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Cultivating Positive Values via Online Project-based Module (m-PAT)

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ABSTRACT

The purpose of this paper is to evaluate the use of the Online Project-based module (m-PAT) to cultivate positive values among students. Evaluation was made to the positive values used in this study based on the six constructs of Contextual Development Model for Positive Youth Development namely competence, confidence, connection, caring, character and contribution (6C's). The learning approach used by m-PAT is project-based learning which is applied as a School Based Assessment activity for Physics subject. A mixed method case study design was employed, where the findings of quantitative data were confirmed using the findings of qualitative data. A total of 42 Form 4 students were chosen based on purposive sampling from a secondary school in Klang Valley, Malaysia. The data were collected through questionnaire, student reflection, students' online learning activity and discussion, interviews with the students, as well as teacher's checklist after each participant generated a physic-learning blog by using the m-PAT as a platform. Quantitative data were analysed descriptively in form of mean scores and standard deviations to observe the distribution of students' feedback on the constructs being studied. Qualitative data were

analysed using thematic analysis related to the constructs being studied and confirmed by teacher's checklist. The results showed that m-PAT was able to cultivate all positive values of 6C's among the participants of the study. Overall, the findings has important implications for contributing to a new approach in learning which integrates the use of information technology and communication via project-based online learning as well as making it possible for the cultivation of students' positive values especially in relation to the use of the Internet. Further research with a larger number of participants is needed to support the present findings.

Keywords*: online project-based module, positive values, 6C's of contextual development model for positive youth development, education, Malaysia*

INTRODUCTION

In Malaysia, the integration of Information and Communication Technology (ICT) and the Internet has been a trend in education. It has been made as a medium to facilitate the 21st century learning approach in line with the goal outlined in the Malaysia Education Blueprint (2013-2025). However, findings of a research on use of the Internet's pattern among students in Malaysia, show that a lot of other activities which are not related to academic, are carried out while they are surfing the Internet (Multimedia Development Corporation (MDEC), 2006). The findings also indicate that most students learn to explore the Internet and online applications without any formal guidance (Abrizah & Zainab, 2004) from teachers and parents. Similarly, an initial survey on investigating the students' Internet usage by Ashfahani (2014) also demostrated same findings. The absence of monitoring on use of the Internet by students and their ignorance regarding ethical and security issues while surfing the virtual world, may cause students to be exposed to a variety of information without restrictions as well as social interactions without guidance in the virtual community. This situation may cause symptoms of deterioration of good moral values due to the Internet abuse. Reviews conducted by Pew Research Centre (2015) found that use of the Internet is concluded as having a positive impact on education but impacting the moral values of developed and developing nations negatively. While Internet Filter Software Review Learning Centre (2009) has shown that there has been an increase in activities related to ethical problems

and cyber security threats when students use the Internet. Among them are; students watching websites that have sexually-explicit content which are increasing in number, students being contacted by unidentified virtual social partners, students being disturbed in the form of virtual bullying (cyberbullying) and students who provide their home and email address to strangers when interacting online. All these show that there has been an increase in activities which are related and would cause ethical problems and cyber security threats when students use the Internet.

Review of previous literatures show that most of the modules/learning materials which integrate ICT and cultivation of value have been developed via value-cultivation approach which is content-based oriented (Mohd. Arif, 2004; Mohd. Noor Azman, 2004; Norhayati & Siew, 2004; Kamaruddin, 2006). Through this method, values are taught directly or indirectly and become a learning outcome for the teaching and learning process. However, there are findings from previous studies suggesting that the inculcation of values using content-based approach cannot be implemented well in the subjects with lack of humanistic values in their contents (Abdul Rahman e*t al*., 1994) such as Science (Abdul Rahman *et al*., 1994; Habsah Ismail, 2000).

Another approach that can be used to inculcate values via teaching and learning is through process-oriented learning activities (Ashfahani, 2014). Through this approach, values are cultivated among students through the experiences they undergo during the learning processes that use approaches such as project-based learning or problem-based learning. Review of previous literatures show that there are a few learning modules that integrate ICT applications online and the cultivation of positive values via process-oriented learning activities among students especially with regards to use of the Internet (Kamaruddin, 2006; Milheim, 2012; Ashfahani, 2014).

In this study, a process-oriented approach was used to cultivate positive values among students. Through this approach, positive values could be nurtured among students even though the content of the lesson lacked the elements of humanistic values in it. This is because value inculcation should be based on the positive experiences the students undergo during the learning process. Hence, an online project-based learning module known as *Projek Atas Talian Modul* (m-PAT) was developed to understand whether it

can serve as a platform for teachers to integrate ICT and inculcate positive values among students especially on the use of the Internet through a process-oriented learning approach.

The use of m-PAT is expected to enable students' interest and skills in ICT in the field of online applications to be channelled positively and guided through the implementation of online project-based learning. Therefore, m-PAT is expected to fill the gap because of the lack of learning modules that integrate ICT applications online and the cultivation of positive values via process oriented learning activities among students especially with regards to the use of the Internet. Hence, the objective of this paper is to evaluate the extent to which the cultivation of positive values occurs among survey participants while they were doing online projects using the m-PAT platform.

POSITIVE VALUES OF 6C'S AND PPNP PRINCIPLES

All positive values to be cultivated in this study are based on six constructs in the Contextual Development Model for Positive Youth Development (Eccles & Gootman, 2002; Mahoney *et al.*, 2002; Roth & Brooks-Gun, 2003a, 2003b; Lerner, 2004) which is known as 6C's namely competence, confidence, connection, caring, character and contribution.

