

# Exploring Perceptions of M.A Ed. Students in UiTM towards the Usage of E-portfolio as an Assessment Method

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**Abstract---**This study explores the perceptions of M.Ed students of University Teknologi Mara (UiTM) towards E-portfolio as an assessment method. The study also investigated the perceptions of the students towards benefits of E-portfolio and the challenges they face while developing one. The study employed a quantitative research design and used a questionnaire to collect data from the sample of 30 students of Master degree studies in the Faculty of Education, UiTM. Descriptive statistics were used to analyze the data. The findings of the study show that the students' hold an overall positive perception on using E-portfolio as an assessment method. The findings further indicated that the students' perceive E-portfolio to be beneficial in improving their knowledge and skills. Lastly, the results identified challenges that the students' face while developing E-portfolio.

**Keywords---** E-portfolio, perceptions, assessment method, challenges, M.Ed Students, UiTM.

## I. INTRODUCTION

Assessment is a very important part of any learning and teaching experience, as through assessment teachers are able to track and witness progress in their students as well as evaluate their course in terms of their teaching approaches along with how well is the course progressing with regard to the pre-set objectives of the course. In fact, without assessment a teacher is not able to give feedback both to his/her students or his/her self. Chappuis and Stiggins (2002) believe that assessment which is mainly focused on fostering learning has greater chances of producing motivation rather than being a sole student measurement. Students also benefit from assessment in ways in which they know their performance in the form of receiving feedback from their instructors based on their accomplishments usually in the form of ongoing assignments or tests. According to O'Farrell (2002) assessment is done for various purposes such as, to insure whether the course is achieving the intended outcomes, to provide feedback to students for their motivation and improvement, to evaluate the teaching effectiveness, to take informing decisions and etc. However, when assessment methods are concerned in most universities or colleges, often the final tests are regarded as the dominating form of assessment method to measure students' performance. In fact, final written examination is still regarded as the best way to

assess students' understanding and measuring learning outcomes of the students for a particular program or course code while the main function of the assessment should be improving learning which is referring to assessment for learning. According to Flórez and Sammons (2013) the main principles that define assessment intended for learning are: it should be central to classroom practice, sensitive and constructive, motivation driven, focused on ways of how learners learn and helps them to improve their learning. The assessment of students' abilities and performance solely on a single exam paper is rarely an effective method of assessment. Therefore, on-going assessments are parts of the assessment for example assignments, projects, term papers, mini research and quizzes for the students to accomplished especially whenever a topic is finished, accompany final written examination and that is how students are assessed holistically.

### A. Research Objectives

This study aims:

- 1: to find MA, Education (UiTM) students' perception and attitudes towards the benefitsof e-portfolio.
- 2: To investigate the perceptions of M.A, Education Faculty (UiTM) students' towards theusage of E-Portfolio as an assessment method.
- 3: To identify the challenges that theM.A, Education Faculty (UiTM) students' face while developing E-Portfolio.

### B. Statement of problem

E- Portfolio can be a very productive way for students to showcase their performance and learning abilities by developing their own subject related E-portfolios and these E-portfolios can be used by instructors as an assessment method to evaluate students' performance in the universities, colleges or institutes. However, not many universities and institutes use portfolio as a method of students' assessment and usually more weight of assessment marks and grades are put on final written exam paper which is not the best way to assess students' performance. A study by Hung, (2012) investigated both the positive influences of e-portfolio assessment as an

alternative assessment technique on a language preparation course of teachers. The results indicated that E-portfolio as a method of assessment produced numerous positive influences on learning such as development of practice community, peer learning facilitation, fostering content knowledge learning, development of critical thinking habit and improving professional development. Similarly another study by Bhattacharya and Hartnett (2007) investigated the use of E-portfolio as an assessment tool for assessing the learning of students based on the developed evidences of students within the e-portfolio. The results indicated that E-portfolio is a great way for students to enhance integrative learning process where they are able to see the underlying philosophies and connections of ideas learned during the course. In the same manner, Lorenzo and Ittelson (2005) believe that E-portfolio is an effective way to improve teaching, learning and assessment practices. As no or limited research has been done to specifically investigate the perceptions of M.A students of Education faculty in UiTM with regard to using e-portfolio as an assessment tool, thus, this study would provide an insight to the students, lecturers of relevant fields of study on how e-portfolio is viewed as an assessment method from students' perspective and how they benefit from it in their learning.

