



## WEB-BASED LECTURES IN THE STUDIES OF EARLY CHILDHOOD EDUCATORS IN THE CONTEXT OF DIGITAL PEDAGOGY – VIEWS, ATTITUDES AND INTENTIONS

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### **Abstract:**

This research aims to discover students' views, attitudes and intentions in the early childhood education concerning web-based lectures. It examines whether students develop positive or negative attitudes, if they identify added value and how their intentions are shaped. It also detects difficulties and possible barriers that they encountered. At the same time, is examined whether their attitudes are correlated with the variables of the degree of familiarity with technology and the year of studies. The survey involved 277 students who attended part of their course through two web-based lectures. The survey used a researcher-made questionnaire for the detection of attitudes, while quantitative data was obtained which was also combined with qualitative ones. Results show that students develop a positive attitude and intentions about web-based lectures. They recognize and appreciate the added value of web-based teaching. Both the variables, degree of familiarity with technology and the year of studies appeared to determine the formation of their attitudes positively. However, this positive assessment was made in relation to the traditional face to face classroom lecture, and only in the perspective of its partial replacement.

**Keywords:** Web-based lecture, early childhood educator, digital pedagogy, BigBlueButton, blended learning, online teaching, students' attitudes

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## **1. Introduction**

The concept of digital pedagogy goes beyond the option of using and incorporating digital tools into teaching, enhancing it with added value. Digital pedagogy goes further and develops a consultation framework that suggests redefining pedagogy as a result of increasing shifting caused by technology. It creates a new way of approaching the learning process by redefining the concept of learning and pursuing the use of innovative methods through technology that will improve learning outcomes. It is looking for ideas on how to use technology to make learning more active and to increase the students' engagement. Digital pedagogy is a way of thinking about learning (Howell, 2012; Croxall & Koh, 2013; Stommel, 2013). This attempts to introduce innovative teaching and learning methods into higher education, notably in educating teachers to bridge the digital divide between generations (Kivunja, 2013). In the context of digital pedagogy at the level of higher education, the renegotiation of a crucial learning parameter such as traditional face to face classroom lecture is introduced.

The rapid diffusion of technology has highlighted tools that could be used in education. Modern generations are increasingly familiar with technology and are being prepared to use it in various aspects of their lives. It is widely known that the youth of today are stuck in the chair and for a long time connected to the internet (Victory & Cooper, 2002; Oblinger & Oblinger, 2005). The evolution of the WEB 2.0 provides unprecedented flexibility for mobile teaching materials. The explosive proliferation of technology leads higher education institutions to continually seek appropriate and efficient ways in which technological development is exploited to fulfill students' needs and provide education and skills required for the future society. Today's technology has evolved so that a student can access a tuition from a desktop computer via web conferencing tools that simulate the traditional classroom experience. Blended learning is a model in which institutions can prepare themselves for the next era in education (Owston et al. 2013). Institutions of higher education are increasingly focusing on determining the right model to integrate technologies in teaching and learning to fulfill students' needs and provide education and skills required for the future society. The way they seem to adopt it is through blended learning (Owston et al. 2013). It combines face-to-face and online teaching and learning and includes different instructional methods (lecture, discussion, guided practice, reading, games, case study, and simulation), different emission methods (live in classroom or computer mediated) and different development (synchronous or asynchronous).

In the higher education institutions, web-based lectures have been increasing more and more in recent years (Zhang et al. 2006). The use of interactive web-based

video in synchronous learning environments has increased because of these easy-access web tools (Stephens & Mottet, 2008). There is no need for special lecture rooms, but both students and teachers use several (web-based) systems for exchanging information. Web lectures can be created at a low cost by just recording a lecture that is part of a curriculum (Zhang et al. 2006).

Some have argued that despite their facilitation, students prefer the face to face lecture while guiding through a hybrid system is necessary to achieve the attempt of some web-based input (Tsuji et al. 2012). Another research has shown the students' preference in online lectures compared to traditional ones (Bauk et al. 2014). Also, it has been suggested to relate students' learning abilities to their preference in these environments as it is believed that their ability enables them to take advantage of the opportunities that these settings offer (Farley et al. 2011).

However, research is still at an early stage, as far as the experiences of students from such systems are concerned (Sharpe & Benfield, 2005; Lim & Morris, 2009). A form of teaching that exploits the spread of technology in higher education is the web-based lectures. Web synchronous conferencing tools emulate traditional instructional methods in the online learning environment through the use of synchronous web conferencing lectures. The teacher leads the course, and all learners are logged on simultaneously and communicate directly with each other (Shi & Morrow, 2006). The characteristic feature of web conferencing software packages is that they provide internet-based collaboration by combining some real time tools such as audio and video conferencing, instant messaging (chat) and shared whiteboard (Loch & Reushle, 2008). Therefore, they provide a suite of different tools within one user-friendly environment.

