam-package available for Stata 12.

4. Results

Scale development: Confirmatory factor analysis (CFA) was computed to assess the assumed number of factors for learning styles. The goodness of fit was evaluated with the two index presentation strategy proposed by Hu and Bentler (1999). When using the ML-based SRMR and the ML-based CFI, Hu and Bentler (1999) recommend a cut-off value greater than .95 for CFI and less than .08 for SRMR as an indication for a relatively good fit that minimizes the sum of Type I and Type II errors. The LIST has been validated for Germany by Wild and Schiefele (1994) and also for special student populations such as employed students by Boerner, Seeber, Keller and Beinborn (2005). For the translated and validated short version of the LIST, a CFI value close to .95 and a SRMR value close to .08 were calculated for the three-factor-model for Denmark and Finland. When one is facing small sample sizes and/or non-normally distributed data, the Satorra-Bentler estimator is has been proposed (Kolenikov, 2009; Hu & Bentler, 1999). This test statistic again confirmed that the correlation was significant. Furthermore, the internal consistency of the scales was assessed by calculating Cronbach's alpha which implied good reliabilities ($\alpha \geq .67$) for the scales in all countries. Further, a principal component analysis with varimax rotation was performed for the self-developed coping strategy scale to assess the underlying structure. Two of the items – 'I tell myself university is not that important' and 'I buy a study guide' – had only a low correlation with the other items and were cross loading with the result that they were excluded. The explanatory factor analysis calculated a three factor solution but the two factor solution was preferred giving its theoretical relevance and the third factor explained only a small amount of the variance. To assess the reliability of the scales, Cronbach's alpha was calculated. The scales were found to be reliable in all countries for the reactive coping strategies - .79 for Finland, .69 for Denmark and .67 for Germany – and according to Robinson, Shaver and Wrightsman (2007), they fulfill the minimal criteria for scale development. The active coping strategies showed only a poor reliability (<.60) and should not be used in subsequent studies.

Univariate statistics: Composite scores were created for each of the learning strategies, based on the mean of the items. Higher scores indicated that the students agreed more to the construct presented. In all countries the students agreed the least to learning with schedules (MSDU=2.0; MOU Hel=2.1; MU LG=2.7). At the SDU students agreed most to learning together with their fellow students or through repetition, at the OU Helsinki through repetition and at Leuphana through cooperative learning (Cooperative learning: MSDU=2.9; MOU Hel=2.2; MU LG=3.5 and learning through repetition: MSDU=2.9; MOU Hel=2.9; MU LG=3.3). The students agreed only to a small extent to using reactive coping strategies (MSDU=1.5; MOU Hel=1.9;

MU LG=1.8) and to a greater extent to using active coping strategies (MSDU=2.8; MOU HeI=3.3; MU LG=3.0).

Bivariate statistics: Some country differences could be observed, which are also related to the fact that the usual type of lifelong learner at each university differs. Therefore in Table 2, the learning strategies of the different types of lifelong learners are displayed. Late learners significantly agreed more to using learning with schedules than those aged under 30. This trend is also observable for the vocational learners although this is non-significant. Employed learners and alternative learners agreed less to learning with schedules than their reference categories. They also agreed significantly less to learning through repetition. Late learners and learners with work experience agreed less to learning through repetition, but the results were non-significant. Students with a vocational education agreed significantly more to learning through repetition. Cooperative Learning is significantly less used by vocational learners with work experience and alternative learners. This trend, although non-significant, also holds true for late learners and employed learners. Vocational learners with a vocational education agreed more to using cooperative learning styles. Reactive coping strategies were significantly less used by late and employed learners and on a non-significant level by distance learners. Students with a vocational education agreed significantly more to using active coping strategies. For the other groups there was no trend to be observed. For the active coping strategies there was no clear trend observable, only that employed learners used active coping strategies less than their reference category.

Table 2. Pearson's correlations for lifelong learners and their learning strategies

		Learning styles			Coping strategies	
		Scheduling	Repetition	Cooperate	Reactive	Active
Late learners		0.101**	-0.003	-0,005	-0,076*	0.013
Vocational learners	with 2 years or more of work experience	0.061	-0,058	-0,079*	0.000	-0.45
	with vocational education	0.034	0,102**	0,031	0.083*	0.035
Employed learners		-0.061	-.113***	-0.043	-.150***	-
Alternative learners	Blended learners	-.030	-.121***	-	0.000	.121***
	Distance learners	-.037	-.037***	-.261***	-0.003	-0.030
				.034***		.012

Significance level * $p < .05$ ** $p < .01$ *** $p < .001$

We had also wanted to know if there is a correlation between the learning style and the coping strategy used. From table 3 we can see that learning through repetition and scheduling had no significant correlation with the use of reactive coping strategies but that cooperative learning had a significant negative correlation with the use of reactive coping strategies. All learning styles have a positive influence on the use of active coping strategies with learning through repetition having the strongest correlation with the use of active coping strategies.

Table 3. The interplay between the learning strategies

	Reactive coping strategies	Active coping strategies
Learning through repetition	.008	.202***
Cooperative learning	-.110**	.154**
Scheduling	-.061	.136***

Significance level * $p < .05$ ** $p < .01$ *** $p < .001$

5. Discussions

This article focuses on different groups of lifelong learners, namely vocational learners, employed learners, alternative learners and late learners, at three European universities. It explores their use of learning styles (e.g. cooperative learning, repetition, and learning with schedules) and coping strategies (e.g. active and reactive coping strategies) and relates them to each other.

