Hasan Ali Yücel Eğitim Fakültesi Dergisi
Sayı 18 (2012-2) 35-47

ADOPTION OF WEB 2.0 TOOLS AND THE INDIVIDUAL INNOVATIVENESS LEVELS OF INSTRUCTORS

ÖĞRETİM ELEMANLARININ BİREYSEL YENİLİKÇİLİK DÜZEYLERİ VE WEB 2.0 ARAÇLARINI BENİMSEMELERİ

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ABSTRACT

While the usage condition of wiki, social networks, podcast and other Web 2.0 tools by university students continues to increase quickly, it becomes more important for instructors to be informed about these technologies to what extent, to integrate them into lectures and their use frequencies. For this purpose, awareness of instructors about Web 2.0 tools, their usage and integration to lectures and individual innovativeness levels were discussed within the scope of the study. Therefore, Individual Innovativeness Scale and Web 2.0 use questionnaire was applied to 42 instructors. When the results are evaluated, it is seen that while the instructors are substantially informed about social networks (Facebook, Twitter) and Blog, they have less information about Wiki and Podcast applications. As a result of investigation of this situation in terms of individual innovativeness, awareness percentage of the most innovative group (Innovators, Early Adopter, Early Majority) seems to be higher. When findings about the use frequencies of Web 2.0 tools by the instructors are evaluated, it is seen that while Facebook is the most frequently used Web 2.0 tool, Podcast is the least frequently used tool. In addition, it seems that even if it is in low rates, the instructors use Facebook, Blog, Wiki and Podcast for education.

Keywords: *Web 2.0, Individual Innovativeness, Social Networks, Wiki, Blog, Podcast*

ÖZET

Üniversite öğrencilerinin wiki, sosyal ağlar, podcast ve diğer Web 2.0 araçlarını kullanma durumları hızla artmaya devam ederken; öğretim elemanlarının bu teknolojilerden ne derece haberdar oldukları, kullanım sıklıkları ve derslere ne kadar entegre edebildikleri daha da önemli hale gelmeye başlamıştır. Bu amaçla, çalışma kapsamında öğretim elemanlarının Web 2.0 araçlarından haberdar olma, kullanma ve derslere entegre etme durumları ile bireysel yenilikçilik düzeyleri ele alınmıştır. Bu amaçla 42 öğretim elemanına Bireysel Yenilikçilik Ölçeği ve Web 2.0 kullanım anketi uygulanmıştır. Sonuçlara bakıldığında, öğretim elemanlarının Sosyal ağlar (Facebook, Twitter) ve Blog uygulamalarından büyük oranda haberdar oldukları; Wiki ve Podcast uygulamalarından daha az haberdar oldukları görülmektedir. Bu durumun bireysel yenilikçilik açısından incelenmesi sonucunda, en yenilikçi grubun (Innovators , Early Adopters, Early Majority) haberdar olma yüzdelerinin daha yüksek olduğu görülmektedir. Öğretim elemanlarının Web 2.0 araçlarını kullanma sıklıkları ile ilgili bulgulara bakıldığında; en sık kullanılan Web 2.0 aracının Face-

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book, en az kullanılan aracın ise Podcast olduğu görülmektedir. Bunların yanı sıra, öğretim elemanlarının düşük oranlarda da olsa Facebook, blog, wiki ve podcasti eğitim amaçlı kullandıkları görülmektedir.

Anahtar Kelimeler: *Web 2.0, Bireysel Yenilikçilik, Sosyal Ağlar, Wiki, Blog, Podcast*

1. Introduction

Internet technologies such as e-mail, course websites and discussion platforms lead traditional classroom management and lecture teaching to different points (Barnett, et al., 2004). Web 2.0 applications and Web 2.0 tools become prominent in collaborative study, knowledge construction and configuration activities of students as transition from Web readers to Web literacy.

Forms of social interaction and common knowledge configuration of students changed and became easy by means of integration of Web 2.0 applications to lectures (Maloney, 2007; Madden & Fox, 2006).

McLoughlin and Lee (2007) indicate that individuals have a chance to join the process effectively and to publish and store the information they reached by means of writable property of Web 2.0 applications. In the meantime, they point out the richness provided by publication of the content performed as individually (with blogs) or together (with wikis) and audio record (with podcasts) or video materials (with vidcasts). Web 2.0 applications provide an opportunity for individuals to prepare and present these contents without the need for excess technical information (Solomon and Schrum, 2007).