Such a tool is the BigBlueButton, an open source web-conferencing system for online learning. The goal of the specific project is to provide remote students with a high-quality online learning experience (BigBlueButton, 2017). The interactive nature of this environment provides a real time virtual classroom with a variety of tools such as breakout rooms, application sharing, and students' raising hands to be called upon in the chat window. This environment creates an interactive framework which is supported by related tools. Such tools are a webcam, two-way audio, chat window, web tours, a system of interest (with raising hands) to speak in a video window and a whiteboard that was commonly used to load a PowerPoint presentation with interactive word processing tools for writing/drawing/highlighting, etc. It is necessary to specify the exact day and time, and this is a limitation of "anytime, anywhere" learning that online courses have traditionally promoted (Stephens & Mottet, 2008). But the lecture is video recorded and is available to students, who have not participated in it, for future viewing, without however having the opportunity to interact in real time with the

teacher (Skylar, 2009). By that, the lectures could be recorded and be available for later review (Brotherton et al. 2004).

The teacher can broadcast his desktop for all students to see. The system supports voice over IP (VOIP) conferencing. All students need speakers and a microphone to participate. These are necessary to provide real-time sharing of audio, video, slides, chat, and screen. This process is supported by the live whiteboard, in which annotations are automatically displayed back to the students in real-time. Presenters also can zoom, highlight, draw and write on presentations making their points clearer to remote students. The teacher can upload any ppt or pdf presentation or any other office software document and keep everyone in sync with their current page, zoom, move from one slide to the next, and the students can also see the teacher's mouse pointer. The users can share their webcam at the same time without any limitation on the number of simultaneously active webcams.

The chat system in connection to the video, allows students to collaborate during teaching, attend simultaneously, and they have the chance to annotate a web lecture. This environment can encourage discussion and collaboration.

## **2. Literature Review**

The advantage of synchronous learning environment is related to the direct dissemination of knowledge and simultaneous interaction that enables students to ask questions and receive immediate answers (Skylar, 2009). It has been pointed out that the level of interaction is a major factor in the effectiveness of the class (Offir et al. 2008) as well as it relates to its effect on student learning and satisfaction (Stephens & Mottet, 2008). Also, Offir, Lev and Bezalel (2008) found the interaction level in a synchronous class to be a significant factor in the effectiveness of the course. Parallely, the variety of interaction has proved to be a factor that increases motivation, creating positive attitudes towards learning and leading to a greater degree of satisfaction (Woltering et al. 2009; Donnelly, 2010).

Research evidence shows that synchronous web-based lectures are advantageous in providing direct interaction, real time feedback and promote co-operation in learning (Little, Passmore & Schullo, 2006). It is also believed that learning experiences are rising due to the immediate response that can have students (Cooner, 2010). Moreover, it is argued that such environments reduce the dominant role of the instructor while they enhance the contribution of the students in the discussion and equate the opportunities they have for participating in teaching (Lapadat, 2002).

The web-based conferencing system has been observed to help students in distance education, feel closer to their teachers and fellow students (Vitaras, Rowe & Ellis, 2008). Through web conferencing, distance learners could be interconnected, develop interactive and collaborative activity and build learning communities which enhance learning outcomes (Siemens, 2004).

It is supported that such environments provide access, easiness, flexibility, utility, efficiency and cost-effectiveness (Loch & Reushle, 2008; Macedo-Rouet et al. 2009; Ozkan&Koseler, 2009; Woltering et al. 2009). As a determining factor of efficiency is considered the perceived utility by the participants (Ozkan & Koseler, 2009). Research shows that perceived usefulness and quality are critical factors that affect user satisfaction with e-learning systems (Mouakket & Bettayeb, 2015).

Also, students' proficiency in new technologies might also be a factor affecting their learning (Gefen et al. 2003). Several studies found that students with more experience in technology and online learning had a more positive learning experience as compared to those with lesser experience. For the technical issues, the findings implied that technical problems frustrated students and repel them from new and unknown practices, as the accessibility and affordability of modern computer hardware and software are key factors for effective online learning (Cragg, 2003).

In other research efforts, it has been proven that web lectures improve student performance (Kiss, 2012). Also, relevant training of lecturers for the use of these tools is required, as well as having the appropriate pedagogical approaches to using those (Loch & Reushle, 2008).

An important factor in teaching is the experience of the students themselves (Ginns & Ellis, 2009). In an educational environment where hybrid educational systems are becoming more and more developed, students must be prepared to seize the potential of these tools. The above principle is based on the research project of this paper.

### **3. Methodology**

This study becomes interesting because it involves students from a field which is governed by traditional practices and are cautious in adopting new technologies in their work (Sivropoulou et al. 2009; Zaranis & Oikonomidis, 2016; Vitoulis, 2017). It also concerns Greece, a country which is in the last positions of Europe regarding the diffusion of new technologies (DESI, 2016).

The present research aims to investigate the students' views, attitudes and intention on web-based lectures.

As research questions of this study are:

- A. Whether students develop positive or negative attitudes towards web-based lectures;
- B. How their intentions are shaped towards web-based lectures in the future;
- C. Whether they appreciate that web-based lectures provide added value to traditional face to face teaching;
- D. Whether these attitudes are affected by variables such as the degree of familiarity with technology or the year of studies;

The survey took place in Greece during the period of March-June 2017. The participants were 277 undergraduate students of the department of preschool education of TEI of Thessaloniki. 86 (31%) of them were first-year students, 92 (33,2%) were second-year students, and 99 (35,8%) were third-year students, while 5 were men and 272 women. They participated in two web-based lectures that took place in the course of their year of study while the remaining part of the course took place in the classroom. To focus on students' views on the media of web-based conference, the lecturer was the same in both traditional faces to face classes and the web-based lecture courses. The participants did not have any experience in hybrid system studies, nor had they previously participated in another web-based lecture. In order to carry out the teaching, they exploited the software BigBlueButton version 0.81.