Although cooperative learning, according to the literature, had been assumed to be of minor importance, it is the predominant learning style at the Leuphana and the SDU. The OU Helsinki differed in this respect, which is also rooted in the fact that it has the highest share of distance learners. The results of this study are in line with Keller et al. (2004) and Trueman and Hartley (1996) and prove that distant learners use cooperative learning styles to a significantly smaller extent. But alternative learners had a small tendency to agree to all the presented learning styles and therefore future research should explore in a qualitative way the learning styles of alternative learners to supplement existing learning style instruments. There was also no clear tendency regarding the coping strategies used. Employed students agreed less to all of the styles presented, confirming, in line with the research of Lundberg (2004), that different or reformulated instruments need to be applied for this group, to include, for example, learning with colleagues. Furthermore, they responded less to using both of the presented coping strategies, which could be a sign of the instruments not being valid for this population or that they have problems in using or finding any coping strategy. For late learners clear trends were observable revealing that they learn most through scheduling learning and that they use reactive coping strategies significantly less. For vocational learners no clear trends were observable - vocational learners with a vocational education learn more through repetition and use more reactive coping strategies and vocational learners with work experience learn less with others than their reference category.

Regarding the interplay between the learning strategies, in line with Tinto (1975), cooperative learning styles had a significantly negative correlation on the use of reactive coping strategies. The more the students agreed to any of the presented learning styles, the more they used active coping strategies. Although stating the obvious, this shows that learning strategies support the use of active coping strategies. Despite the aforementioned limitations, this research revealed interesting similarities between the groups, for example the lower importance of learning with schedules as a learning strategy and the fact that reactive coping strategies are used only to a small extent learning strategies. The lower usage of reactive coping strategies in general indicates low drop-out rates in courses and university programs for lifelong learners. Given the known challenges of non-traditional students, e.g. adaptation to university (Bowl, 2001), lack of support and study materials (Sampson, 2003), this finding goes in line with Bowl (2002) who experienced non-traditional students as highly motivated who do not give up easily. Just as revealing are the dissimilarities, such as the fact that older students' usage of learning styles and coping strategies differs widely from the usage of students in more traditional formats and vocational learners. It is important to analyse in depth how beneficial a learning style for a group of lifelong learners is, so that universities can support lifelong learners and provide students with more opportunities to use a specific learning style. More research within this area is needed; especially to develop new instruments or to revise old instruments in order to capture the successful learning strategies of lifelong learning to a greater extent.

References

1. Boerner, S., Seeber, G., Keller, H., & Beinborn, P. (2005). Lernstrategien und Lernerfolg im Studium. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 37(1), 17–26.
2. Bowl, M. (2001). Experiencing the barriers: non-traditional students entering higher education. *Research Papers in Education*, 16(2), 141–160.
3. Carver, C. S., Scheier M. F., & Weintraub J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283.
4. Eaves, Mina (2011). The relevance of learning styles for international pedagogy in higher education. In: *Teachers and Teaching*, 17, 677-691.
5. Folkman, Susan (1984). Personal control and stress and coping processes: A theoretical analysis. In: *Journal of Personality and Social Psychology*, 46, 839–852.
6. Giancola, J. K., Grawitch, M. J., & Borchert, D. (2009). Dealing with the stress of college: A model for adult students. *Adult Education Quarterly*, 59(3), 246–263.
7. Hu, L.-Z., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55.
8. Keller, H., Beinborn, P., Boerner, S., & Seeber, G. (2004). Selbstgesteuertes Lernen im Fernstudium. Ergebnisse einer Studie an den AKAD Privathochschulen. *Schriften der Wissenschaftlichen Hochschule Lahr*, 5, 1–61.
9. Kolenikov, S. (2009). Confirmatory factor analysing using cfa. *The Stata Journal*, 9(3), 329–373.
10. Mehta, S. S., Newbold, J. J., & O'Rourke, M. A. (2011). Why do first-generation students fail? *College Student Journal*, 45(1), 20–35.
11. Lundberg, C. A. (2004): Working and learning. The role of involvement for employed students. *NASPA Journal*, 41, 201–215.
12. Orr, D. (Ed.) (2011). *Social and Economic Conditions of Student Life in Europe: Synopsis of indicators - Final report - Eurostudent IV 2008 - 2011*. Bielefeld: W. Bertelsmann.
13. Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (2007). Criteria for scale selection and evaluation. In J. P. Robinson (Ed.), *Measures of social psychological attitudes: Vol. 1. Measures of personality and social psychological attitudes* (pp. 1–16). San Diego: Academic Pr.
14. Sampson, N. (2003). Meeting the Needs of Distance Learners. *Language Learning & Technology*, 7(3), 103–118.
15. Schuetze, H., & Slowey, M. (2012). *Global perspectives on higher education and lifelong learners: International perspectives*. London and New York: Taylor & Francis Ltd.
16. Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in Higher Education*, 41(5), 581–592.
17. Teichler, U. (2007). *Die Internationalisierung der Hochschulen*. Frankfurt a. M./New York: Campus
18. Tinto, V. (1975). Dropout From Higher Education: A Theoretical Synthesis of Recent Research. *Review of Educational Research*, 45(1), 89–125.
19. Trueman, Mark; Hartley, James (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education*, 32, 199–215.
20. Wild, K.-P. & Schiefele, U. (1994). Lernstrategien im Studium: Ergebnisse zur Faktorenstruktur und Reliabilität eines neuen Fragebogens. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 15, 185-200.