The positive value of 6C's are the indicators to measure the Positive Youth Development (PYD) in adolescents in studies related to conventional/face-to-face community/community programmes in western countries. For this study, 6C's are used to measure the inculcation of positive 6C's values among students which takes place in the online learning community. Table 1 shows the definition of positive value 6C's. Definition of the first five (5) positive values are based on the definition by Lerner (2004) and Roth and Brooks-Gunn (2003a) while the sixth positive value definition, Ready to Contribute is based on the definition by Lerner (2004) and Mahoney *et al*. (2002).

Table 1: Definition of the Positive Values of 6C's

Constructs to Measure Positive Development of Teenagers (Positive Values of 6 C's)	Definition of Positive Values of 6C's
Competence	Positive perspective towards someone's actions in the domains of social, academic, cognitive and vocational.
Confidence	Positive belief in oneself; self-appreciation / self-esteem and self-efficacy.
Connection	Positive bilateral relationship with other people and institutions such as peers, families, schools and communities.
Character	Having respect towards the rules and culture of other people, and able to distinguish the good from the bad and having integrity.
Caring	Feelings of sympathy and empathy towards others.
Contribution	The tendency of the students to spend time in a range of activities that may be able to measure their productive engagement and may be an indication about their potential contributions to themselves, family members, peers and community.

All six positive values of 6C's are expected to be developed in individual students when the environment is parallel and supportive towards the strengths of the individual. Based on the PYD Contextual Development Model by Lerner (2002 & 2004), the relationship between individuals with the context or environment that supports the individual's strength will result in positive development (Benson, 2003). Figure 1 shows the PYD Contextual Development Model:

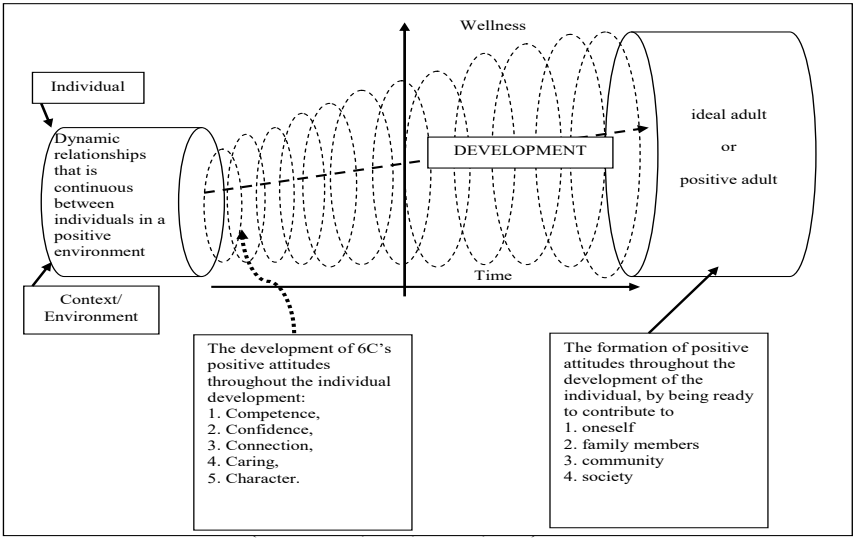


Figure 1: The PYD Contextual Development Model (Lerner *et al*., 2003; Lerner, 2004)

This model illustrates that when there is a parallel between individual assets/strengths with an environmental asset that supports positive development, the positive value of 6C's will develop within the individual. The development of this 6C's positive values will in turn produce an ideal adult and this situation is manifested through the willingness and action of the individual to contribute to self, family, community and society in its environment.

Lerner *et al.* (2005) further discussed their viewpoints regarding environment which supports the inculcation of positive values of the 4-H study. They argued that youth development programmes that are expected to inculcate positive values should have an environment of an ongoing relationship between adolescents and a committed adult. This adult should be the one who can teach certain skills to adolescents and promote healthy relationships between adolescents and their environment.

However, there are other views related to the environment which are expected to foster positive values among adolescents. As suggested by the Community Network for Youth Development (CNYD), Sam Piha Youth Development Guide which outlines the five (5) environmental guidelines

for youth development programme, would guarantee the effectiveness of inculcation of positive values among adolescents (Piha, 2001).

Another perspective on PYD studies was conducted by Bers (2001). This study is a development study aimed at creating a framework for designing and evaluating any research that integrates technology in the effort of fostering self-identity and positive values in adolescents. In his study, Bers (2001) produced several interactive software that are oriented to building identity and value and testing it against children, adolescents and kidney patients. As a result, ten (10) guidelines or environments as a framework for designing technology interventions that are expected to foster self-identity and positive values among adolescents were recommended.

