
LEARNER AUTONOMY AS A FACTOR OF THE LEARNING PROCESS IN DISTANCE EDUCATION

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Abstract

The present study aims to empirically examine the relation between learner autonomy and specific aspects of the learning process, such as student-student interaction and tutor-student interaction, in a distance learning environment in Greece. An empirical study was conducted at the Hellenic Open University (HOU) using data gathered via a four-section questionnaire, completed by 100 postgraduate students. The correlation analysis yielded a positive correlation between learner autonomy and both student-student and tutor-student interaction. In particular, the results revealed the existence of a positive correlation between all three subscales of autonomy, namely sensibility to others, ability to manage new situations and self-awareness, and student-student interaction. A significant positive correlation was also observed between self-awareness and tutor-student interaction. Moreover, the results suggested that there are no statistically significant differences of the above parameters in relation to demographic features, such as gender, age and the number of Counselling Group Sessions (CGS) in which students had participated. Yet, results suggested that there is an effect of the number of course modules attended by students on the levels of student-student interaction.

Abstract in Greek

Η παρούσα έρευνα στοχεύει στο να εξετάσει τη συσχέτιση μεταξύ της αυτονομίας των φοιτητών και συγκεκριμένων διαστάσεων της μαθησιακής διαδικασίας, όπως η αλληλεπίδραση μεταξύ των φοιτητών και η αλληλεπίδραση μεταξύ φοιτητών και διδάσκοντα, σε ένα εξ αποστάσεως μαθησιακό περιβάλλον στην Ελλάδα. Η εμπειρική έρευνα διεξήχθη στο Ελληνικό Ανοικτό Πανεπιστήμιο (ΕΑΠ), χρησιμοποιώντας δεδομένα που συλλέχθηκαν μέσω ερωτηματολογίου το οποίο συμπληρώθηκε από 100 μεταπτυχιακούς φοιτητές. Η ανάλυση των δεδομένων έδειξε ότι υπάρχει θετική συσχέτιση ανάμεσα στην αυτονομία των φοιτητών και την αλληλεπίδραση των φοιτητών μεταξύ τους καθώς και με την αλληλεπίδραση των φοιτητών με τον διδάσκοντα. Πιο συγκεκριμένα, τα αποτελέσματα έδειξαν ότι υπάρχει θετική συσχέτιση της αλληλεπίδρασης μεταξύ των φοιτητών και με τις τρεις διαστάσεις της αυτονομίας, δηλαδή την αυτογνωσία, την ικανότητα διαχείρισης νέων καταστάσεων και την ευαισθησία απέναντι στους άλλους. Επίσης, παρατηρήθηκε σημαντική συσχέτιση της αυτογνωσίας και της αλληλεπίδρασης με τον διδάσκοντα. Επιπλέον, δεν παρατηρήθηκαν στατιστικά σημαντικές διαφορές των ανωτέρω παραμέτρων σε σχέση με τα δημογραφικά χαρακτηριστικά των φοιτητών, όπως το φύλλο, η ηλικία, η προηγούμενη εμπειρία στην εξ αποστάσεως εκπαίδευση και ο αριθμός των Ομαδικών Συμβουλευτικών Συναντήσεων στις οποίες έχουν συμμετάσχει οι φοιτητές. Ωστόσο, παρατηρήθηκε ότι ο αριθμός των θεματικών ενοτήτων που έχουν παρακολουθήσει οι φοιτητές επηρεάζει τα επίπεδα της αλληλεπίδρασης των φοιτητών μεταξύ τους.

Keywords: Distance learning, autonomy, student-student interaction, tutor-student interaction, computer-mediated learning.

Introduction

Towards the beginning of the 21st century, a switch was noticed in the emphasis of distance education from structural to transactional issues related to teaching and learning, introducing the post-industrial model which focuses on constructs such as autonomy and interaction (Garrison, 2000; Moore, 2007). Identifying these constructs could offer useful information for course design and consequently lead to courses which better meet the learners' needs and therefore foster the learning process. Autonomy is one of these constructs, which several researchers have tried to define. Autonomy mainly refers to the learners' freedom to take responsibility of their own learning, to plan, realize and assess it. During the learning process and throughout all of its stages, learners interact with the problems that they encounter, searching for proper ways to deal with them and are gradually led to knowledge acquisition (Little, 2004; Littlewood, 1996; Moore, 1972; 1973; Wedemeyer, 1981). In addition, learner autonomy is not an inherent feature, but a personal trait evolving and being accelerated under specific circumstances, not to mention the wide range of factors affecting the learning process of students in distance learning courses (Thanassoulas, 2000).