As a research instrument was used a researcher-made questionnaire which was based on items drawn from other relevant surveys which detect perceptions about blended learning courses focusing on features that are consistent with synchronous web-based lectures (Garrison et al. 2008; Lopez-Perez et al. 2011; Owston et al. 2013; NSSE, 2016;). A pre-test procedure was applied by seven students, before applying the questionnaire, to test its credibility and make the necessary improvements. There were also some open-ended questions where students expressed views and impressions which were not provided in the questionnaire.

The data were analyzed by using descriptive statistics of frequency, means, percentages, as well as the correlation and cluster of the inferential statistic at the level of statistical significance  $\leq 0.05$ . The Statistical Package for Social Science (SPSS) version 21.0 was used in statistical analysis of data.

#### **4. Results**

It is admitted by the students that through web-based lectures can overcome problems such as the "noise in teaching", crowded rooms etc. which are the result of the massive expansion of higher education (Q30) (Table 1 & Figuer 1). The web-based lecture is seen

as something new, an innovation that provokes the interest of students (Q19). As a result, they find the lectures interesting (Q13).

There is a sense that the teaching time is running fast (Q14) and its management becomes efficient (Q26). The lectures were described as understandable (Q16) and consequently the content of lectures as understood (Q5). At the same time, it seems that they have gained sufficient knowledge (Q26) (Table 1 & Figure 1).

Handling the web conferencing system (BBB) is considered to be particularly user-friendly (Q1) and does not appear to present any particular problems (Q3). Besides, they reject the attitude that using the web-based conference tool is complicated (Q18).

**Table 1:** Frequency of students' views

Variables (5 <sup>th</sup> /scale)	Mean	Distribution (%) to 5 <sup>th</sup> /scale				
		(1)	(2)	(3)	(4)	(5)
Q1. Usability / ease of use BBB	4,02	1,4	2,2	19,6	46,7	30,1
Q2. Degree that could support the organization and coordination of the course	3,88	,4	2,2	26,4	50,9	20,2
Q3. Difficulties encountered in using BBB	1,92	41,5	30,0	23,1	5,4	
Q4. Problems due to internet connection	1,77	53,8	24,2	15,2	5,1	1,8
Q5. Degree of understanding the content of the web-based lectures through BBB	4,08		1,1	19,9	49,1	30,0
Q6. Degree of acquisition of knowledge from web-based lectures	3,71	,4	3,6	36,2	43,8	15,9
Q7. Activation of interest for the course through web-based lectures	4,00	,4	4,3	21,3	43,0	31,0
Q8. Degree of active listening during web-based lectures	3,94	,4	2,9	24,0	48,0	24,7
Q9. Degree of giving boost to student performance	3,73	1,1	6,2	26,1	51,8	14,9
Q10. Degree of trigger for participation	3,42	4,0	8,7	38,6	38,6	10,1
Q11. Preference for participation in web-lectures in the future	3,96		4,0	21,5	48,7	25,8
Q12. Whether web-lectures are boring	1,68	50,7	32,6	14,5	2,2	
Q13. Whether web-lectures are interesting	4,07		1,1	18,1	53,6	27,2
Q14. The teaching time is fast / Efficient / not boring	4,13		3,6	15,6	44,6	36,2
Q15. Whether web-lectures are enjoyable	3,62	1,8	6,1	36,1	39,7	16,2
Q16. Whether web-lectures are understandable	4,10		1,5	16,7	52,0	29,8
Q17. Whether it is awkward to appear in the video window	3,18	12,8	13,2	30,4	30,0	13,6
Q18. To what extent the use of web-conference is complicated	1,58	57,6	30,1	9,4	2,5	,4
Q19. To what extent do you regard the web-conference as something innovative, that is, something new and interesting	4,29		1,1	11,9	44,4	42,6
Q20. To what extent do you think familiarity is required so as someone attends and participates actively	2,70	12,4	31,4	36,1	13,5	6,6
Q21. To what extent do you believe that it is an unnecessary obstruction, which is simply just happening to happen?	1,60	61,1	20,7	15,6	2,5	
Q22. To what extent web-lecture meets the expectations	3,84	,4	2,9	22,0	61,4	13,4
Q23. To what extent web-lecture covered the subject adequately	4,01			20,5	57,9	21,6
Q24. To what extent web-lectures foster interaction between you and your teacher	3,43	3,3	14,9	31,2	37,0	13,8
Q25. To what extent web-lecture favors the monologue by the lecturer	2,12	35,1	27,9	28,3	7,2	1,4
Q26. To what extent is the teaching time well managed	3,72	1,8	7,2	26,4	46,6	18,1
Q27. To what extent did you feel familiar and participated freely	3,62	4,0	6,1	27,8	47,7	14,4

