How Does E-portfolio Align with New Students' Educational Aspirations?

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Abstract— **In this paper we will briefly touch distinctive characteristics of the generations known as baby boomers, generation x, generation y, and generation z; and then propose the use of e-portfolio (EP) as a learning and teaching tool and show how it aligns with the aspirations and values of the coming generation. With this respect a 7 week experiment on using EP in "Object Oriented Programming" course is run and the results of the instruments applied both before and after the experiment are analyzed to see if there is any change in the attitudes of the students towards using EP and their learning.**

Keywords-e-portfolio; teaching; learning; effective learning

I. INTRODUCTION

In order to provide effective teaching and learning we first need to understand what the new generation value and expect from higher education and then re-evaluate our teaching to ensure that we are using the most appropriate techniques that address the current students' expectations and values. Dramatic changes show great impact on the behavior, beliefs, attitudes and habbits of the individuals through the generations. Grose [1] puts this very clearly by saying: "Gender, religion and social classes may influence you, but it is your generation that defines and distinguishes who you are. It defines your identity". The generation span from 1946 till recent is categorized under four title: baby boomers (1946 – 1964), Generation x (1964 – 1976), Generation y (1976 – 1994), and Generation z (1994 – ...) Table 1 summarizes the characteristic set forth by Steinmetz's [2].

In the coming years we will see generation z in the universities. Most educators of today clearly see that cohort of generation of y and z are far different than what they were at their ages and are aware of the need to adapt new strategies to better engage the new generation rather than expecting them to conform to old styles [3][4]. Hence the main issue is how to deal with the complexity of this new generation and be able to offer meaningful and creative learning and teaching tools.

Portfolios are tools to enable students to display their mastery of skill of the task and expressing their understanding through selecting, sharing and reflection on artifacts. Shulman [5] defines the teacher's working portfolio as a "structured documentary history of a set of coached or mentored acts of teaching, substantiated by samples of student portfolios, and fully realized only through reflective writing, deliberation, and conversation" (p. 37). Reese [6] lists several trends in higher education that shape the context in which EP implementation may be advantages: 1) can enable the documentation of authentic learning experiences; 2) help in capturing information requested by accreditation agencies or internal assessment committees; 3) help universities and colleges connect to students who are open to broadcasting their life experiences (Facebook, YouTube, twitter etc.) to the world and using media to communicate their ideas

TABLE I. GENERATIONS

Baby boomers / 1946 - 1964	
Description	*At the university*
Me Generation (selfish) Planned, focused, decessive Independent. Some are retired some are still at the universities	Anti-government, Anti-big-business, Started environmental and women's liberation movement
Generation x / 1964 - 1976	
Description	*At the university*
MTV Generation (Influence from media) Major cohort of educatiors to educate gen. Z.	Technological advances Met personal Apple PC (PCs becoming accessible and portable)
Generation y / 1976 - 1994	
Description	*At the university*
Gen "Next" Gen random Born into technlogy Dependent on parents Cohort of university educators	Motivation to go to university:status, money, knowledge, …
Generation z / 1994 - ...	
Description	*At the university*
Gen M (multitask) Text than talk Talk on line mostly with people they have never met Prefer computers to books Never imagine a world without cell phones Recognized by parents (resource of information and market) Having their voice heard	Not seen

Schipper and Rossi [7] lists the major impacts of using EP on student behavior as follows:

Students,

- take more responsibility for their learning,

- actively engage in the learning process,

- develop and express a new self-awareness and think about their own thinking,

- grow in confidence and self-esteem and set goals for future learning.

Besides its potential to enhance teaching, learning, assessment and accreditation practices, creation process and use of e-portfolio goes in parallel with the values of the new generation. Danielson and Aburtyn [8] states 5 steps in the development of portfolios as 1) collection: collecting artifacts depending on purpose, audience, and the future use; 2) selection: selecting artifacts that reflect the learning objectives; 3) reflection: stating the impact on one's learning; 4) projection: based on learning setting goals for the future and 5) presentation: structuring and publishing the selected artifacts to communicate with others.

Gilburg [9] suggests aligning organizational policies and management structures to the generation's needs and wants, likes and dislikes, facilitates the work place to be viewed as attractive. These can also be adopted to educational strategies and policies. Table 2 lists the aspirations of generation y and z and the aligned EP implementations.

TABLE II. GEN Y (Z) ASPIRATIONS AND EP IMPLEMENTATIONS.