The specific features of distance learning, which emanate from the geographical distance separating the students from their tutor and the educational institute, have sparked a great research interest regarding the factors which effectively determine the learners' successful participation in distance learning environments. In this respect, great significance is attributed to autonomy in distance learning environments, since the alternative educational intervention offered in distance education encourages learners towards learning autonomy (Andrade & Bunker, 2009; Brockett & Hiemstra, 1991; Keegan, 1996; Lionarakis, 2005; Moore, 1972; Race, 1999). In this respect, the relation between learner autonomy and specific aspects of the learning process are in the centre of attention. Several relevant studies have been conducted, most of them focusing on the encouragement or not of the learners by their tutor or by the institute providing distance education (Andrade & Bunker, 2009; Fanariti & Spanaka, 2010; Furnborough, 2012; Murfy, 2007; Santos & Camara, 2010; Scott, Furnell, Murphy, & Goulder, 2014).

Taking into account the important role of learner autonomy in the field of traditional education (Brockett & Hiemstra, 1991; Knowles, 1975; Race, 1999) and the fact that autonomy has an even more significant role to play in distance learning, the current study seeks to examine the correlation between learner autonomy and fundamental aspects of the learning process in distance education, such as tutor-student and student-student interaction. Such a study is considered particularly significant in the framework of the Hellenic Open University (HOU), since it is a relatively new public educational institution as well as the only one offering distance learning courses in Greece.

Theoretical Framework

Autonomy

A number of researchers have tried to define learner autonomy, resulting in inter-related definitions (Broad, 2006; Macaskill & Denovan, 2011). According to Betts (2004), the autonomous learner is an independent and life-long learner, while Benson (2001) sees learning autonomy as the learners' ability to assume control of their own learning. According to Brockett and Hiemstra (1991), the learners themselves are in charge of setting the goal, choosing methods, materials as well as tasks and finally selecting criteria for evaluation. Holec (1981) also defines autonomy as the learners' ability to take charge of their own learning. However, Little (1995) highlights the fact that learning autonomy does not imply a lack of support from the tutor's part but it is the basis of a cooperation between learner and tutor. It also implies the perpetual

encouragement offered to learners by their tutor, and therefore a state of interdependence between them.

Autonomy in distance education

Moore's theory of transactional distance (1972; 1973; 1997; 2007) is one of the fundamental theories in distance education involving three key variables, namely dialogue, structure, and learner autonomy. According to Moore, dialogue refers to the interaction between the learners and the tutor. Structure is defined by Moore as the level of the course flexibility and rigidity. Learner autonomy is contingent upon dialogue and structure involving the learners' ability to control their own learning and manage it in a self-reliant way by creating a learning plan, by finding resources that support study and by self-evaluating. Full autonomy permits the determination of goals and their accomplishment by learners and allows them to determine how much to learn. On the other hand, the decision-making power of the learner is restricted when there is a lack of autonomy. Oxford's (2008) view regarding autonomy is quite similar to Moore's on the grounds that, in a thoroughly autonomous learning environment, learners make decisions involving both planning and implementation. When the level of learner autonomy is lower, learners make considerably fewer decisions linked to implementation. Nevertheless, according to Little (1995) and Moore (1997; 2007), learners' autonomy does not mean that they do not need the tutor's support. On the contrary, both researchers emphasize the tutor's supportive, encouraging and motivating role. This is also highlighted by other researchers (Andrade & Bunker, 2009; Fanariti & Spanaka, 2010; Murphy, 2007; Santos & Camara, 2010; Zimmerman & Martinez-Pons, 1990). In a distance learning course, the student's interaction with the tutor and the learning material reflects dialogue (Anderson, 2007; White, 2003).

Several researchers refer to learner autonomy as the willingness of learners to be active, take control and supervise their own learning as well as to take risks. Furthermore, they refer to learner autonomy as the learners' ability to set goals, to act independently and to take decisions about choosing materials, methods and tasks. Finally, as their ability to organize and carry out a chosen task, to learn in terms of self-awareness and select the criteria for evaluation (Holec, 1981; Hurd, 2005; White, 2003). According to Vanijdee (2003) a wider conceptualization of learner autonomy involves the learners' capacity and attitudes, permitting them to take responsibility for the learning process, while Hurd, Beaven, and Ortega (2001) suggest that learner autonomy involves strategic competences, choice-making and decision-making abilities, as well as meta-cognition.