Q28. To what extent do you consider that the web-lectures were succinct and explanatory	3,93		1,8	21,5	58,2	18,5
Q29. To what extent do you consider that web-lectures cultivate consistency in the course	3,84		5,1	25,2	50,4	19,3
Q30. To what extent do you think web-lectures exceed lesson obstacles, such as: the "noise in teaching", crowded rooms etc.	4,35	3,6	3,6	6,5	26,7	59,6
Q31. To what extent there were obstacles for active participation in teaching	1,44	71,3	16,5	9,2	2,6	,4
Q32. To what extent would there have been more opportunities for participation and interaction if the lesson would traditionally take place in the classroom	2,38	27,4	24,5	31,8	15,3	1,1

Students consider that the subject was covered satisfactorily (Q23), and also in a logical sequence, they say that their expectations have been met (Q22). Even, to a moderate degree, they consider their experience of web-based lectures as enjoyable (Q24), besides they reject the view that it was boring (Q12) (Table 1 & Figure 1).

Through web-conference teaching, they feel that their interest has been activated (Q7) and that during the lecture they were kept in active listening (Q8). While cautiously, they come to argue that the web-lectures boost their performance in the course (Q9).

Students obtain positive aspects as they consider that the web-based lectures were succinct and explanatory (Q28), they cultivate consistency in the course (Q29) and that the specific lectures could, moreover, support the organization and coordination of the course (Q2). Consequently, students state that they would choose web-based lectures, also in the future (Q11), if they were able to participate. They also reject the view that teaching through web-conference is something superfluous that is not necessary to happen (Q21).

Although the feeling of the students was that they felt familiar and had the opportunity to take part in the web-conference (Q27), they seem to feel somewhat awkward to show up in the video window (Q26). They also appear to admit that some degree of familiarity and habit is essential for someone to participate effectively in the web-based lecture (Q20), it is likely that this view is about becoming familiar with their appearance on the video window.

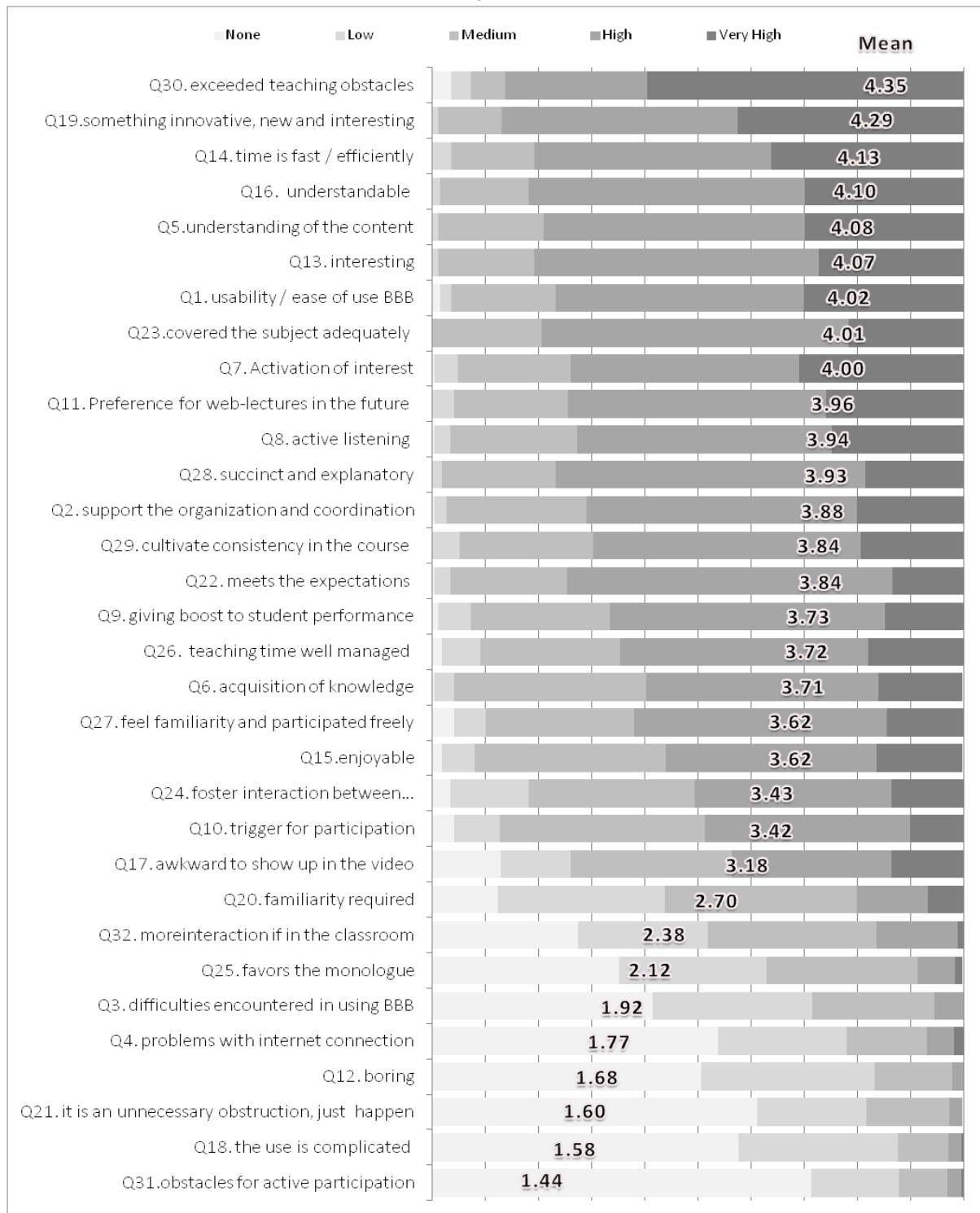
It also appears that the web-based conference fostered the interaction between them and the lecturer (Q24) and also triggered the students for participation (Q10). In addition to this view they do not consider that they have encountered obstacles to their participation in the web-based conference teaching (Q31). Consequently, it is not accepted that they would have the same or more opportunities to participate in the traditional face to face teaching in the classroom (Q32) which focuses on their positive