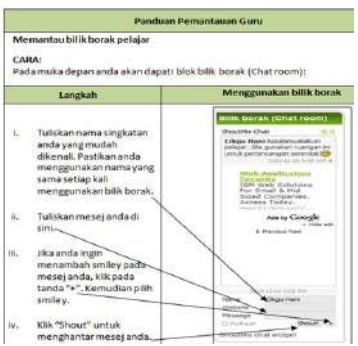
For this study, a learning environment that supports the inculcation of 6C's positive values is called principle of PPNP (Environment for the Inculcation of Positive Values). The PPNP Principles used in this study were adapted from the Lerner Model (2004), five (5) environmental guidelines that promote the propagation of positive values (Piha, 2001) and ten (10) guidelines for the cultivation of positive values through technology intervention (Bers, 2001, 2006) as well as tailored to the needs of the study. The learning environment based on PPNP principles listed below is created in the m-PAT learning environment through the design of m-PAT activities based on appropriate learning theory, instructional model and platform/ media:

a. Providing mentoring support virtually and continuously from aspects of lesson content and aspects of technical.
b. Providing a safe, online learning environment for students.
c. Building virtual learning communities together to create and follow basic rules based on the ethics and security of Internet use.
d. Providing platforms in the form of meaningful online project-based learning (active, constructive, collaborative, directive and authentic learning) which build ICT skills to encourage long-term student engagement.
e. Promoting positive community involvement and positive support (mentors and peers).

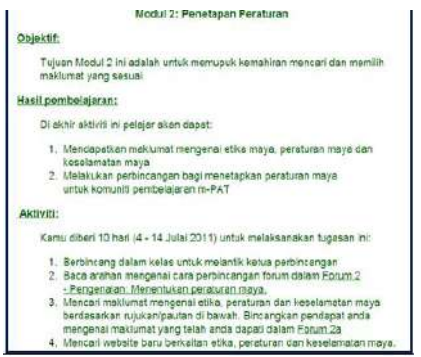
THE ENVIRONMENTAL DESIGN OF M-PAT BASED ON PPNP PRINCIPLES

The m-PAT learning environment based on PPNP principles is designed and developed by adapting online learning environments in parallel with previous studies. This environment should be created in m-PAT to stimulate the inculcation of positive values among students (Piha, 2001; Bers 2001, 2006). Table 2 shows how the m-PAT online learning environment is designed to create five learning environments based on the principles of PPNP.

Table 2: Environmental Design Element Based on PPNP Principles in m-PAT Prototype

Construct virtual mentor support continously from various aspects (Berge & Collins, 2000)	How it was manifested in the m-pAT prototype	m-PAT prototype screen related to learning environment aspect based on principles of PPNP in m-PAT
1. Providing virtual mentor support continuously from various aspects (Berge and Collins, 2000).		Example of Teacher Monitoring Manual
• Facilitator (as a mediator, academic supervisor and virtual learning community members).	• The mentor's role is expressed in the Teacher's Guide in the m-PAT User's Menu (online) and in the Teacher's Monitoring Manual. Mentors are trained first on these roles and monitored by researchers.	
• Manage learning.	• Teachers can offer guidance through chat rooms and forums.	
• Subject matter experts.	• Teachers can check activities done by students through student activity log in the tracking system.	
• Monitoring the work and discussions of students to be in the designated scope.		
• Helping students in technical aspects.		
• Providing emotional support.		

2. Providing a safe, online learning environment for students (Bers, 2006) and (Piha, 2001)		Check in screen for m-PAT require a password.
• Use of password for access. • Assessment based on rubric that can be referred to in order not to have competition with others but with one self. • Students know that there are online mentor who is monitoring. • Creating a basic rule in a collaborative way. • Providing positive support in a collaborative way.	• Password usage is one of the security features in the Moodle platform. • Rubrics sections or marking schemes are provided in m-PAT for student references.	

3. Building virtual learning communities together to create and follow basic rules based on the ethics and security of Internet use (based on features of virtual communities (Preece, 2000)):		Module 2 activities: Virtual rules are set together.
• Creating a virtual learning community - collaborating with fellow members on aspects of information or resource sharing and emotional support.	• The role of the student will be stated in the Student Guide.	
• Students having the same purpose.	• Virtual rules are set together.	
• The interaction between students is based on the same rules.	• Students are encouraged or authorised to make initiatives to support fellow members during online interaction by making interactions among fellow students as one of the criteria for scoring in the rubrics.	
• Students are exposed to the same hardware or media or technology.		

Modul 2: Penetapan Peraturan

Objektif:

Tujuan Modul 2 ini adalah untuk memupuk kemahiran mencari dan memilih maklumat yang sesuai.

Hasil pembelajaran:

Di akhir aktiviti ini pelajar akan dapat:

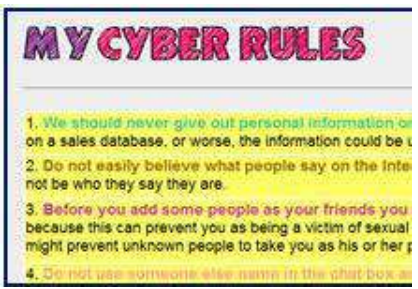
1. Mendapatkan maklumat mengenai etika maya, peraturan maya dan keselamatan maya
2. Melakukan perbincangan bagi menetapkan peraturan maya untuk komuniti pembelajaran m-PAT

Aktiviti:

Kamu diberi 10 hari (4 - 14 Julai 2011) untuk melaksanakan tugasan ini:

1. Berbincang dalam kelas untuk melantik ketua perbincangan
2. Baca arahan mengenai cara perbincangan forum dalam Forum 2 - Pengenalan: Menentukan peraturan maya.
3. Mencari maklumat mengenai etika, peraturan dan keselamatan maya berdasarkan rujukan/pautan di bawah. Bincangkan pendapat anda mengenai maklumat yang telah anda dapati dalam Forum 2a
4. Mencari website baru berkaitan etika, peraturan dan keselamatan maya.