In a distance learning context, it is essential that the students have acquired studying strategies and habits that will enable them to define the learning steps and master their own learning. At the same time, tutors should be in charge of guiding, supporting and encouraging students to build knowledge in order to meet the demands of the distance education course, as well as to develop learner autonomy so that learners will be able to achieve their goals. The distance education provider is the one in charge of defining the parameters that will contribute to the students' learning progress (Santos & Camara, 2010).

Tutor-student and student-student interaction

In the context of distance learning, building a sense of community is of great significance both from the tutor's and the students' part. Conrad (2005) refers to the tutor's important role in encouraging interaction and communication among students in order to foster the sense of community in such courses. What is more, Conrad highlights the significant role of a friendly, reliable and immediate tutor in creating a sense of community in distance learning courses. Furthermore, face-to-face interaction is a valuable element, in spite of the robustness of the students' online communication, on the grounds that it contributes to a healthy learning

community. Kassandrinou, Angelaki, and Mavroidis (2014) also stress the tutors' essential role as communication and interaction facilitators, since they are supposed to continuously foster, encourage and facilitate interaction and communication among students. Face-to-face tutorials are a great opportunity for the group of learners to exchange ideas, discuss the content of the course and raise concerns related to it (Vassala & Andreadou, 2010). According to Angelaki and Mavroidis (2013) quality tutor-student and student-student communication, leads students to experience positive emotions such as excitement, satisfaction and relief, which help them accomplish their learning goals. Moore (2007) refers to students with high levels of autonomy who search for courses which do not emphasize on dialogue and structure, in order to define and enhance their learning process. Furnborough (2012) concludes that students' feelings about cooperating with their peers influence their reaction regarding their cooperation with their fellow students. Learner autonomy is not acquired readily. It requires autonomous tutors ready to negotiate their personal goals in relation to the learners' goals and who will gradually train and lead learners to take responsibility of their own studies (Little, 1995).

Methods

The HOU context

Consisting of four separate Schools, namely Humanities, Science and Technology, Social Sciences and Applied Arts, the HOU has been the unique Hellenic public educational organization offering exclusively distance learning courses to students throughout Greece as well as abroad since 1998. In 2014, when the current research was conducted, HOU offered 33 postgraduate and 6 undergraduate courses. All HOU courses are offered in Greek and are addressed to both Greek and non-Greek adult students provided that the latter master the Greek language in an advanced level. Further information about the studies in HOU can be found in Angelaki and Mavroidis (2013) and in Kassadrinou, Angelaki, and Mavroidis (2014). It should be noted here that the use of online tools in HOU has been increasing. Such tools include a web-based instructional environment / portal, where there is a dedicated website to each course module. The portal simplifies organizational procedures and provides forums for asynchronous tutor-student as well as student-student interaction. The use of the forums by the students and tutors has been quite limited so far, yet it is gradually increasing.

Research Questions

The current study focuses on the four following research questions.

- What is the students' autonomy level?
- What is the relation between the students' autonomy and student-student interaction?
- What is the relation between the students' autonomy and tutor-student interaction?
- Are there any demographic differences (e.g. gender, age) regarding the parameters presented above?

Research Design

A correlation research was designed to answer the above research questions. The examined variables included the level of learners' autonomy, the student-student as well as the tutor-student interaction. In addition, correlations were examined between the three variables mentioned above and demographic variables. It should be noted that a limitation of this research method is that although it establishes a relation between the correlated variables, it is unable to establish a cause-effect relation (Cohen, Manion, & Morrison, 2007).

Sample

Taking into consideration the purposes of this study, a purposive sample of 100 postgraduate students was selected. According to Neuman (2003), purposive sampling is an acceptable type of sampling in case of special situations when the researcher's intention is the identification of specific types of cases for in-depth examination. Even though population is not given validity via purposive sampling, its logic lies in the choice of cases rich in information in order to be studied in depth (Stake, 1995).