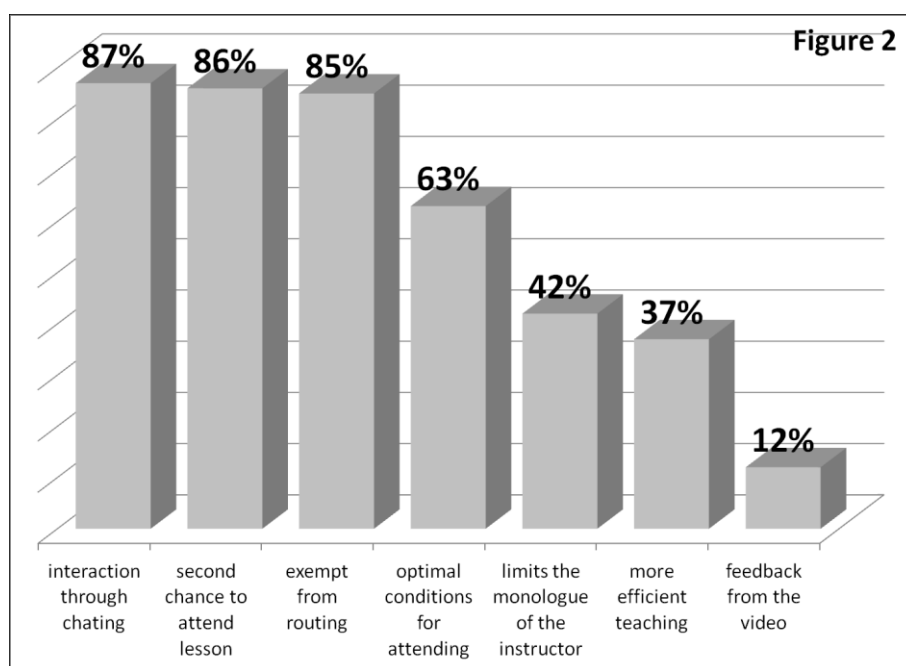
view of teaching. At the same time, they found that the way the teaching was done did not favor the monologue by the lecturer (Q25) (Table 1 & Figure 1).

The dependence of teaching on the internet connection does not seem to have created any particular problems (Q4), an element which indicates that up to now the development of internet's infrastructure in Greece enables these kinds of projects (Table 1 & Figure 1).

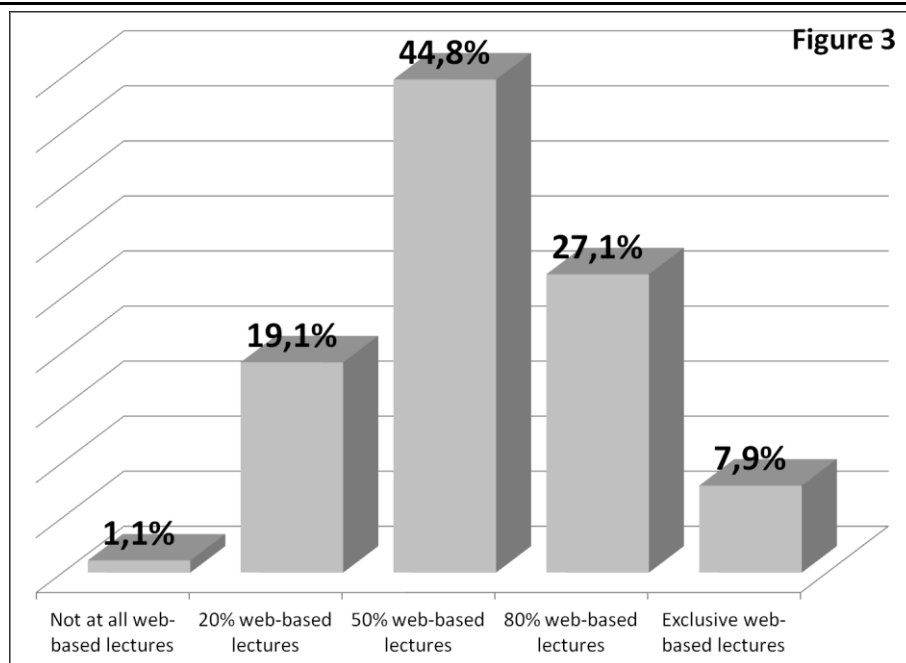
**Figure 1: Sorting of students' views**



Through a checkbox question which allowed more than one answer to be selected, students chose the reasons why some of the lessons should be offered through web-based lectures. The primary reasons were the additional ability of interaction through chatting, the opportunity for anyone who missed the lesson to watch it videoed later (Figure 2). In the advantages of web-based teaching, also appears to be included, the optimal conditions that are provided for attending. To a small extent, it seems that the feedback given by the video is accepted (Figure 2).