4. **Providing platforms in the form of meaningful online project-based learning (active, constructive, collaborative, directive and authentic learning) which build ICT skills to encourage long-term student engagement.** **Using the m-PAT design elements that consist of the followings:**	• Promote active, constructive, collaborative, directional, and authentic learning, which is a meaningful learning attribute (Jonassen *et al*., 1999). The activities designed in m-PAT are: o Searching for information o Discussions through chat rooms and forums o Construction of learning artefacts (blogs) o Writing self-reflection	Examples of Student work (learning artefacts-blogs). 
• Constructionist learning theories that support project-based learning (Papert, 1980; Resnick *et al*., 1996) which consists of; (i) learning by actively inquiring & learning by doing, (ii) construction of artefacts as a material for reflection of student thought, (ii) collaboration process for the purpose of improving project outcomes and (iv) self reflection process (Bers *et al*., 2002).	• The learning modules in m-PAT are based on an approach in the e-tivities model. This approach is to promote active and directed learning (meaningful learning attributes) in the long run.	

• E-tivities Model (Salmon, 2002) which organises m-PAT content based on five steps ie (i) achievement and motivation, (ii) socialising online, (iii) exchange information, (iv) knowledge development (v) reflection. • Using the Moodle Learning Management System platform that has available learning tools such as forums, blogs, surveys and tracking systems to facilitate teacher monitoring activities on student activities.	• The activity is designed using the learning tools available in Moodle. o Chat room and Forum – collaborative learning o Blog – encouraging constructive learning. o Writing of reflection is carried out online (using Moodle LMS Survey module)	

5. Promoting positive community involvement and positive support (mentors and peers) (based on Moallem Collaborative Learning Model (2003).	• The m-PAT platform supports searching information using the Internet because m-PAT is an Online Project module.	The student support factor is stated in the Student Guide and used as a criterion in the rubric.
• **Cognitive support** - The online project makes it easier for students to find information over the Internet.	• The student support factor to a friend was stated in the Student Guide in the m-PAT User Menu.	
• **Peers support** available during forum discussions.	• The student support factor to a friend is used as a criterion in the rubric.	
• **Virtual Community support** - carried-out continuously.		
• **Emotional suppor**t carried-out by peers and mentors.		

METHODOLOGY

Research design

This is a case study design with triangulation mixed methods approach (Creswell, 2008). Findings from quantitative data were confirmed in triangulation with qualitative results to see whether they support each other to answer the same research questions. Comparison of the findings from both methods is seen as a source-based triangulation. Validation of data using triangulation mixed method is able to cover the weakness of data collected in one of the methods thus improving the credibility of this study.

The quantitative data from the questionnaire were analysed descriptively in the form of mean score and standard deviation to see the distribution of students' feedback on the existence of meaningful and guided learning attributes during the implementation of m-PAT. While qualitative data is collected using various methods i.e. through students' reflection texts, online students' activities and discussions and students' interviews. Qualitative data were analysed using thematic analysis to produce matrix tables related to meaningful learning attributes. The data from this thematic analysis was then confirmed by a teacher's checklist on the results of work and online student activity.

Research participants

The research participants consist of 42 Form 4 students who took Physics subjects in a secondary school in Klang Valley, Malaysia. The school was selected for having a computer laboratory with complete Internet infrastructure, having a technical assistant for computer labs, getting approval from teachers and administrators and most students had home Internet connections. The selected students have obtained parental consent to carry-out online projects using the Internet at home. This is because online projects are implemented by students outside school time using home computers, in accordance with the criteria of School-Based Assessment (PBS) activities implementation in the form of projects.

Contents of m-PAT

For this study, the m-PAT platform was used for implementing one of the PBS activities for Physics Practical Work Assessment (PEKA) in the form of an online project for Physics subjects. In this project, each student builds learning artefacts in the form of blogs on a topic in the secondary school Physics subject. Next, students share materials and collaborate with other teachers and students through online discussions for the purpose of improving their project (blogs). All of these activities are carried out according to five modules (Module 1 to Module 5) contained in m-PAT. Below is a summary of the activities contained in the modules.

- Module 1 – Introduction and access - This activity aims to train students to access and socialise online using chatroom and message space.
- Module 2 – Establishment of virtual rules - This activity is intended to foster search, find and choose information and discussions online using forums. At the end of the activities, the students will jointly determine the virtual rules they need to follow while following m-PAT.
- Module 3 – Development of Blog I - This activity is intended to inculcate technical skills such as uploading pictures, making animations and creating links. At the end of the activities, the students develop the following sections in their blog: Introduction, MyProfile and MyCyber rules.
- Module 4 – Development of Blog II - This activity was aimed at building knowledge related to the project title (Physical Form 4) that has been determined. At the end of the activities, students develop MyProject space in the blogs they have built in Module 3.
- Module 5 – Online collaboration discussions for blogging purposes (peer assessment). In Module 5, students need to open their blogs for other students to give and get feedback from friends.
- Reflection - Students rethink the learning process based on the questions given. Reflection was performed at the end of each m-PAT module (self-assessment). Students should write online reflection and send to the teacher. In the final week, students print their work as evidence for PEKA Physics.