More specifically, the sample consisted of students of the post graduate course "Studies in Education." In this course, each student needs to successfully complete 4 course modules and a dissertation to obtain the postgraduate degree. During each course module, students must hand in 4 written assignments and take final exams, while they can participate – optionally – in 5 face-to-face Counseling Group Sessions (CGSs).

Even though the sample did not fully represent the HOU student community, its subjects were considered typical cases of the HOU student population, since they were adults with little or no previous experience in distance learning courses.

The questionnaire was disseminated to the students during the 4th CGS of the academic year. The students were informed in detail about the purposes of the study. Participation in the study was voluntary and anonymous. Finally, participants were invited to have access to the results of the study if they so wished.

Survey tool

The variables were measured using a four-section questionnaire. The sections designed to measure learner autonomy, student-student and student-tutor autonomy were based on the research tools used by other researchers who had already examined similar research questions or the same variables.

The first section consisted of six closed type questions and was designed to measure the students' demographic features, such as gender, age, level of education, previous experience in distance learning, number of course modules successfully attended and total number of CGSs in which students had participated by the time the research was carried out.

The second part of the survey tool was designed to measure learner autonomy and was based on the Autonomy-Connectedness Scale (ACS-30) of Bekker and van Assen (2006). It consisted of 14 questions and aimed at measuring the three separate dimensions of learner autonomy, namely (a) sensibility to others, (b) ability to deal with new situations, and (c) self-awareness. The students rated each question using a 5-point Likert scale, ranking from 1 (*absolutely disagree*) to 5 (*absolutely agree*).

The third section of the research tool was designed to measure the variable of student-student interaction. It was based on Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) scale. In particular, it comprised 10 questions whose answers were measured using a 5-point Likert scale, ranking from 1 (*never*) to 5 (*always*).

The fourth section of the survey instrument was designed to measure tutor-student interaction and was based on the on the DELES scale (Walker & Fraser, 2005). It consisted of 10 questions whose answers were rated with a 5-point Likert scale, ranking from 1 (*never*) to 5 (*always*).

It should be noted that the DELES scale of Walker and Fraser (2005) examines the psychosocial context of higher distance education and its factor analysis yielded that it examines six aspects of

distance education, namely (a) Instructor Support, (b) Student Interaction and Collaboration, (c) Authentic Learning, (d) Active Learning, (e) Personal Relevance and (f) Student Autonomy. Here the relevant parts of the scale were used accordingly for the measurement of the variables student-student and tutor-student interaction.

Data analysis

The collected data were analysed using the statistical software SPSS 20. Descriptive statistics, such as mean score and standard deviation, were used with view to summarize the sets of quantitative information gathered and examine the students' autonomy and its three dimensions.

The Pearson correlation coefficient r was used to examine correlation between autonomy (and its three dimensions) and student-student interaction and tutor-student interaction.

The nonparametric Mann-Whitney U test was used for tracing statistically significant differences between the variables of autonomy, student-student and tutor-student interaction, in relation to gender.

The nonparametric Kruskal-Wallis H test was used for examining probable differences of autonomy, student-student and tutor-student interaction in relation to (a) the age group, (b) the total number of the course modules successfully attended, and (c) the total number of the CGSs that the students had attended by the time that the research was conducted.

It should be noted that certain statistical methods used here correspond to interval variables. In this sense, the 5-point Likert scale used can be considered to lie between ordinal and interval, i.e. in order to be able to use statistics used for interval variables it can be assumed that the intervals are equally spaced.

Validity and reliability of the survey tool

The validity and reliability tests performed by the researchers having developed the initial questionnaires, on which the survey tool of the current study was based, provided an initial guarantee of the validity and the reliability of the survey instrument used in the present study. In particular, concerning the Autonomy-Connectedness Scale (ACS-30), Bekker and van Assen (2006) report its validity after having correlated it with another scale. As far as Walker and Fraser's (2005) DELES scale is concerned, the data analysis yielded strong factor validity. Concerning the reliability of the survey tools, Bekker and van Assen (2006) report a Cronbach's alpha coefficient of internal consistency at $\alpha=0.80$ for each of the three subscales of the Autonomy-Connectedness Scale (ACS-30). In addition, Walker and Fraser (2005) present a satisfactory to rather high level of reliability of the DELES scale, with Cronbach's alpha coefficient ranging from $\alpha = 0.75$ to $\alpha = 0.94$.