### C. Definition of Terms

E-portfolio: According to Lorenzo and Ittelson (2005) E-portfolio stands for the digitally collected artifacts of an individual, group, community or institution such as resources, demonstrations and accomplishments in the form of text, multimedia elements, graphics that is stored on a website or other electronic media such as CD-Rom or DVD. In this study, E-portfolio is referring to the UiTM students' compilation of work from the course that is used by instructors as a method of assessment to grade students in the relevant subject. The compilation is either in form of webpage such as blog entries or portfolio page.

## II. LITERATURE REVIEW

### A. Introduction:

According to Akubuilu (2012) holistic assessment is a worldwide approach for assessing the outcome of students' learning. He believes officials in academic circles have to consider making courses that would improve the skills and experiences of students by providing them teaching materials and tasks that should be somehow challenging for stimulation purposes and that should relate to the real world experiences of student which will result in improved learning outcome. Likewise, Sadler (as cited by Akubuilu, 2012) states that in holistic assessment the student's work should be assessed in a way by a teacher where the teacher develops a complex method on how to admire the student's work with regard to its quality. Based on Akubuilu's (2012) explanation, holistic assessment comes in different types that ranges from constructive alignment, reflection and reflective practice/reflective journals, peer assessment, self-assessment, group presentations, report writing to portfolio assessment. He

defines a portfolio as the collection of a student's works, experiences, endeavors and more and portfolio assessment as a process that is plan oriented close exploration and analyzing of the data collected in the form of a portfolio by a student. He also asserted that a portfolio assessment through a systematic way can deliver reliable information about the student's proficiency of learning.

### B. Portfolio Assessment

Brazilai (as cited by Gülbahar&Tinmaz, 2006) claims that assessment in the form of traditional tests is not a wise option to measure the competency and capability of students in a project based learning, while assessing the students through a portfolio method would prove to be very effective by measuring the reflection of students over the different issues learned. Additionally, Hirvela and Pierson (as cited by Hung, 2012) asserted that educators and researchers should explore and find ways of measuring students ability and capability by outlining their strengths rather than bringing forth their weakness, and portfolio assessment is the method they should be adopting. E-portfolio in its broadest understanding according to Reese and Levy (2009) is the sum up of all the works such as accomplishments, explanatory demonstrations and resources in a digital form that stands for the endeavor recognition of an individual, a group or an institution and the real effectiveness of E-portfolio is perceived when an individual not only archives resources, but also reflects on it from his/her point of view. Similarly, Bhattacharya and Hartnett (2007) believe that the reflective practicing nature of E-portfolio development helps students to store and see their learning as evidence and develop a holistic shape of their learning to foster their self-understanding. Reese and Levy (2009) pointed out that within the higher education, E-portfolio can be used to numerous advantageous purposes. For example it can possibly let students experience real world (authentic) learning that includes activities related to problem solving, case studies and being a part of virtual communities of practice. E-portfolio by storing students work helps colleges and universities in ways that include improving curriculum based competencies and experiencing positive outcomes in students, letting them learn and experience blended information, improve technology and domain knowledge. Additionally, Reese and Levy (2009) suggested the benefits of E-portfolios for different constituent groups within education that includes not only students, but also senior leaders and faculty. They believe that senior leaders can use benefit from E-portfolio for helping with the review of internal and external departments and use it to aid the general institutional assessment for accreditation and other reasons, while faculty can use E-portfolios in helping them writing and providing letters of references to students, counseling students, storing students course activities and helping them in the reviewing process of internal and external departments. They further illustrated that students can benefit from using E-portfolio by storing their work during course, improve their reflection abilities on academic and professional

goals, helps them with getting advising and career counseling and helps them present the E-portfolio as a record of accomplishments of the students to job providers.