Figure 2: Shows Screen Shot of the Home Page of m-PAT

Research procedures

The online project activity using m-PAT lasted for six weeks. m-PAT contains five modules i.e. Module 1 to Module 5. The sixth week had been allocated to students for blogging and blogging activities to be filed as evidences to PBS activities in the form of projects. Each module had to be implemented online for a week by the students. In the first week, only Module 1 was opened to the students. Students needed to complete module 1 activity during the week and send their reflection. This was followed by Module 2 which was opened on the second week and so on until the sixth week. Prior to the implementation of each module, students were briefed and trained by teachers face-to-face at the school computer lab. A Physics teacher from the same school acted as an online mentor while four Physics teachers from other schools acted as observers. When conducting an online project, students were allowed and encouraged to communicate with friends and teachers using chat rooms and forums to discuss or get help. In addition, user manuals were also provided in the form of printable online documents to assist students in technical aspects. The data were collected after the participant completed the activities in all m-PAT modules.

Research instruments and procedures for data analysis

The research instrument used to collect quantitative data is a questionnaire for the inculcation of 6C's positive values in m-PAT adapted from Lerner *et al* (2005) and was administered to 42 students. The 61 items found in the questionnaire measures 6C's positive values of competence, confidence, connection, positive character, caring and willingness to contribute using 5 Likert scale (1 = strongly disagree; 2 = disagree, 3 = less disagree, 4 = agree; 5 = strongly agree). The contents of this questionnaire were reviewed by three experts in the field of Moral Philosophy and Social Sciences to ensure the validity of the items being constructed. In order to ensure the reliability of the item, the researchers conducted a pilot study on 27 Form 4 students who took Physics as a subjects in schools other than the schools under study. The research instrument was administered after the students followed the activities in all m-PAT modules. Data analysis showed that each attribute in the instrument had an acceptable Cronbach's alpha value of more than 0.65 ($\alpha \geq 0.65$).

Subsequently, quantitative data from the questionnaire were analysed descriptively in the form of mean scores and standard deviation to see the distribution of students' level of agreement with the inculcation of 6C's positive values that were administered on them while following m-PAT. Qualitative data derived from reflection in texts and online student discussions, interviews and open questions were analysed using theme analysis to produce matrices table related to 6C's constructs. Theme coding was reviewed by three experts to verify the validity of the themes that had been analysed. The value of Cohen's Kappa, K obtained for each related theme is above 0.79 ($K \geq 0.79$). This value is within a substantial range based on the reliability index interpretation, K by Landis and Koch (1977). This shows that the qualitative data for this study has a relatively high reliability index based on the value of K. Hence, the data from the theme analysis denoted the teacher's checklist on students work and online activities during the implementation of m-PAT. This was to determine whether the 6C's positive values were found in the students from the point of view of the teachers.

RESEARCH FINDINGS

The data from the questionnaire were analysed descriptively to see the distribution of the participants, level of agreement to the existence of the positive value of 6C's within themselves during the implementation of m-PAT in the form of mean score and standard deviation (SD). Table 3 shows the mean score interpretation used to assess the level of agreement of the study participants on the assessment of m-PAT.

Table 3: Interpretation of Mean Usability Scores of m-PAT

Mean Score	Mean Score Interpretation
1.00 - 1.79	very low
1.80 - 2.59	low
2.60 - 3.39	average
3.40 - 4.19	high
4.20 - 5.00	very high

[Source: Education Policy Planning and Research Division (BPPDP)]

The inculcation of 6C's positive values is based on the application of positive 6C's constructs (Competence, Confidence, Connection, Caring, Character, Contribution) among the students while they followed m-PAT. Figure 3, 4, 5, 6, 7 and 8 show the graph of the mean score bar to evaluate the level of agreement of the study participants towards the inculcation of 6C positive values among themselves while following m-PAT.

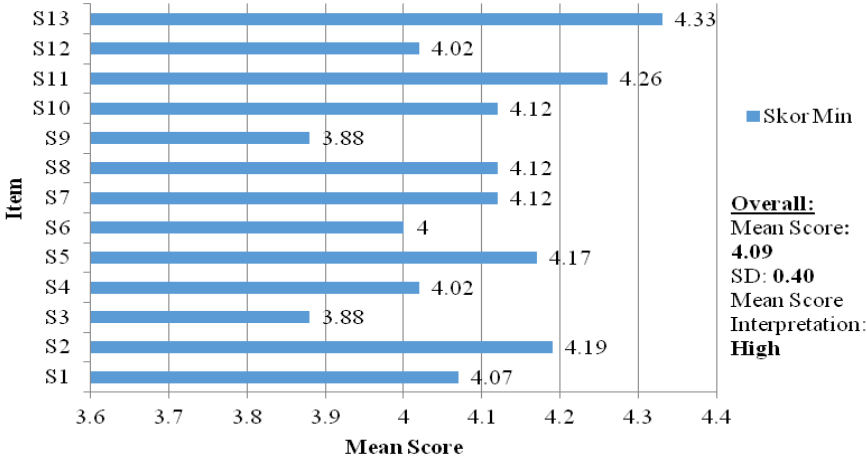


Figure 3: Evaluation of the Participants on the Cultivation of Value of Competence during the Implementation of m-PAT

Figure 3 shows students' assessment on the cultivation of the value of 'competence' during the implementation of m-PAT. From the 13 items, items show a mean score representing a very high level of agreement with the statements while the rest show a high level of agreement. Overall, the findings show that majority of the participants (mean score=4.09; SD=0.40) strongly agree that they have realised the value of 'competence' in themselves during the implementation of m-PAT.