To ensure the validity of the survey tool in the present study, a pilot test was carried out before the finalization and dissemination of the questionnaire to the students. The survey tool was disseminated to a representative sample consisting of five students of the HOU's postgraduate course "Studies in Education" in order to secure appropriate levels of legibility and to avoid any kind of ambiguity concerning its terms, directions, and questions, as well as to minimize threats regarding its validity and reliability (Cohen, Manion, & Morrison, 2007).

Finally, in the present study the reliability of the scales was estimated using Cronbach's alpha coefficient of internal consistency. The results suggested that: (a) the internal consistency of the autonomy scale is $\alpha = 0.778$, (b) the internal consistency of the student-student interaction scale is $\alpha = 0.845$, and (c) the internal consistency of the tutor-student interaction scale is $\alpha = 0.900$.

Results

Demographic characteristics of students

Female participants outnumbered male ones (68% vs. 32%). Most of the students were aged between 41-50 (48%), while 30% were aged between 31-40, 14% were under 30 and 8% over 51. 82% of the students possessed a bachelor's degree from a university (72%) or a technical institute (10%), 15% possessed a Master's degree and 3% a PhD degree. The majority of students had no previous experience in distance learning courses (78%).

Furthermore, 41% of the participants had already followed four course modules, 18% three course modules, 25% two course modules, while 16% only one course module. Finally, 61% of the students of the sample had already attended more than twelve GCSs by the time the study was conducted, 17% had attended between nine and twelve CGSs, while the remaining 22% had attended between one and four CGSs.

Level of autonomy and its relation with student-student and tutor-student interaction

Descriptive statistics, such as standard deviation and mean score were used since the variables under examination were ordinal. Table 1 shows that the student's levels of autonomy are above average. In particular, regarding the three subscales of autonomy, self-awareness presents the highest score, followed by student's sensibility to others and their ability to deal with new situations.

Table 1: Mean values and standard deviation of the variables under examination

	Mean value	Standard deviation
Student autonomy	3.708	0.413
- Sensibility to others	3.740	0.500
- Ability to deal with new situations	3.590	0.570
- Self-awareness	3.820	0.680
Student-student interaction	3.433	0.636
Tutor-student interaction	3.911	0.550

Table 2 shows that the correlation between autonomy and student-student interaction, though not very strong, is positive and statistically significant ($r = 0.498$, $p = 0.000 < 0.05$). In addition, there is a statistically significant, weak, positive correlation ($r = 0.253$, $p = 0.011 < 0.05$) between student's autonomy and tutor-student interaction. In other words, the higher the students' level of autonomy is, the more they interact with their fellow students and with their tutors.

Table 2: Pearson correlations of student autonomy with student-student and tutor-student interaction

		Interaction	
		Student-student	Tutor-student
Student autonomy	Pearson r	0.498*	0.253*
	Sig.	0.000	0.011

* $p < 0.05$

Additionally, Table 3 shows the correlation between the three subscales of autonomy and student-student and tutor-student interaction. The correlation analysis yielded a positive and statistically significant correlation between student-student interaction and (a) sensibility to others ($r = 0.463$, $p = 0.000 < 0.05$), (b) ability to deal with difficult new situations ($r = 0.226$,

$p = 0.010 < 0.05$), and (c) self-awareness ($r = 0.373$, $p = 0.000 < 0.05$). In other words, the higher their sensibility to others is, the greater their ability to deal with new situations is and the more self-aware they are, the more they interact with their fellow students. Moreover, it appears that the greater the students' level of self-awareness is, the more they interact with the tutor.

Table 3: Correlations of the three autonomy subscales with student-student and tutor-student interaction

		Sensibility to others	Ability to deal with new situations	Self-awareness
Student-student interaction	Pearson r	0.463	0.226	0.373
	Sig.	0.000*	0.010*	0.000*
Tutor-student interaction	Pearson r	0.167	0.174	0.299
	Sig.	0.097	0.083	0.003*

Gender differences

The independent variable of gender was examined in relation to the dependent variables of autonomy, student-student and tutor-student interaction. The nonparametric Mann-Whitney U test results (Table 4) showed that there are no statistically significant differences related to gender. Therefore, it can be claimed that not only is the students' level of autonomy the same both for male and female students ($p = 0.985 > 0.05$), but also both of them interact to the same extent with their tutor and their fellow students ($p = 0.853 > 0.05$).