Teacher can entirely observe the period related to how students configure and solve a concept, event or problems by means of learning provided with Web 2.0 tools. To observe the whole period provides to track learning process and to follow developments. Teacher can easily fulfill needs and make corrections in learning known in all its parts (Horzum, 2010). Therefore, this will provide teacher to know student better and to lead student in a good way during learning process. In this respect, it is quite important for teachers to use Web 2.0 tools and to integrate them into lectures.

In a study that was about adoption of Web 2.0 tools by university students and based on Planned Behavior Model, it was indicated that tools like social networks are the tools that increase student learning, provide interaction possibility between content-student and student-student, increase pleasures of students about lectures, develop writing skills of students and harmonize with lectures according to opinion of faculty staffs (Ajjan & Harsthone, 2008).

In a study evaluating usage condition of Web 2.0 applications in higher education, it seems that some students do not have any experience related with these applications (Bennett, et al., 2012). Similarly, in a study carried out by Ağır and Mutlu (2011), it was indicated that students did not accept blog application of Web 2.0 tools due to having less experience. Experience, lack of innovative property or no adoption due to language problems and no integration into lectures result that Web 2.0 application is a new technology for students and instructors. It is quite important for instructors to have innovative property in terms of introduction of new technologies to students by using in lectures, providing

experience and adoption.

Concept of innovativeness includes characteristics of adopters and reactions given against innovations (Goldsmith & Foxall, 2003). Individuals accept an innovation earlier or later, they open change more or less and they take more or less risk due to their characteristics. In addition, individuals are separated into 5 different groups and dominant characteristics of each category are defined in these models. These categories are named as Innovators, Early Adopter, Early Majority, Late Majority and Laggards (Rogers, 2003).

When it is thought that innovativeness is a continuous variable and has normal distribution, the 2,5 % of part placed at minus two standard deviation of adoption mean time and leftmost of adoption distribution is the first group to adopt innovations and they are called ''Innovators''. The next 13,5 percent found between two and one standard deviation of adoption mean time is called ''Early Adopters'' that adopt innovations earlier. This point is named as ''breakpoint'' because an innovation increases after this point and decreases till second breakpoint after reaching to mean. The 34 % of part placed between first breakpoint and mean adoption time (minus one standard deviation of adoption mean time and adoption mean time) is called ''Early Majority''. The 34 percent of part placed between mean adoption time and second breakpoint (adoption mean time and plus one standard deviation of adoption mean time) is named as ''Late Majority''. The last 16 % placed at plus one standard deviation of adoption mean time and rightmost of adoption distribution is called ''Laggards'' that adopt innovations at last (Rogers, 2003).

In a research carried out by Şahin and Thompson (2006), they examined computer use of instructors for education purpose. As a result of the research performed on instructors working at faculty of education, it was found that instructors have used technology for education purpose at low level and there was a significant connection between usage level of technology and computer skills and attitude against computer and variables of innovativeness categories.

In a PhD thesis Noone (2000) tried to determine problems that academic staffs and directors having a key role in terms of giving decision in higher education institutions perceived as obstacles for innovation. The research was performed on 48 people having director and academic staff positions in universities. Semi-structured interview, one of qualitative research techniques, was used in the research. As a result, it was found that reaction of academic staffs and directors against change was the most important factor perceived as obstacle for adoption of innovation.

In a study carried out by Horzum (2010) and about evaluation of teachers' Web 2.0 use conditions, awareness levels and purposes in terms of different variables, data was obtained with a questionnaire developed by researcher from total 183 teachers that joined in-service training course conducted by the Ministry of Education. As a result of data analysis, it was found that teachers were aware of social network (Facebook), instant messaging service (MSN) and video sharing sites and they did not know Blogs and Podcasts. It was reported that teachers uses Facebook for one or two days in a week, MSN often, Vikipedia, Web Diaries and Podcast never, Video Sharing Sites for one or two days in a month or for one or two days in a week. It was given that teachers use Facebook, MSN and Video Sharing Sites for communication and entertainment purposes and Wiki, Podcast and Web Diaries for information purposes.