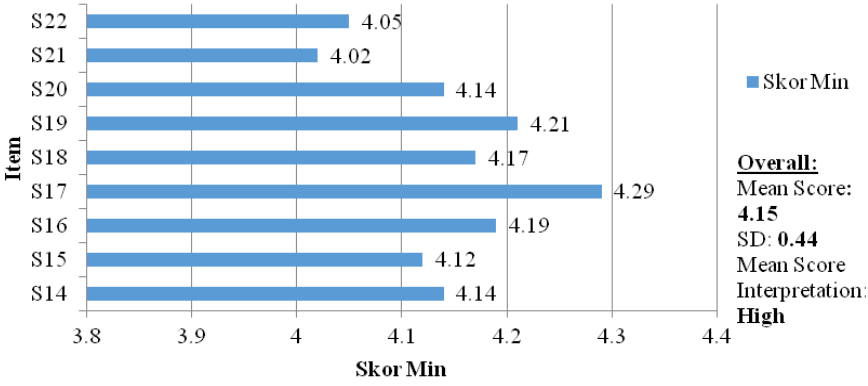


Figure 4: Evaluation of the Participants on the Cultivation of Value of Confidence during the Implementation of m-PAT

Figure 4 shows the students' assessment of the value of 'confidence' while following m-PAT. The results show a mean score representing a high level of agreement, while only two items (S17 and S19) presented a mean score of very high level of agreement. Overall, the findings show that participants involved in the study agree (mean score=4.15; SD=0.44) they have realised the value of confidence during the implementation of m-PAT.

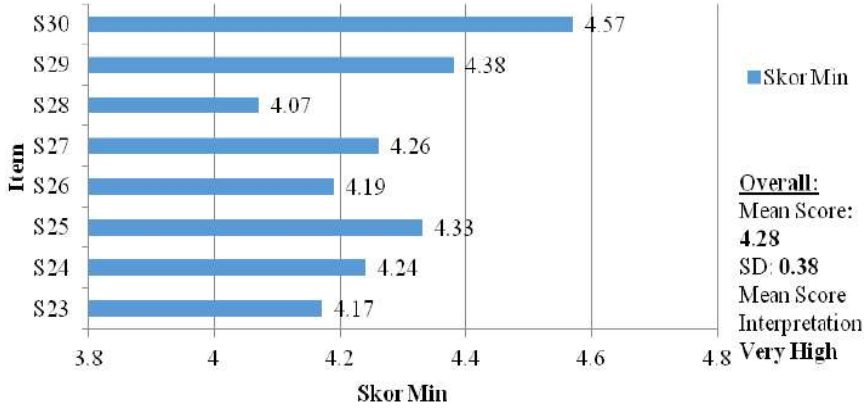


Figure 5: Evaluation of the Participants on the Cultivation of Connection Values during the Implementation of m-PAT

Evaluation of the participants of the study on the cultivation of connection during the implementation of m-PAT is shown in Figure 5. Findings show that five out of eight items have a mean score that represents a very high level of agreement with the items (mean score=4.28; SD=0.38) on the realisation of the value of connection in themselves during the implementation of m-PAT.

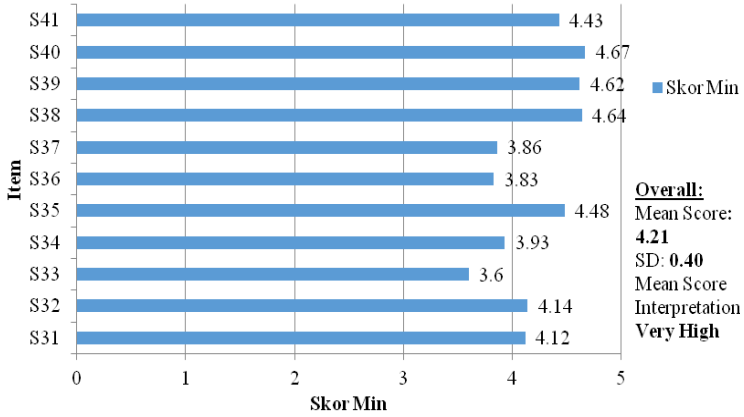


Figure 6: Evaluation of the Participants on the Cultivation of the Values of Positive Character during the Implementation of m-PAT

Figure 6 shows the students' assessment of the positive characterisation of positive values while following m-PAT. According to the result, five out of 11 items show a min score representing a very high level of agreement and the other six items showed a min score representing a high level of agreement. Overall, the findings show that the study's samples provided a very high degree of agreement (mean score=4.21; SD=0.40) towards the cultivation of values of positive character among them during the execution of m-PAT.

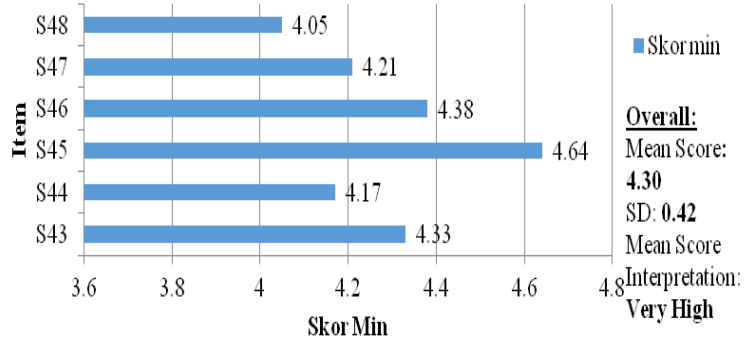


Figure 7: Evaluation of the Participants on the Cultivation of Caring Values during the Implementation of m-PAT

Results on participants' evaluation on the cultivation of caring values in the implementation of m-PAT in Figure 7 shows that majority of the items have a mean score that represents a very high level of agreement while only two items showing a mean score that represents a high level of agreement. Overall findings show that the study participants provided a very high degree of agreement (mean score=4.30; SD=0.42) towards the cultivation of 'caring' values in themselves during the implementation of m-PAT.