Table 4: Gender differences regarding student autonomy, student-student and tutor-student interaction

	Gender	Mean Value	Standard deviation	p
Student autonomy	Male	3.627	0.532	0.985
	Female	3.747	0.341	
Student-student interaction	Male	3.416	0.745	0.853
	Female	3.441	0.584	
Tutor-student interaction	Male	3.912	0.598	0.985
	Female	3.910	0.550	

Age differences

The three dependent variables of autonomy, student-student and tutor-student interaction were also examined in relation to the independent variable of age. Four age groups were selected and the correlation analysis was carried out with the aid of the non-parametric Kruskal-Wallis H test. The correlation analysis yielded no statistically significant correlations among the variables under examination. In particular, the students' level of autonomy is similar among the four age groups ($p = 0.643 > 0.05$). Moreover, students of all ages interact to the same extent both with their peers ($p = 0.637 > 0.05$) and their tutors ($p = 0.139 > 0.05$).

Effect of total number of course modules attended by students

The independent variable of the total number of course modules students had attended by the time the present study was conducted, was examined in relation to the dependent variables of autonomy, student-student and tutor-student interaction. The Kruskal-Wallis H test results presented in Table 5 show that there is a statistically significant correlation between the total number of course modules and student-student interaction ($p = 0.022 < 0.05$), while there are no

statistically significant correlations between the total number of course modules attended by the students and autonomy ($p = 0.354 > 0.05$) or tutor-student interaction ($p = 0.088 > 0.05$).

Table 5: Effect of total number of course modules attended on student autonomy, student-student interaction and tutor-student interaction

	Number of course modules	Mean value	Standard deviation	p
Student autonomy	1	3.684	0.350	0.354
	2	3.631	0.339	
	3	3.749	0.473	
	4	3.747	0.454	
Student-student interaction	1	3.250	0.600	0.022*
	2	3.180	0.614	
	3	3.461	0.550	
	4	3.646	0.642	
Tutor-student interaction	1	4.163	0.338	0.088
	2	3.900	0.596	
	3	4.022	0.517	
	4	3.771	0.573	

In addition, extra multiple Mann-Whitney tests were held (6 in total) regarding all the possible pairs, in order to trace differences between all the options of the two dependent variables of (a) total number of course modules and (b) student-student interaction. According to the results of the Mann-Whitney tests, students having attended one course module interact less compared to those having attended four course modules ($p = 0.038 < 0.05$). What is more, students having attended two course modules interact less with their fellow students as compared to those having attended four course modules ($p = 0.004 < 0.05$).

Effect of total number of CGSs

The independent variable of total number of CGSs attended by the students was examined in relation to the dependent variables of student autonomy, student-student and tutor-student interaction. The Kruskal-Wallis H test results (Table 6) showed that there are no significant differences between the total number of CGSs attended by the students and the dependent variables of student autonomy ($p = 0.172 > 0.05$), student-student interaction ($p = 0.851 > 0.05$) and tutor-student interaction ($p = 0.300 > 0.05$).

Table 6: Effect of total number of CGSs on student autonomy, student-student interaction and tutor-student interaction

	Total number of CGSs	Mean value	Standard deviation	p
Student autonomy	1-4	3.686	0.305	0.576
	9-12	3.764	0.414	
	>12	3.701	0.450	
Student-student interaction	1-4	3.159	0.501	0.739
	9-12	3.459	0.776	
	>12	3.525	0.619	
Tutor-student interaction	1-4	4.064	0.424	0.981
	9-12	3.882	0.642	
	>12	3.864	0.562	

Discussion

Level of student autonomy and its relation with student-student and tutor-student interaction

The results of the present study suggested that the postgraduate students of the sample present high levels of student autonomy. Student autonomy is a significant requirement for distance learning courses, necessary to a greater extent as a student skill in distance learning environments in relation to traditional learning contexts. Students of such courses should be willing to take part in the learning process actively, since distance learning does not offer students the guidance of a traditional learning environment, with which students are familiar (Giagli, Giaglis, & Koutsouba, 2010; Murphy, 2007; Santos & Camara, 2010; White, 1995). In addition, according to Güven and Sünbül, (2007) highly autonomous students are mainly students who ask for active experimentation and participation in the learning process and they are not satisfied with simple reflective observation. The examination of the three subscales of autonomy also confirms that student autonomy is one of the main features required by adult learners (Rogers, 1996). According to Lionarakis (2006), autonomous students are willing to participate actively in the learning process acquiring knowledge gradually. Motivated by their own autonomy and relying on their academic skills, they set goals, deal with difficulties and gradually acquire knowledge (Peters, 2000; Zimmerman, 2000). According to Moore (2007), students with high levels of autonomy take responsibility of their own learning process participating actively in it and overcoming the existing restrictions related to the barriers of geographical distance.