Regarding the ratio of traditional face to face lectures and web-based lectures during the course, students choose the distribution of half-and-half (Figure 3). It seems that despite the positive views of web-based lectures, there is a small percentage of students who would prefer to teach them the course entirely through web-based lectures. It seems that students perceive the necessity of combining both forms of tuition. Despite that, they develop positive attitudes towards online teaching, but these attitudes have always as a benchmark the traditional face to face classroom teaching.



The level of inferential statistics shows that the variable “year of study” affects most of the views of students (Table 2). In particular, it seems that the students studying in higher years of study have more positive views compared with younger-year students. It follows that more experience resulting from traditional face to face courses in the classroom, enhances the positive opinions of students regarding the use of web-based lectures. Thus, students of the higher years declare to a greater extent that web-based conferences have triggered their interest, helped their performance, were compelling, efficient and concise, while enticing by their innovative features (Table 2). Similarly, the variable regarding the degree of familiarity of students with technology seems to influence many of their views positively. Familiarizing with technology shows that it makes students have positive opinions on web-based lectures (Table 2).

**Table 2:** Correlation of views with “year of studies” & “degree of familiarity with technology”

	Year of studies	Degree of familiarity with technology (5/th scale)
	X <sup>2</sup> /df/γ	X <sup>2</sup> /df/γ
Q2. Degree that could support the organization and coordination of the course	24.13/8/.31*	22.79/16/.30*
Q5. Degree of understanding of the content of the web-based lectures through BBB	20.85/6/.30*	
Q7. Activation of interest for the course through web-based lectures	34.10/8/.39*	
Q8. Degree of active listening during web-based lectures	24.32/8/.35*	
Q9. Degree of giving boost to student performance	28.17/8/.38*	12.62/16/.22*
Q10. Degree of trigger for participation	22.27/8/.31*	64.44/16/.23*
Q11. Preference for participation in web-lectures in the future	22.06/6/.35*	40.35/12/.36*

Q12. Whether web-lectures are boring	23.51/6/-.35*	
Q13. Whether web-lectures are interesting	25.29/6/.38*	25.29/6/.39*
Q14. The teaching time is fast /Efficient/not boring	29.87/6/.38*	29.87/6/.38*
Q15. Whether web-lectures are enjoyable	28.52/8/.34*	28.52/8/.35*
Q16. Whether web-lectures are understandable	27.00/6/.36*	27.00/6/.37*
Q19. To what extent do you regard the web-conference as something innovative, that is, something new and interesting	24.04/6/.36*	24.04/6/.37*
Q22. To what extent web-lecture meets the expectations	19.25/8/.32*	24.62/16/.29*
Q23. To what extent web-lecture covered the subject adequately	13.58/4/.28*	
Q24. To what extent web-lectures foster interaction between you and your teacher	20.19/8/.29*	
Q25. To what extent favors the monologue by the lecturer	22.11/8/-.31*	
Q27. To what extent did you feel familiar and participated freely		43.46/16/.31*
Q28. To what extent do you consider that the web-lectures were succinct and explanatory	29.66/6/.34*	22.63/12/.24*
Q29. To what extent do you consider that web-lectures cultivate consistency in the course		25.96/12/.26*
Q31. To what extent there were obstacles for active participation in teaching		36.67/16/-.30*
Q32. To what extent would there have been more opportunities for participation and interaction if the lesson would traditionally take place in the classroom	22.57/8/-.29*	
Q33. Preference for the allocation of traditional face to face lectures and web based lectures for implementation of the course	26.19/20/.33*	20.84/16/.30*

\* p < 0.05

To identify relatively homogeneous groups of cases based on selected views the statistical test of K-Mean cluster has been applied, in the case of three groups. According to cluster analysis, there are three groups of students who have a similar profile for their views (Table 3).

The first group (A), which interprets 23.4% of the total, is characterized by hesitation in the positive reception of web-based lectures. Their views tend to be positive without adopting extreme attitudes of excessive enthusiasm. They are students who are skeptical about the unconsidered replacement of traditional face to face teaching in the classroom. However, this group seems generally to have a relatively positive opinion to the perspective of web-based lectures and only as a limited percentage of the course (Table 3).

The second group (B), which interprets 44% of the total, is characterized by distinctly positive views on the web-based lectures. Their positive opinions are distinguished by clarity and consistency, while they seem to prefer the partial replacement of traditional face to face teaching. Since this is the most widespread group, it is considered that its views are also the most prevalent, as their positive view is clear without an extreme attitude (Table 3).