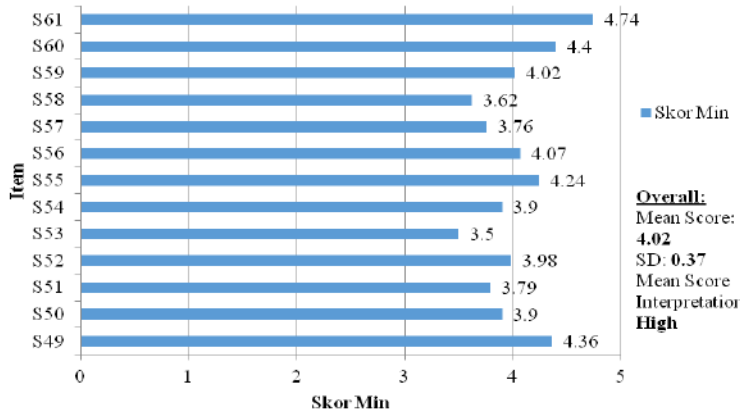


Figure 8: Evaluation of the Participants on the Cultivation of Value of Being Ready to Contribute during the Implementation of m-PAT

Figure 8 shows the evaluation of the study's samples on the cultivation of the value of being 'ready to contribute' during the implementation of m-PAT. Accordingly, four out of 13 items shows mean scores that represent a very high levels of agreement while the rest indicate a mean score which represents a high level of agreement. Overall, the findings show that participants involved in the study provided a high level of agreement (mean score=4.02; SD=0.37) towards the cultivation of the value of 'being willing to contribute' during the implementation of m-PAT.

During the implementation of m-PAT, the participants of the research were asked to write self-reflections at the end of each module. The participants also needed to discuss matters with teachers and friends through chat rooms and forums. Some students were also selected for interview sessions after they completed the activities in m-PAT. Self-reflection texts and discussions of study participants and interview findings were analysed

using thematic analysis to produce matrices related to the 6C's positive value constructs. Theme coding done in thematic analysis has been confirmed by three experts. The findings of the thematic analysis were in line with the findings of the teacher checklist on student work and online activities throughout the implementation of m-PAT. The findings from qualitative data were used to confirm the findings from the descriptive analysis of the questionnaire data. Table 4 shows an example of coding that has been encoded as the 6C's positive value constructs in the thematic analysis.

Table 4: Analysis of the Theme of the 6C's Positive Value Constructs

THEME (Operational Definition)	SUB-THEME (Operational Definition)	Example of Quotes
KOM – COMPETENCE (Positive perspective towards someone's actions in the domains of social, academic, cognitive and vocational)	**VOK – Vocational** (Competent in exploring the technical aspects of online applications such as inserting links, pictures, animations, videos, using chat rooms and forums)	"In Module 1, something I have just learned is how to communicate with partners using the booth and in the forum. This is something new to me …" (R1/e4/P19) "…I am already proficient in technical aspects such as entering links, changing the background colour of blogs, inserting animations, inserting pictures, changing the type of writing, changing the colour of writing and more …" (R3/e4/P14)
	AKD – Academic (Competent in running online projects based on scoring / scoring scheme for good grades)	"I have checked the rubric during this project. This is because I want to meet all the criteria needed for me to get a high mark …" (R4/e4/P17) "Surely I am checking the rubric when running this project because I want to build a good blog and get a high mark …" (R4/e4/P4)
	KGF – Cognitive (Competent in looking and selecting learning information accurately)	"…this activity really made me more adept at looking for information related to the topic of my project …" (R4/e4/P7) "I am also proficient to search for the correct learning by using the Internet versus before …" (R5/e5/P38)
	SOS – Social (Competent in communicating with friends online to solve learning problems)	"…I have also learned how to share the problems I face when implementing this module 1 through chat rooms and learned to share opinions indirectly through forum talks …" (R1/e4/P14) "My ability in getting help from teachers and partners is also getting better than before. Before this, I had not known that we could ask for help directly and indirectly. To me, m-PAT taught me to communicate with my teachers and other friends …" (R5/e4/P14)

YAK – CONFIDENCE (Positive belief in oneself; self-appreciation / self-esteem and self-efficacy)	**HRG – Self-Appreciation** (Positive belief in oneself; self-worth)	"I now feel more confident because I did not think I could follow this programme so now and I feel proud because I have the chance to participate …" (R5/e4/P11) "I am actually shocked that there is actually quite a lot I do not know about building blogs and things like HTML and so when I actually learned about these things I feel quite good about myself …" (R5/e4/P10)
	EFK – Self Efficacy (Belief in one sufficient ability to do online learning)	"The m-PAT project has given me confidence in my ability to learn ways to search for the right information using the Internet …" (R5/e5/P29) "…I feel more confident in myself and think about myself as IT literate. I feel that I can learn something new because this m-PAT itself is something new to me …" (R5/e5/P31)
HUB – CONNECTION (Positive bilateral relationship with other people and institutions such as peers, families, schools and communities)		"…I rarely have the opportunity to help my friends. This is an opportunity for me to connect with them …" (R4/e5/P38) "As a student, I feel that this project can help our classmates to connect closely together to seek information together through cyberspace …" (R4/ e4/P15)