In the studies, some individual characteristics that affected the innovativeness of the individuals were emphasized. In the study conducted by Aksoy (2005), the same subject was come up in different way, it was aimed that perceptions of teachers related with organizational communication skills of managers of elementary schools needed for change management, and thus total of 298 elementary school teachers were monitored to obtain data. Results obtained were examined in terms of some variables like gender, age and seniority. Similarly Çelik (2006) mentioned differences in individual innovativeness according to age, gender, affiliations and education history. Besides it was reported that age, educational level, socio-economical level and experiences could also be elements that could be obstacles in innovativeness (Wejnert, 2002). Lack of time and financial potential are also considered as individual obstacles in innovativeness (Andrews, 2007).

When the studies conducted were examined, use and assimilation of technological innovation in education institution was affected by properties of director and academic personnel (Kenny, 2003; Wejnert, 2002). It was reported that an individual having high motivation for pursuit of innovation is more willing to adopt innovation (Lin, 1998). When it is considered that individuals having roles in teaching will lead other individuals to adopt innovation, it is expected that students are expected to adopt innovation and to configure themselves during learning process when Web 2.0 tools are integrated in to the lessons. In this regard, within the scope of the study, it is aimed to examine Web 2.0 tool use and awareness of teachers in terms of innovativeness level.

In this purpose, answers to the questions below are searched.

1. How is an individual innovativeness of instructors?
2. How does Web 2.0 tools awareness of instructors differ according to their individual innovativeness?
3. Which Web 2.0 tools do instructors use and how often?
4. How do Web 2.0 use situations of instructors differ according to their individual innovativeness?
5. Which Web 2.0 tools are used by instructors in the purpose of education?

2. Methodology

In this section, study design, data collecting tools, study group, data collecting and analysis are emphasized.

2.1. Study Design

In this study, in order to examine Web 2.0 use situations and awareness of teachers in terms of their individual innovativeness, survey model, one of the descriptive research methods, was used. General research models are research coordination conducted on the universe or on sample group or sample obtained from the universe in order to pass general judgment on the universe in the universe consisting of many elements (Büyüköztürk, et al., 2010).

42 instructors from different faculties of İstanbul University, who were going to attend New Technologies in Education Seminar, were included in the study. Demographic properties of the instructors are given in Table 1. When the data is examined, it is seen that 42.9% of the instructors are female, 57.1% are male (Table 1). When gender distribution is

examined, it is conferred that the ages are in between 23 and 50. The average age is 36.95 (Table 2). In terms of age distribution, there are 7 instructors at the ages between 20-30, 19 instructors between 31-40 and 16 instructors between 41 -50 (Table 3).

Table 1: Descriptive statistics of Study Group in terms of gender

Gender	N	f
Female	18	%42,9
Male	24	%57.1
Total	42	%100

Table 2: Descriptive statistics of Study Group in terms of age

	N	X	Sd	Min	Max
Age	42	36.95	6.893	23	50

Tablo 3: Descriptive statistics of Study Group in categories of age

Age	N	f
20-30 Years	7	%16.7
31-40 Years	19	%45.2
41-50 Years	16	%38.1

Table 4: Descriptive statistics of Study Group in terms of type of the department in which the instructor is working

Type of Department	N	f
Social Sciences	21	%50
Natural Sciences	7	%16.7
Health Science	14	%33.3

2.2. Data Collection Tools

2.2.1. Individual innovativeness scale

The scale of which native language is English was developed by Hurt et al. (1977). Then the scale was evaluated psychometrically by Pallister and Foxall (1998) and Simonson (2000). As a result it was found that the scale gave reliable results and that it measured innovativeness reliably. The scale was adapted to Turkish by safety and validity study conducted on 343 university students by Kılıçer and Odabaşı (2010). It was reported that general internal consistency parameter of the scale was 0.82 and that reliability of the scale test-retest was 0.87.