### C. Previous studies:

Bhattacharya and Hartnett (2007) has conducted a study to investigate the use of E-portfolio as an assessment tool for assessing the learning of students based on the developed evidences of students within the e-portfolio. This E-portfolio as an assessment tool was used to recognize the developed materials and artifacts of students relating to various study fields and the results indicated that E-portfolio is a great way for students to enhance integrative learning process where they are able to see the underlying philosophies and connections of ideas learned during the course. Similarly, the findings of another study outlined the implementation of E-portfolio assessment practice in the software Engineering labs of Universidad Autonoma de Madrid. The study reported that E-portfolio assessment was implemented in a software engineering course for the purpose of experiencing quality learning, teaching and evaluation process with 56 undergraduates of senior class and instructors. The findings of the study indicated that E-portfolio integration in a project based learning proved to have more benefits and improved the effectiveness of learning, teaching and evaluation processes (Macias, 2012). Likewise a study by Oradini and Saunders (2007) described the effectiveness of e-portfolio adoption in numerous subject areas. The study obtained data through the use of a questionnaire and face to face interview to find the perception of 2000 undergraduate students and 25 staff about the benefits of E-portfolio practice. The results indicated that half of the students thought that it is easy for them to put their thoughts and understandings in the platform of an electronic portfolio and they also perceived its development as challenging and interesting. Many of the other students favored e-portfolio as a means of making them to think and reflect more about the learned materials. A tiny number of students found it as a way helping them in organizing their work and efforts. Finally the results indicated that all of the staff thought E-portfolio is an effective way to foster students' learning performance.

## III. METHOD

### A. Research design

This study which intends to study the perception of M.A Education Faculty students of UiTM for the use of portfolio as an assessment tool is based on the quantitative research design.

### B. The Instrument

A questionnaire was developed and used as a data collection tool by the researchers for this study. The first section of the questionnaire gathered the demographic profile data of the respondents. The second section of the instrument contain questions which explore how E-portfolio benefit

students in their learning. The third part contained questions about the perception of students towards e-portfolio as an assessment tool. The last section of the questionnaire identifies challenges that students face while developing an E-portfolio.

### C. Population and Sampling

The population of this study is the master's degree students of Educational Management and leadership, Teaching English as a Second Language (TESL) and Visual Arts study fields in the Faculty of Education, University Teknologi Mara (UiTM), Shah Alam. 30 students were randomly selected from the total population of 100 students.

### D. Analysis of Data

As a quantitative research design based questionnaire was used to collect data from the 30 randomly selected students, thus descriptive statistics were used to analyze data using SPSS software.

## IV. FINDINGS

### A. Benefits of E-portfolio

The first objective of the study investigated the perceptions of students towards E-portfolio as an assessment method. The findings are presented as in Table 1.

Table 1 shows the means score for Students' perceptions on benefits of E-portfolio. All of the items had the mean scores between the ranges of three to four. It was deduced that the average students' perception of E-portfolio benefits was in the range of 'almost agree, and 'agree'. Items which gained higher mean scores in the students' perceptions of E-portfolio benefits dimension were identified as 'I am encouraged to actively engage in critical thinking' (M=4.19, SD=.543), 'Autonomy-supportive practices allow me to explore ideas and use my unique ways of problem solving' (M=4.13, SD=.670) and 'E-Portfolio Assessment requires me to analyze and evaluate information' (M=4.10, SD=.651). Meanwhile, the three items of students' perceptions of E-portfolio benefits with comparative lower mean scores were 'I will have a tool for feedback from teachers and peers; feedback in the form of comments, as opposed to marks' (M=3.68, SD=.791), 'E-Portfolio Assessment promotes communication between teachers and me' (M=3.68, SD=.832), and 'I receive more recognition for my individual learning ability and preference' (M=3.81, SD=.703).