Finally, the third group (C), which interprets 32,6% of the total, is characterized by attitudes and views suggesting an enthusiastic reception of the web-based lectures. It refers to students who state that they are particularly familiar with technology, do not encounter problems in the course, and express very optimistic views and positive attitudes towards web-based teaching. Their attitudes are close to the extreme values and indicate highly their preference for web-based lectures versus traditional classroom teaching. Even in this group of students, who actively express their preference in the new online method, it is proposed that the traditional teaching should be replaced to a large extent but not entirely. So it seems that even the most enthusiastic students favor web-based teachings only in combination with traditional face to face classroom teaching (Table 3).

**Table 3: K-Cluster Analysis**

Variables	K-Mean Cluster Final Cluster Centers		
	A	B	C
Year of studies	2	2	2
Degree of familiarity with technology (1-5)	3	3	4
Q1. usability / ease of use BBB	4	4	4
Q2. Degree that could support the organization and coordination of the course	3	4	4
Q3. Difficulties encountered in using BBB	2	2	1
Q4. Problems due to internet connection	2	2	1
Q5. Degree of understanding of the content of the web-based lectures through BBB	3	4	5
Q6. Degree of acquisition of knowledge from web-based lectures	3	4	4
Q7. Activation of interest for the course through web-based lectures	3	4	5
Q8. Degree of active listening during web-based lectures	3	4	5
Q9. Degree of giving boost to student performance	3	4	4
Q10. Degree of trigger for participation	3	3	4
Q11. Preference for participation in web-lectures in the future	3	4	5
Q12. Whether web-lectures are boring	3	2	1
Q13. Whether web-lectures are interesting	3	4	5
Q14. The teaching time is fast / Efficient / not boring	3	4	5
Q15. Whether web-lectures are enjoyable	3	4	4
Q16. Whether web-lectures are understandable	3	4	5
Q17. Whether it is awkward to appear in the video window	4	3	3
Q18. To what extent the use of web-conference is complicated	2	2	1
Q19. To what extent do you regard the web-conference as something innovative, that is, something new and interesting	4	4	5
Q20. To what extent do you think familiarity is required so as someone attends and participates actively	3	3	2
Q21. To what extent do you believe that it is an unnecessary obstruction, which is simply just happening to happen?	3	1	1
Q22. To what extent web-lecture meets the expectations	3	4	4
Q23. To what extent web-lecture covered the subject adequately	4	4	4
Q24. To what extent web-lectures foster interaction between you and your teacher	3	3	4
Q25. To what extent favors the monologue by the lecturer	3	2	1
Q26. To what extent is the teaching time well managed	3	4	4
Q27. To what extent did you feel familiar and participated freely	3	4	4
Q28. To what extent do you consider that the web-lectures were succinct and explanatory	3	4	5
Q29. To what extent do you consider that web-lectures cultivate consistency in the course	3	4	4
Q30. To what extent do you think web-lectures exceed lesson obstacles, such as: the "noise in	4	4	5

teaching", crowded rooms etc.			
Q31. To what extent there were obstacles for active participation in teaching	2	1	1
Q32. To what extent would there have been more opportunities for participation and interaction if the lesson would traditionally take place in the classroom	3	2	2
Q33. Preference for the allocation of traditional face to face lectures and web based lectures for implementation of the course	2	3	4
Percentage in each Cluster	23,4%	44%	32,6%

In an open-ended question concerning the possible reasons for the case someone to feel uncomfortable to appear in the video window, to submit a question or participate in the discussion, students gave interesting answers. Their responses were analyzed and are listed, with some characteristic ones, which reflect the views recorded:

*"All my colleagues are focusing on me .... it makes me nervous", "I become unconfident and anxious", "While everyone else sees me I cannot see them", "Feelings of shame", "Lack of familiarity", "I believe that familiarity could quickly happen", "Not like seeing yourself on camera", "It's unprecedented that I have not done it again", "If you say something wrong then you may seem ridiculous", "I would rather have only the sound without camera", "I prefer to write my queries in the chat", "I do not want my personal space to appear in the camera", "I did not prepare my image I'm dressed casual", "I do not have the necessary equipment, my appearance will be disfigured", "It's like taking me in front of the classroom to confront with classmate", "My self-image is focused on the video and it deconstructs me", "When I see myself again in the video I find mistakes and I regret it".*

Students' statements show that there is some hesitation in showing up in the video window. That is an obstacle due to the lack of familiarity with such activities. It is an issue that relates to the students' culture on technology. This obstacle could be overcome if the students were previously familiar with this process. It is then probable that their attitude would be further positive about web-based lectures.

In a second open-ended question, students were asked to record further positive or negative thoughts about web-based lectures. Spontaneous thoughts have emerged that characterize students' impressions and outline their perspective. After their processing, the most typical are indicatively listed below:

*«Stimulates interest and attention to the lesson», «I can in future time re-attend the teaching and understand better some points that were incomprehensible», «It is an alternative to the traditional lesson», «It's more interactive», «I attended relaxed and concentrated at the same time», «I could concentrate on the lesson as there was no fuss»,*