In the scale, 20 statements showing the properties of 5 different individuals in the innovativeness category reported by Rogers (2003) are included. 12 of the statements included in the scale (1st, 2nd, 5th, 8th, 9th, 11th, 12th, 14th, 18th, 19th statements) are positive and 8 of them (4th, 6th, 10th, 13th, 15th, 17th, and 20th statements) are negative

statements. According to innovativeness scores calculated by the help of the scale, innovativeness levels of the individuals can be evaluated generally and according to the score intervals calculated the individuals can be categorized in terms of innovativeness. By the help of the scale, innovativeness score is calculated by adding 42 to the value obtained by subtracting total score obtained from negative statements from total score obtained from positive statements. By the help of the scale minimum score can be 14 and maximum score can be 94. According to the scores obtained from the scale the individuals are categorized in terms of innovativeness. According to this, the individuals are categorized as "innovators" if the score is above 80, "early adopters" if the score is between 69 and 80, "early majority" if the score is between 57 and 68, "late majority" if the score is between 46 and 56 and "laggards" if the score is below 46 (Kılıçer and Odabaşı, 2010).

2.2.2. Web 2.0 Questionnaire

3 stages questionnaire was conducted in order to determine Web 2.0 awareness status, frequency of use and use of educational purposes of instructors. Web 2.0 awareness status at the first stage, frequency of use at the second stage and use of educational purposes at the third stage were asked. At the third stage with open questions asked, they were asked to indicate educational purposes of Web 2.0 tools use.

2.3. Data Collection

In the study, at the stage of collecting data needed, before the seminar, the scale and the questionnaire were applied on 42 Instructors teaching at Istanbul University in 2011-2012, who were going to attend New Technologies in Education seminar. The seminar was organized in June, 2012. It lasted for six weeks and one of the topics of the seminar was Web 2.0.

3. Results

When the results of the first research question are examined, according to individual innovativeness scale scores of the instructors, they are in Early Majority category with the highest 33.1% ratio, in Laggards category with minimum 2.4% ratio. Early Majority category is followed by Innovators with 36.2% ratio, Early Adopters with 23.8% ratio and Late Adopters with 14.3% ratio, respectively.

Table 5: Descriptive statistics of instructors related with their individual innovativeness

Individual Innovativeness Categories	N	f
Innovators	11	%26.2
Early Adopters	10	%23.8
Early Majority	14	%33.3
Late Majority	6	%14.3
Laggards	1	%2.4
Total	42	%100

When the results of the second research question are examined, it is seen that all of the instructors are aware of Facebook application. In addition to this, 1 instructor (2.4%) is not aware of twitter, 3 instructors (7.1%) do not know Blog. It is also seen that majority of the instructors know them (See Table 6). When the results are examined, the least known Web 2.0 tools are seen as Podcast and Wiki. 24 of the instructors (57.1%) indicated that they knew Wiki, while 18 of them (42.9%) indicated that they did not know. 12 of the instructors (28.6%) reported that they know podcast application, 30 of them (71.4%) indicated that they did not (See Table 6).

Table 6: Web 2.0 tools Awareness of instructors

Web 2.0 Tools	I heard about		I do not know	
Facebook	42	%100	0	%0
Twitter	41	%97.6	1	%2.4
Blog	39	%92.9	3	%7.1
Wiki	24	%57.1	18	%42.9
Podcast	12	%28.6	30	%71.4

According to the results obtained by examining Web 2.0 tools awareness of instructors in terms of individual innovativeness: it is seen that instructors who do not know Twitter and Blog applications are in the categories of Laggards and Early Majority. It is also seen that instructors who know Wiki application are in Innovators (19%) and Early Majority (21.4%) and that the ones who do not know wiki are in the categories of Late Majority (11.9%), Early Majority (11.9%) and Laggards (2.4%). When the results are examined in terms of Podcast application, while the awareness percentages are high in the categories Innovators (11.9%) and Early Majority (7.1%), the percentage of the ones who do not know is generally high in all categories (See Table 7).

Table 7: Descriptive statistics of Web 2.0 tool awareness of instructors in terms of individual innovativeness categories.