The findings suggest that on average the students agree to all the benefits of E-portfolio mentioned. However, the students specifically perceive E-portfolio to be benefiting them more in terms of encouraging them to actively engage in critical thinking, allowing them to explore ideas and use their unique ways of solving a problem through the autonomy-supportive practices and helping them to analyze and evaluate information.

Table 1 Students' perceptions on Benefits of E-portfolio

benefits of E-portfolio	Mean	Std. Deviation
I am encouraged to actively engage in critical thinking	4.19	.543
Autonomy-supportive practices allow me to explore ideas and use my unique ways of problem solving	4.13	.670
E-Portfolio Assessment requires me to analyze and evaluate information	4.10	.651
I can relate new knowledge with previous understanding	4.10	.746
Communication in e-portfolio assessment makes learning easier and it increases opportunities for expanded learning	4.06	.629
I am aware of the fact that those skills are necessary in my future careers.	4.03	.605
In fact, it enables me to meet with future challenges and market competition		
I am given a sense of control that motivate me to do more	4.00	.577
I am given opportunities to choose the way my material will be demonstrated	3.90	.746
I take an active role in forming new understandings	3.90	.597
I am stimulated to find innovative solutions for existing problems	3.83	.699
I receive more recognition for my individual learning ability and preference	3.81	.703
E-Portfolio Assessment promotes communication between teachers and me	3.68	.832
I will have a tool for feedback from teachers and peers; feedback in the form of comments, as opposed to marks	3.68	.791

1 = Strongly Disagree    2 = Disagree    3 = Almost agree    4 = Agree    5 = Strongly Agree

### B. Perceptions of Students towards E-Portfolio Assessment

The second objective of the study investigated the perceptions of students towards E-portfolio as an assessment method. The findings are presented as in Table 2.

Table 2 shows the means score for Students' perceptions using E-portfolio as assessment method. All of the items had the mean scores between the ranges of three to four. It was deduced that the average students' perception of E-portfolio as an assessment method was in the range of 'almost agree, and 'agree'. Items which gained higher mean scores in the students' perceptions of using E-portfolio as an assessment method dimension were identified as 'E-portfolio experience gave me a chance to find out about the skills I should be learning' (M=4.06, SD=.680), 'E-portfolio assessment gives me the opportunity to show my understanding of authentic materials' (M=4.00, SD=.856) and 'I like E-portfolio as an assessment tool because it gives me more time to read and prepare myself to showcase my better understanding of a topic' (M=3.97, SD=.706).

Meanwhile, the three items of students' perceptions of E-portfolio as an assessment method with comparative lower mean scores were 'I prefer tests because it is time saving while E-portfolio as an assessment tool wastes my time by making me search and read extensively' (M=3.16, SD=1.369), 'In test assessment, I only read at the end while in e-portfolio assessment I read throughout the semester' (M=3.65, SD=.985), and 'I am not a good test-taker and E-portfolio offers me an alternative to demonstrate my mastery of content' (M=3.77, SD=.990).

The results suggest that on average the students hold positive perception towards E-portfolio as an assessment method. Students specifically like E-portfolio as an assessment method due to it gives them a chance to find out about the skills they should be learning, give them the opportunity to show their understanding of authentic materials and gives them more time to read and prepare their selves to showcase their better understanding of a topic.