No	Aspirations of gen en y and z	E-Portfolio implementation
1	Flexible working hours, telecommuting	All the work in online and communication is over the internet
2	Time off work for volunteer work	Students are motivated to do more than assigned
3	Technology akin to what they use in their day to day lives, such as iPhone applications and mobile Internet	They use the Internet, computer and web technologies (e.g to create EPs, search for artifacts)enhance writing and communication skills
4	Mentors to guide them and help them learn how to behave in the corporate world and show them how their role fits in with the overall organisation	Mentoring how to enhance their EP so that it can be resourceful and more understandable both to themselves and others.
5	Investment in new hires and ongoing investment in careers	EP is a product (for) of life long learning process and enables projection for future learning needs. It is a digitized showcase of their work and skills which can be presented to prospective employers
6	Experiential, on-the-job or practical learning experiences as opposed to traditional lecture style training	Hands on learning and participation, Selecting, organizing and reflecting on the artifacts
7	Developmental opportunities to understand their own personal strengths and weaknesses	Projecting for future learning

In this study, we aimed at showing how the use of EP in a higher education is aligned with the attitudes and values of current students. The layout of the paper as follows: section II is methodology, section III is results and final section is conclusion.

II. METHODOLOGY

On the fall semester of 2010-2011 "Object Oriented Programming" course in "Computer Education and Instructional Technologies Department" of Ege University, Turkey is delivered as usual in the first 7 weeks and during the next 7 weeks the students are asked to create EP.

Following the recommendations in the literature [10] [11] and based on our previous experiences [12] the following points are considered:

- Provide contiguous mentoring or coaching

- Provide faculty support

- Be clear about the purpose of using the EP

- Select assessment tasks that are clearly aligned or connected to what has been taught.

- Share the scoring criteria for the assessment task with students prior to working on the task.

- Providing students with clear statements of standards and/or several models of acceptable performances before they attempt a task.

- Encouraging students to complete self-assessments of their performances.

- Interpreting students' performances by comparing them to standards that are developmentally appropriate, as well as to other students' performances.

In this study, for setting implementation environment, the students are provided with basic information about what an EP is, advantages and disadvantages of developing and using EP and with adequate technical information. Before the practice started a questionnaire to reveal the attitudes of the students towards EP is applied. The students who are teacher candidates are asked to include brief information about themselves, their purpose for creating this EP and table of contents. For all the artifacts included in the EP, the participants are required to fill out a reflection sheet that tells why they have chosen that artifact and what they have learnt from it. At the end of the course the questionnaire is again applied. The data collected are analyzed both quantitatively and qualitatively. In this paper only quantitative results are given. The demographic characteristics of the nineteen participants who are 4th grade students are depicted in Table 3.

TABLE III.   CHARACTERISTICS OF THE PARTICIPANTS.

	N*	%
Gender		
Male	10	57,9
Female	9	42,1
Age		
19-21	7	36,8
22-24	12	63,2
Other Features	**Yes**	**No**
➤ Prior knowledge about the course.	0 (0%)	19 (100%)
➤ Basic computer skills and internet usage.**	19 (100%)	0 (0%)
➤ Personal computer ownership	19 (100%)	0 (0%)
➤ Internet access	17 (89,4%)	2 (10,6%)

*. N is the number of students

** : Participants took basic courses like "Information technologies", "Algorithms and data structures", "Database Systems" and etc.

For the quantitative part of the study, 5 likert-type attitude scale developed after extensive literature review by Demirli [13] is applied to the students both at the beginning and at the end of the study. The data are analyzed via SPSS 15.0 for Windows to reveal any difference in the attitudes of the teacher candidates. The scale has only one subscale with 0,932 Cronbach's Alpha value.

Descriptive statistics are used to describe and summarize the properties of the mass of data collected from the participants. For comparative statistics, paired-sample T test is used. A level of 0.05 was established a priori for determining statistical significance.

III.   RESULTS

Table 4 shows the change in over all attitudes of the students before and after using EP. After using EP it is seen that the total attitude point of the students have increased from 3.55 to 3.92.

TABLE IV.   RESULTS OF PAIRED SAMPLES T TEST BETWEEN PRE AND FINAL TEST TOTAL POINTS

	Mean	*Std. Deviation*	*Std. Error Mean*	*t*	*df*	*Sig. (2-tailed)*
Pre-test Total point	134,84	12,00	2,75	-3,89	18	0,00*
Final-test Total point	148,94	11,97	2,74			