Individual Innovativeness Categories	Facebook				Twitter				Blog				Wiki				Podcast			
	I heard about		I do not know		I heard about		I do not know		I heard about		I do not know		I heard about		I do not know		I heard about		I do not know	
	N	f	N	f	N	f	N	f	N	f	N	f	N	f	N	f	N	f	N	f
Innovators	11	26.2	0	0	11	26.2	0	0	11	26.2	0	0	8	19	3	7.1	5	11.9	6	14.3
Early Adopters	10	23.8	0	0	10	23.8	0	0	10	23.8	0	0	5	11.9	5	11.9	2	4.7	8	19
Early Majority	14	33.3	0	0	14	33.3	0	0	12	28.5	2	4.7	9	21.4	5	11.9	3	7.1	11	26.2
Late Majority	6	14.3	0	0	6	14.3	0	0	6	14.3	0	0	2	4.7	4	9.6	2	4.7	4	9.6

Laggards	1	2.4	0	0	0	0	1	2.4	0	0	1	2.4	0	0	1	2.4	0	0	1	2.4
Total	42	100	0	0	41	97.6	1	2.4	39	92.9	3	7.1	24	57.1	18	42.9	12	28.6	30	71.4

When the results related with Web 2.0 use frequency of instructors are examined; the most frequently used Web 2.0 application is seen as Facebook, the least used application is seen as Podcast (See Table 8). While it is seen that Facebook users use it frequently (every day, one a week or several days a week- 76%), never use status of Twitter is seen as the highest (52.4%). Blog and wiki use ratios are similar to each other and use of Podcast ratio is very low.

Table 8: Web 2.0 use frequencies of instructors

Web 2.0 Tools	Never		Once a month or a few days		Once a week or a few days		Everday	
	N	f	N	f	N	f	N	f
Facebook	4	%9.5	8	%19	15	%35.5	15	%35.5
Twitter	22	%52.4	8	%19	10	%23.8	2	%4.8
Blog	20	%47.6	8	%19	11	%26.2	3	%7.1
Wiki	21	%50	9	%21.4	10	%23.8	2	%4.8
Podcast	33	%78.6	6	%14.3	3	%7.1	0	%0

When frequency of Web 2.0 use of instructors is examined in terms of innovativeness properties; it is seen that Facebook application use is high in all of the categories. In addition to this it is also seen that 4 individuals in Early Majority and Late Majority categories never use it (See Table 9).

Table 9: Facebook use frequencies of instructors in terms of their individual innovativeness categories.

Facebook	Never	Once a month or a few days	Once a week or a few days	Everday
Innovators	0	3	1	7
Early Adopters	0	1	6	3
Early Majority	2	2	6	4
Late Majority	2	2	1	1
Laggards	0	0	1	0
Total	4	8	15	15

When the Twitter use frequency of instructors is examined; the ones who use most frequently are seen as in Innovators and Early majority categories. In addition to this, it is over all seen that it is not used frequently in all of the categories. In terms of all of the categories, never use situation is at high ratios (See Table 10). Besides it can be suggested that while innovativeness of the individuals is increasing, their twitter use ratio is also

increasing.

Table 10: Twitter use frequencies of instructors in terms of their individual innovativeness categories.

Twitter	Never	Once a month or a few days	Once a week or a few days	Everday
Innovators	3	4	3	1
Early Adopters	4	3	3	0
Early Majority	9	1	3	1
Late Majority	5	0	1	0
Laggards	1	0	0	0
Total	22	8	10	2

When Blog use frequency of instructors is examined, the individuals in the categories Innovators and Early Majority are the ones who use most frequently. In addition to this, in terms of all categories, never and once a month or several days a month frequencies are found to be high. It was also seen that the ones in Late Majority and Laggards categories are high when compared to other categories (See Table 11).

Table 11: Blog use frequencies of instructors in terms of their individual innovativeness categories.

Blog	Never	Once a month or a few days	Once a week or a few days	Everday
Innovators	4	3	2	2
Early Adopters	6	2	2	0
Early Majority	6	2	5	1
Late Majority	3	1	2	0
Laggards	1	0	0	0
Total	20	8	11	3

When the results related with Wiki use frequency of instructors are examined, in terms of all categories use frequency is found to be low. The ones in the categories of Innovators, Early Adopters and Early Majority are found to have high ratio of use. Almost all of the instructors found in the categories of Late Majority and Laggards are seen s never using Wiki (See Table 12).

Table 12: Wiki use frequencies of instructors in terms of their individual innovativeness categories.

Wiki	Never	Once a month or a few days	Once a week or a few days	Everday
Innovators	5	3	1	2
Early Adopters	5	2	3	0
Early Majority	5	4	5	0
Late Majority	5	0	1	0
Laggards	1	0	0	0
Total	21	11	10	2

When podcast use frequency of the instructors is examined, parallel to their awareness data, use frequency is also low in all of the categories. As in the cases of other Web 2.0 applications, use frequency of the ones in the categories of Innovators, Early Adopters and Early majority has higher ratio (See Table 13).