*«Ensuring greater concentration», «Avoiding bustle», «Given the opportunity to resolve any question», «Provides the comfort of personal space», «Those students who are not willing to attend at least do not disturb the others», «Questions were inserted to the chat without any hesitation», «It is not inferior to the traditional lesson and provides many other advantages», «I'm more focused on the comfort of my personal space», «It is more interesting and gives you the opportunity to attend it pleasantly», «Collaborative ideas are being created in chatting by a large number of students, which is impossible to do in the classroom», «When someone intervenes does not distract the rest of the group», «Posing questions directly which are explained to me», «I believe that an essential result is achieved», «You have the opportunity to re-attend teaching in the future», «I interact with my fellow students without disturbing the teacher and the plenary», «The teamwork helps someone to unblock and to intervene in the lesson», «we familiarize with the future's evolution, I think this is the perspective in education», «Conditions favor discussion and interaction», «I would actively participate more if I did not need to show my face on the camera», «You can interact directly using sources from the internet», «intense interaction and rich feedback from both the teacher and the fellow students is developed », «It is a normal course similar to traditional without any hassle», «You are in the warmth of your home and you are not sitting in the tired chair of the room from which you are eager to quit». There is also a limited degree of negative aspects that are listed below: «There is no live contact with the instructor», «There are some hesitations to show up on the camera», «Attention may be drawn from parallel surfing the web», «The teacher's speech would be more understandable if he was standing live in front of us», «Immediacy is lost», «It is interesting but could not completely substitute teaching, it cannot stand alone, it needs to be combined with traditional teaching».*

These are statements where the positive impact prevails and it appears that students consciously develop positive views. These verbalizations clearly outline a positive perspective as to the future reception and participation of students in such teaching practices. It appears that students indicate the features of web-based teaching that make up the added value it has in relation to traditional teaching. The analysis of the data resulting from students' statements emphasizes and strengthens the positive attitudes and views that emerged from the quantitative data of the questionnaire.

## **5. Discussion**

Exploiting technology in higher education brings significant developments in the learning process. This fact has an impact on the spread of the blended educational

program that combines online digital media with traditional classroom methods (Owston et al. 2013). An important part of this type of educational programs is supported by web-based lectures (Zhang et al. 2006; Stephens & Mottet, 2008). They are widely applied, as they are backed by friendly and efficient software (Stephens & Mottet, 2008). The fact that these do not require particular resources or inaccessible know-how makes its success more dependent on the culture and attitudes of the participants in the teaching. One of the most widely used teleconferencing tools that have been utilized in this research is the BigBlueButton which provides all of the modern features of this kind of software (BigBlueButton, 2017).

Students' views and intentions about the use of technology in the learning process significantly affect the success of their integration into higher education (Saadé et al. 2007; Park, 2009). The success of online education systems is largely determined by the obstacles encountered in accepting these from the students. For this reason, is proposed for this kind of research to be more student-centered (Hara, 2000).

The students of this research belong to a professional team in which they have strong reservations about their attitude towards new technologies (Sivropoulou et al. 2009; Zaranis & Oikonomidis, 2016; Vitoulis, 2017). However, this has been changing lately concerning the views of future educators of preschoolers (Vitoulis, 2017). The survey also took place in Greece which has no individual performance in the diffusion of technology (DESI, 2016). These conditions formed a favorable research field to test the formation of students' attitudes towards modern technological tools such as web-based lectures.

It appears that such tools gain the preference due to their interactive features and the facilitation they provide to the learning process (Zhang et al. 2006; Stephens & Mottet, 2008; Skylar, 2009; Farley et al. 2011; Bauk et al. 2014). The research findings of this paper are consistent with the literature. Views, attitudes and intentions are detected, ones that outline the prospects for the expanded use of web-based lectures in higher education of countries lagging behind in the diffusion of technology (DESI, 2016). However, successful accomplishment requires culture more compatible with digital pedagogy (Vitoulis & Vidali, 2016).

## **6. Conclusion**

According to the results of the survey, students seem to have developed positive views and attitudes towards web-based lectures. They highlighted and appreciated the advantageous elements of teaching that strengthen the learning process, beyond their convenience. They considered the tool as efficient and focused on important aspects



related to the efficiency of tuition. They particularly appreciated the scope for participation and the potential for interaction that web-based teaching could provide. They also assessed positively the optimal course conditions that encourage active monitoring and concentration during teaching. These positive opinions developed with reference to traditional lecture in the classroom. Students have identified and evaluated the extra features of web-based lecture positively by recognizing the added value it possessed compared to traditional face to face teaching.

Of particular interest is the correlation of positive attitudes with students' year of studies. The fact that the higher years of studies students, who have more experience in traditional teaching and thus a more articulated view of its potential, develop more positive opinions emphatically, signifies the concrete predominance of web-based lecture in relation to traditional teaching.

The degree of familiarity with technology was expected to play a decisive role in shaping attitudes. Students who were more familiar with technology seemed to have formed further positive views. However, it appears that the lack of acclimatization with their exposure to the webcam is a barrier to their successful participation in these kinds of lessons. It seems that further culture is needed compatible with digital pedagogy.

Despite the positive attitudes and enthusiasm with which students accepted the web-based lectures, they appear to recognize the irreplaceable of traditional face to face teaching. About their intentions, they seem to be choosing the blended learning system which is related to the coexistence of web-based lectures with traditional face to face tuition in the classroom. They believe that in the future they would successfully participate in web-based courses that would help them in their studies.

Research limitations that are highlighted are the relatively small sample of the students attended, their origins from the same higher education institution and their relatively limited experience in web-based lectures.

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