*. p<0.05

The statistically significant increase in the total attitude points of the students shows that using e-portfolio affects their attitudes towards e-portfolio positively. For more detailed analysis, the mean points before and after using e-portfolio for each 38 item included in the questionnaire are shown in Fig. 1 (Items with a negative expression was reverse scored).
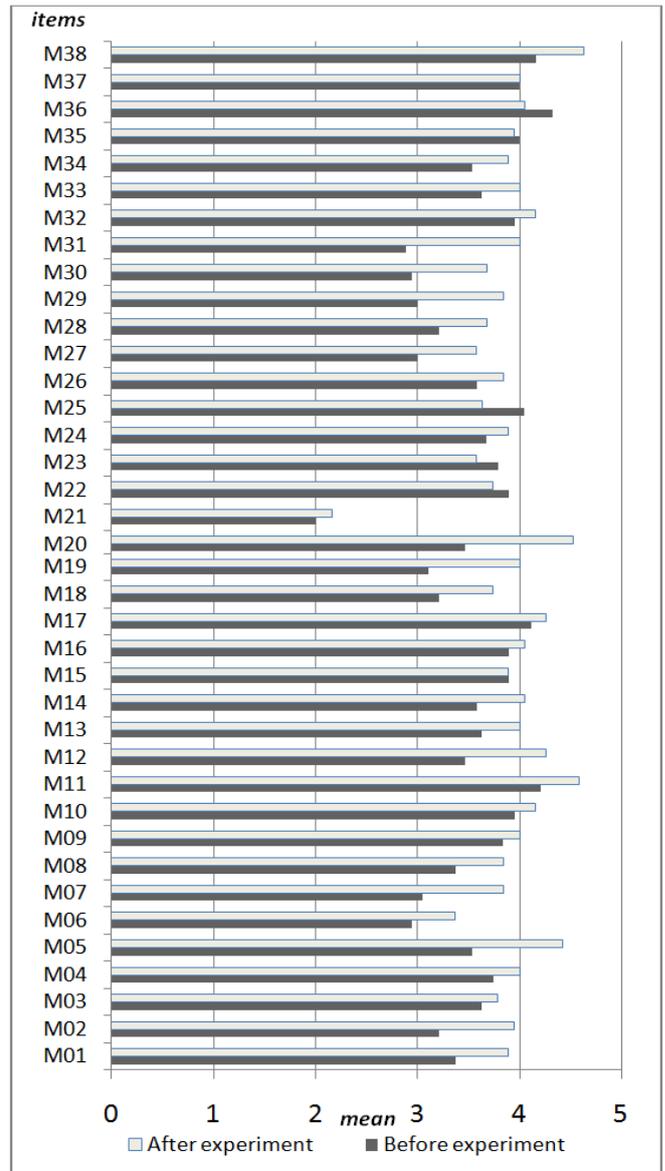

Figure 1.   The mean points before and after using EP for each 38 item included in the questionnaire

We see that there is an increase in almost all positive attitude items and decrease in negative attitude items. 16 of these are statistically significant (p<0.05).

To show the alignment of current students' attitudes towards e-portfolio and their aspirations, we mapped the 16 attitude items that showed significant change with the aspirations of the new generation listed in Table II on Table V. On the left hand column under the heading "Item No" the items in the questionnaire are referenced, in the middle column there is the English translation of the item and on right hand column the number of the item from table 2 with which it aligns is listed.

TABLE V.   MAAPPING OF THE STATISTICALY SIGNIFICANT ITEMS WITH THE ASPIRATIONS OF GENERATIONS Y AND Z

Item No	Items *	Mapping (referencing in Table II)
M02	I believe that no time limit, contributes to efficient and productive management of my time	1, 2
M05	I don't like to communicate in electronic environments about courses	3
M06	I feel that my perceptions about events and concepts have increased	6, 7
M07	I believe that I learn easier	4, 5, 6
M12	I believe that space independency makes me more efficient	1, 2
M14	I believe that my efforts in the course increases	4, 5, 6
M18	I have the tendency to reflect my improvement in the course more effectively	4, 5, 6
M19	I have the tendency to comprend more the concepts within the scope of the context	4, 5, 6
M20	I believe that my skills in using various technologies improve	3
M26	I feel tense because it gives more learning responsibility	6, 7
M27	I am more comfortable in communicating different ideas with my friends.	1, 2
M28	I become better in deciding in what areas I should improve	6, 7
M29	Knowing that the learning environment is designed according to my needs makes me feel confident	6, 7
M30	I am more comfortable in interpreting the events and facts.	6, 7
M31	I believe that my interpretation ability will increase.	6, 7
M38	I believe that my confidence reduces	6, 7

*. All items in the scale includes expirations that "in learning environment using EP"

IV. CONCLUSION

The new generation to be seen at the universities within couple of years values the opportunity to try new tasks and solve problems creatively. "Gen x and y are collaborative learners, enjoy working in teams and thrive in a relaxed consensus driven group" [3]. They value ownership and individuality at work rather than work ethics and industry focus; their motivation for works is over job variety and creativity rather than financial security and responsibility; their key communication tools are hands on learning and participation rather than technical data and evidence; and their approach to management is involvement rather telling boss what to do [4].

In this study we tried to show some evidences on how using electronic portfolio aligns with the higher educational expectations of the young generation and their beliefs in their own learning. From the results obtained it is seen that the students developed positive attitudes towards using EP and they perceived it as a helpful tool that contributes to improvement of their technical and writing skills besides learning. As noted from our previous experience [12] [14] [15] the process of creating and maintaining EP requires a lot of effort, time and interaction from both the students' and the instructors' which makes the implementation in large programs challenging.

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