Moreover, the correlation analysis showed that the correlation between students' autonomy and student-student interaction is statistically positive and significant. The more the students' autonomy level increases the more the students interact with their fellow students. Yet, the correlation mentioned above was rather weak, which is consistent with the results of Furnborough (2012), who noted that the students' personal attitude defines positively or negatively their reaction to interaction with their fellow students. Apart from student autonomy levels, there are also some other traits of their personality, such as reliance on their skills, dealing with stress through interaction, which either motivate or deter them from interacting with their peer students. Often, even students who are able to harmonically cooperate with their peers according to their personality traits, may tend to choose a lonely way regarding acquiring knowledge.

According to the results of the correlation analysis between the three subscales of autonomy and student-student interaction, there is a statistically significant positive correlation between sensibility to others and student-student interaction. This is consistent with the research of Giastas (2008) and in line with the notion that solidarity and understanding among students boosts their need to interact with each other. Furthermore, quality student-student communication and interaction is a key factor to the emotional wellbeing of students in distance learning courses, promoting positive emotions as well as alleviating negative ones regarding their distance learning course (Angelaki & Mavroidis, 2013; Conrad, 2005; Tzoutza, 2010). Additionally, positive but weaker correlations were yielded between student-student interaction and the other subscales of student autonomy, namely dealing with new situations and self-awareness. That could be explained by Wedmeyer's Theory of Independent Study (as referred in Moore, 1973) since autonomy is the main personal trait of students who rely on their personal skills, they tend to develop them and test them, but they slightly cooperate with their peers as they prefer working on their own as far as the learning process is concerned.

Finally, the correlation analysis yielded a positive and statistically significant, though weak, correlation between student autonomy and tutor-student interaction. This is in agreement with

the findings of other studies that focus on the significant and demanding role of tutors in distance learning environments, as well as on the benefits tightly linked to the gradually increasing learner autonomy (Anastasiades & Iliadou, 2010; Murphy, 2007; Zimmerman & Martinez-Pons, 1990). Moreover, the results highlight the urgent need of redefining the tutor's multifaceted role. The tutor in distance learning courses is asked to encounter the challenges related to geographical distance, to offer academic and emotional support to learners and to encourage them to take responsibility of their studies and learning process. In this way, they can construct knowledge on their own (Andrade & Bunker, 2009; Fanariti & Spanaka, 2010; Kassandrinou et al., 2014; Nikolakaki & Koutsouba, 2012; Santos & Camara, 2010). However, this correlation was found to be weak despite being positive. This is, to a certain extent, in agreement with the findings of Furnborough (2012), who refers both to students who ask for a traditional tutor to guide them and to autonomous students which deal with problems related to their studies on their own, since the latter consider it as a way to develop their autonomy.

The three subscales of autonomy mentioned above were also examined in relation to tutor-student interaction. The correlation analysis yielded a positive, though not strong correlation, only with the subscale of self-awareness. Adult distance education learners are willing to take part in the learning process relying on their own capacities and being aware of their learning goals. Previous studies highlight the fact that students aware of their academic skills, select the appropriate learning strategies in order to be autonomous enough to meet the requirements of a distance learning course and successfully complete it (Fanariti & Spanaka, 2010; White, 1995). Although the students of the current study were found to have high levels of autonomy in relation to the subscale of self-awareness, they expressed their need to interact with their tutor. According to Little (1995), high levels of learner autonomy do not mean that highly autonomous students do not need the tutor's support. In fact, autonomy implies their continuous and two-way cooperation throughout the duration of the course.