Table 2 Students' perceptions on using E-portfolio as an assessment method

Students' perception on using E-portfolio as assessment method	Mean	Std. Deviation
E-portfolio experience gave me a chance to find out about the skills I should be learning	4.06	.680
E-portfolio assessment gives me the opportunity to show my understanding of authentic materials	4.00	.856
I like E-portfolio as an assessment tool because it gives me more time to read and prepare myself to showcase my better understanding of a topic	3.97	.706
E-Portfolio is very effective in assessing my learning	3.87	.763
I may show my e-Portfolio as my achievement	3.84	.860
I am not a good test-taker and E-portfolio offers me an alternative to demonstrate my mastery of content	3.77	.990

In test assessment, I only read at the end while in e-portfolio assessment I read throughout the semester	3.65	.985
I prefer tests because it is time saving while E-portfolio as an assessment tool wastes my time by making me search and read extensively	3.16	1.369

1 = Strongly Disagree    2 = Disagree    3 = almost agree    4 = Agree    5 = Strongly Agree

**C. The Challenges in E-Portfolio Development**

The third objective of the study sought to identify challenges that students’ face while developing an E-portfolio. The findings are presented as in Table 3. All of the items had the mean scores between the ranges of two to three. It was deduced that on average the students responses for the challenges they face while developing E-portfolio were in the range of “disagree” and “almost agree”. Items which gained higher mean scores in the challenges students face in the E-portfolio development dimension were identified as ‘I did not receive a course/class specifically on how to develop my e-Portfolio’ (M=3.35, SD=1.082), ‘E-portfolio as assessment tool makes me reflect on topics that I don’t like’ (M=3.06,

SD=1.063) and ‘E-portfolio as an assessment tool takes too much effort for less marks given’ (M=2.90, SD=.944). Meanwhile, the three items of challenges students face in the E-portfolio development dimension with comparative lower mean scores were ‘I don’t like working with technology’ (M=2.06, SD=1.124), ‘I was unsure about what to include in my e-Portfolio’ (M=2.33, SD=1.155), and ‘I don’t have access to technology all the time’ (M=2.58, SD=1.148).

Based on these findings, the students’ specifically find E-portfolio development challenging because they do not receive any specific orientation or instruction class on how to develop E-portfolio, they have to reflect on topics that they do not favor and they put too much efforts for less marks given.

Table 3 Challenges students face while developing an E-portfolio

Challenges in developing E-portfolio	Mean	Std. Deviation
I did not receive a course/class specifically on how to develop my e-Portfolio	3.35	1.082
E-portfolio as assessment tool makes me reflect on topics that I don’t like	3.06	1.063
E-portfolio as an assessment tool takes too much effort for less marks given	2.90	.944
I did not receive support with my e-Portfolio when I experienced difficulties	2.84	.934
I am skeptical with the reliability of e-portfolio as an assessment	2.74	.893
I did not receive clear guidelines on what to include in my e-Portfolio	2.74	1.032
I believe e-portfolio is potentially biased in how it is assessed	2.65	.985
I don’t have access to technology all the time	2.58	1.148
I was unsure about what to include in my e-Portfolio	2.33	1.155
I don’t like working with technology	2.06	1.124

1 = Strongly Disagree    2 = Disagree    3 = almost agree    4 = Agree    5 = Strongly Agree

**V. CONCLUSION AND SUGGESTIONS**

The findings of this study suggest that E-portfolio is recognized to be helpful and beneficial to the students in different ways as the use of E-portfolio help students in their learning and skills improvement. It was also revealed that students hold positive perceptions for E-portfolio as an assessment method. In other words, students of this study preferred E-portfolio as an assessment method over the other traditional methods of tests such as final written test paper. Finally, the results of the study indicated that despite the benefits of E-portfolio, there are some challenges that students’ face while developing an E-portfolio.

Based on the findings of the study, it can be suggested that teachers of universities and colleges should thrive to think of ways of including E-portfolio development into their syllabus that can be used as a primary assessment method for

assessing students’ performance in the subject matter. Moreover, it is suggested that further research should be done by other researchers in introducing the innovative and successful practices of using E-portfolio as an assessment method in various study fields by different lecturers in universities around the world. This would let teachers and lecturers of universities and colleges around the world to adapt and implement the successful practices of including E-portfolio in their syllabuses as an assessment method.