Table 13: Podcast use frequencies of instructors in terms of their individual innovativeness categories.

Podcast	Never	Once a month or a few days	Once a week or a few days	Everday
Innovators	8	3	0	0
Early Adopters	8	0	2	0
Early Majority	11	3	0	0
Late Majority	5	0	1	0
Laggards	1	0	0	0
Total	33	6	3	0

When the results related with use of Web 2.0 for education purposes are examined, even if just a bit, it is seen that instructor use Facebook, blog, wiki and podcast for educational purposes (See Table 14). The results obtained show that they use Facebook to announce information about lessons and to share academic information, Blogs while preparing lesson contents and their own blogs, Wiki especially Wikipedia while preparing their lesson notes and podcast for foreign language education.

Table 14: Use of Web 2.0 tools for educational purposes

Web 2.0 Tools	**N**
Facebook	9
Twitter	0
Blog	2
Wiki	4
Podcast	1

4. Discussion

Technological developments have affected education period and they bring new view to educational understanding. When advantages of changes resulted from technological developments are examined, the individuals in the community are expected to update their knowledge, to adopt changes easily, to follow developments and to produce information like obtaining the information. To develop individuals having these properties has increasing importance and how it is achieved becomes hot topic. In this process instructors working in the universities have big role. Internet is a very important platform to create new applications and to distribute them. Students of today have used this platform since their childhood (Prensky, 2001; Palfrey & Gasser, 2008). Especially Web 2.0 tools providing easy way to share any information through internet are tools used frequently by students and students really interested in those tools (Ata, 2011).

Productiveness provided by integration of Web 2.0 into the lessons will provide new experiences to the students by making learning process easier. At the same time, in learning processes achieved by use of Web 2.0 tools, the teacher is able to follow all of the processes how the student structure and solve a concept, case or problem, totally. Thus the teacher will be able to remove inadequacy of the students and fix them (Horzum, 2010).

In the present study conducted to determine Web 2.0 awareness, use frequencies, integration in to the lessons of instructors in terms of individual innovativeness properties, it was found that instructors were aware of popular applications like Facebook, Twitter and Blog and that they knew less about Wiki and Podcast applications. As a result of examination of this situation in terms of individual innovativeness, the most innovative groups (Innovators, Early Adopters, Early Majority) were found to have higher awareness.

When the results related with Web 2.0 use frequency of instructors are examined; the most frequently used Web 2.0 tool is Facebook and podcast is a Web 2.0 tool that is used least. While the ones using Facebook use it frequently (every day, one a week or several days a week), it is seen that although twitter awareness is high, never use ratio id the highest. Although instructors know Twitter, only Innovators, Early Adopters and Early Majority use it. Blog and Wiki use ratios are similar to each other and together with it, podcast use ratio is very low. In the studies conducted earlier, it was reported that the reasons for people no using, even if they knew, were individual perceptions, perceived usefulness, perceived ease of use, enjoyment, flow, and social image (Ajzen & Fishbein, 1980; Venkatesh & Davis, 2000; Klonglan & Coward, 1970). In this regard, a study on individual perceptions, perceived usefulness, perceived ease of use related with Twitter, Blog and Wiki can be conducted.

It is seen that instructors use Facebook, Blog, wiki and podcast for educational purposes, even its ratio is low. It is also seen that they use Facebook to announce information about lessons and to share academic information. In similar way, while Selwyn (2007) reported that one of the educational themes in Facebook use was sharing of application and academic information, Saunders (2008) revealed that instructors were able to connect their personal and academic identities and used Facebook to create instructor network and cooperation. They reported that instructors used Blogs while preparing lesson contents and their own blogs and wiki while preparing lesson contents and searching. The fact that 30% of Internet users visit Wikipedia to search terms and meanings was reported by

the Pew Research Center (Madden & Fox, 2006). This founding indicates that wikis have increasing popularity.

In the scope of this study, individual innovativeness properties, Web 2.0 awareness, use frequencies and use in the purpose of education of instructors were emphasized. The present study was conducted before New Technologies in Education Seminar and it is aimed that ratio of integrating Web 2.0 tools into the lessons after seminar.

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