Level of autonomy, student-student and tutor-student interaction in relation to demographic features

Another aim of the present study was to investigate demographic differences in relation to the examined variables. According to the correlation analysis neither the level of autonomy nor the student-student and the tutor-student interaction were found to be related to gender or age. It should be noted that the examined course did not mandate online group work to students, with students only doing some group exercises during the CGSs, and this may be of relevance here. Furthermore, according to Güven and Sünbül (2007) gender does not significantly affect the students' level of autonomy. Yet, Bekker and van Assen (2006) concluded that there are gender differences in relation to students' autonomy and in particular its subscale of sensibility to others. Women were found to be more sensitive to others although no differences were tracked regarding the subscales of dealing with new situations and of self-awareness. Women struggle to balance their multiple roles as mothers, wives, working women and students. All these personal, professional and social responsibilities which they are in charge of, contribute to making them prone to express their feelings more intensively comparing to men (Angelaki & Mavroidis, 2013). Moreover, the results showed that there is no statistically significant correlation between age and the examined variables. This is consistent with the research of Scott et al. (2014) who concluded that older students are not necessarily more autonomous compared to younger ones.

Furthermore, the effect of the total number of course modules that the students had successfully attended by the time the current study was carried out was examined. The results also revealed that there are not any statistically significant correlations between the total number of course modules attended by the students and the variables of student autonomy as well as tutor-student interaction. Nevertheless, the correlation analysis yielded a statistically significant correlation

between the number of course modules attended and student-student interaction. In other words, the more course modules the students have attended the more they interacted with their fellow students. This could be attributed to the increasing students' familiarization with the HOU context, as the years of studies and their experience with the particularities of distance education increased. The above results agree partially with the research of Scott et al. (2014), who concluded that interaction increases during the students' studies.

Finally, no effect has been observed regarding the total number of CGSs in which the students had taken part by the time the present study was held. According to Conrad (2005), face-to-face meetings are considered a benchmark of interaction and communication for the group of learners, not to mention its considerable contribution to the health of the learning community. The results of the present study could be attributed to the limited number of the optional CGSs (5 in total) offered by the HOU as well as to their design and the fact that their effect is covered by the overall effect of the modules to which they are part of. Furthermore, students often consider them as 4-hour seminars, they react to them passively and perceive them as lectures similar to the ones of the traditional teacher-centred learning environments. Consequently, both student-student and tutor-student interaction are often inevitably limited to issues related to the course curriculum. The training of tutors on their different role during distance learning programmes is crucial in this respect.

Conclusions and proposals for further research

Learner autonomy is a significant factor affecting the students' learning process during distance learning studies. Learner autonomy is tightly linked to the students' personal traits, urging them to take responsibility of their own learning. However, learner autonomy is also considerably affected by the learning environment in which the learning process takes place. Therefore, in distance learning environments, where student autonomy is a significant requirement, innovative learner-centred methods should be prevalent. Autonomous students are not necessarily loners. No matter how autonomous learners might be, they are proved to be in need of interacting both with their fellow students and their tutors. Not only do they often search for academic support, but also for emotional and psychological support throughout their studies, not to mention the significance of feeling that they belong to a community. Effective tutor-student interaction and communication is also crucial in this respect. Tutors in distance learning environments are supposed to continuously facilitate, encourage and foster quality communication and effective interaction among students. As far as the distance learning provider is concerned, one of its highest priorities should be to train tutors to develop necessary communication skills, while boosting collaboration and interaction (for example, by assigning group written assignments). Garrison (2009) claims that "distance education has not fully embraced the collaborative potential of distance learning" (p.93). Consequently, there is arguably a need to further address issues related to community and collaboration. Such issues, linked both to educational research and educational practice, could be further addressed in distance learning environments, such as that of the HOU.

It should be noted that there were certain restrictions which may have influenced the findings of the present study. One limitation is that the present study was conducted in the framework of HOU, a fact that does not permit the generalization of the findings regarding other distance learning environments. Furthermore, the study focused on a limited number of postgraduate students, selected via purposive sampling. In this respect a larger sample, chosen with random sampling, representing the total HOU student body would enable further examination of the relation between the levels of autonomy and student-student as well as tutor-student interaction. This would also allow for investigation of the autonomy of postgraduate and undergraduate students, with different levels of academic experience, and for a comparison of the results from

these two categories of students in order to provide a more comprehensive picture. The use of qualitative methods such as interviews, would also validate the findings through triangulation and allow for a deeper understanding of the role of autonomy in the distance learning context of the HOU. Finally, it would be very useful to examine student autonomy in relation to parameters of the structure of the distance learning context (in this case HOU), such as learning and teaching strategies, educational programme and assessment methods.

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