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### Appendixes

This questionnaire is designed to collect information about the perceptions of M.A students of Education Faculty at University Teknologi Mara (UiTM) towards the usage of E-portfolio as an assessment method. I would appreciate if you would kindly respond to the questionnaire which consists four sections namely Part One – Four.

#### Part One: Demographic Information

1: Gender

- A. male                      B. Female

2: How old are you?

.....

3. Which of the following program do you study?

- A. M.A TESL                      B. M.A Educational management and Leadership                      C. M.A Visual Arts

#### Part Two: Benefits of E-portfolio

Please select your answer on the rating scale, A represents your Strong disagreement and E represents your strong agreement with the statement.

1. I am encouraged to actively engage in critical thinking

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

2: Autonomy-supportive practices allow me to explore ideas and use my unique ways of problem solving

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

3: E-Portfolio Assessment requires me to analyze and evaluate information

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

4: I can relate new knowledge with previous understanding

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

5. Communication in e-portfolio assessment makes learning easier and it increases opportunities for expanded learning.

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

6. I am aware of the fact that those skills are necessary in my future careers. In fact, it enables me to meet with future challenges and market competition.

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

7. I am given a sense of control that motivate me to do more.

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

8. I am given opportunities to choose the way my material will be demonstrated.

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

9. I take an active role in forming new understandings.

- A: Strongly Disagree              B: Disagree              C: Almost agree              D: Agree              E: Strongly Agree

10. I am stimulated to find innovative solutions for existing problems.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

11. I receive more recognition for my individual learning ability and preference.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

12. E-Portfolio Assessment promotes communication between teachers and me.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

13. I will have a tool for feedback from teachers and peers; feedback in the form of comments, as opposed to marks.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

**Part Three: Perceptions of Students towards E-Portfolio Assessment**

Please select your answer on the rating scale, A represents your Strong disagreement and E represents your strong agreement with the statement.

1. E-portfolio experience gave me a chance to find out about the skills I should be learning

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

2. E-portfolio assessment gives me the opportunity to show my understanding of authentic materials

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

3. I like E-portfolio as an assessment tool because it gives me more time to read and prepare myself to showcase my better understanding of a topic.

1= Strongly Disagree      2 = Disagree      3 = Almost agree      4 = Agree      5 = Strongly Agree

4. E-Portfolio is very effective in assessing my learning

1= Strongly Disagree      2 = Disagree      3 = Almost agree      4 = Agree      5 = Strongly Agree

5. I may show my e-Portfolio as my achievement

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

6. I am not a good test-taker and E-portfolio offers me an alternative to demonstrate my mastery of content

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

7. In test assessment, I only read at the end while in e-portfolio assessment I read throughout the semester

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

8. I prefer tests because it is time saving while E-portfolio as an assessment tool wastes my time by making me search and read extensively

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

**Part Four: The Challenges Students Face in E-Portfolio Development.**

Please select your answer on the rating scale, A represents your Strong disagreement and E represents your strong agreement with the statement.

1. I did not receive a course/class specifically on how to develop my e-Portfolio

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree



2. E-portfolio as assessment tool makes me reflect on topics that I don't like.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

3. E-portfolio as an assessment tool takes too much effort for less marks given.

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

4. I did not receive support with my e-Portfolio when I experienced difficulties

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

5. I am skeptical with the reliability of e-portfolio as an assessment

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

6. I did not receive clear guidelines on what to include in my e-Portfolio

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

7. I believe e-portfolio is potentially biased in how it is assessed

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

8. I don't have access to technology all the time

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

9. I was unsure about what to include in my e-Portfolio

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree

10. I don't like working with technology

A: Strongly Disagree      B: Disagree      C: Almost agree      D: Agree      E: Strongly Agree