WAT – POSITIVE CHARACTER (Having respect towards the rules and culture of other people, and able to distinguish the good from the bad and having integrity)	**HPR – Respecting Rules** (The willingness to respect and adhere to cultural and community regulations includes virtual rules)	"…till then as long as I had been using the Internet I had never knew that the Internet has a cyber rule that needs to be obeyed to avoid from being a victim in the cyber space. Now I know the rules and I am willing to follow them …" (R5/e4/P13) "Yes I am ready because by following the forum I was able to absorb as many cyber rules as possible. The forum helped me to learn more about cyber rules which is the rules and regulations of the Internet. Only now I realise how important the cyber rules are. And now I know how vital it is to follow these cyber rules ..." (R2/e5/P33)
	AGM – Religious/ Moral Values (Able to distinguish between good and bad (from religious and moral aspects) and integrity)	"In my opinion, the features of unscrupulous web sites that are not worth visiting are web pages that contain pornographic elements. Furthermore, the web has elements towards gambling that is deflected from Islamic law ..." (R2/e4/P3) "...websites that touch racial issues also need not be visited as it may cause racial riots. Websites that condemn leaders and religions should be avoided because they are not good for themselves, families and communities. Finally, websites that have black magic or magic and misleading elements like black metal, gothic and more need to be avoided ..." (R2/e4/P14)

SUM – READY TO MAKE CONTRIBUTION (The tendency of the students to spend time in a range of activities that may be able to measure their productive engagement and may be an indication about their potential contributions to themselves, family members, peers and community)	**SUMd – Contribution to SELF**	"My plans for the future may be that I will create a blog about cakes. I love baking cakes and maybe one day I will open a bakery for selling cakes and promote my cake in the blog …" (R5/e4/P13)
		"…I want to build a blog on subjects that I'm interested in …" (R5/e4/P4)
	SUMk – Contribution to FAMILY MEMBERS	"…I told my siblings about the importance of complying with virtual rules …" (R5/e4/P1)
		"I share this etiquette and cyber rules with my mom, brother and sister. I showed them the consequences of being involved with cybercrime and how scary became victims of cybercrime. They accepted it well…" (R5/e4/P14)
	SUMr – Contribution to PEERS	"I have shared what I learned (Virtual Rules) with my friends at the hostel... because I know most of them staying in dorms have Facebook accounts and some of them are exchanging passwords as they're close friends…" (R5/e4/P12)
		"I have told my friends who are not my classmates about the virtual rules and their interests on the Internet. I know it because my friend is active in chatting as well as having blogs that show about activities in everyday life. I told her to be more careful with the information she shared. This is to avoid being deceived by an unidentified person and thus prevent her from becoming a victim of cybercrime…" (R5/e4/P13)
	SUMkom – Contribution to COMMUNITY	"I plan to continue my blog by uploading different types of useful information that everyone can use …" (R5/e4/P11)
		"…My plan to use the Internet positively in the future is to use social spaces and blogs to share positive and good information to friends and communities…" (R5/e4/P16)

In conclusion, findings from both qualitative (thematic analysis and teacher checklist) and quantitative data were supportive of one another. As a whole, data from this study indicate a high and very high level of students' agreement towards the inculcation of 6C's within themselves during the implementation of m-PAT. Thus, it confirms that the use of m-PAT can inculcate the positive 6C values of competence, confidence, connection, positive characters, caring and willingness to contribute.

DISCUSSION

Findings of this research show that positive values of 6C's were nurtured among students during the implementation of m-PAT based on the high level of students' agreement on the application of the 6C's positive values within them. This finding is further strengthened by the positive feedback of the students through thematic analysis. Moreover, it has been confirmed by a teacher checklist which found that there was a positive 6C's inculcation of values within most students as they followed the implementation of m-PAT.

This result was achieved partly due to the design of the learning environment based on the principles of PPNP in m-PAT, which has succeeded in promoting the inculcation of positive values of 6C's among students, especially in terms of Internet use and online learning. Some of the key features of PPNP created in m-PAT, namely the support of virtual mentors and meaningful learning (active, constructive, collaborative, directional and authentic learning) can stimulate students' competence. This is because a virtual mentor who played a role can provide assistance in all aspects of learning and this can add to the students' competence in the aspect of information retrieval, online technical aspects and social aspects of communicating online. However, the mentor needed to play a role and be trained in advance of their role as a virtual mentor. In meaningful learning, humanitarian assistance is provided in authentic collaborative learning activities through forum discussions. The assistance received from this forum discussion can increase student competence in the aspects discussed. Moreover, the guides and manuals provided in m-PAT are able to help students undergo learning in a directed way to increase their competence. In addition, activities that support active and constructive learning are also provided in m-PAT which is a learning blog development activity. This

allows students to explore their own abilities and thus enhance their own competence.

A literature review that relates to the positive aspect of inculcation of 6C's positive value via online learning activities shows that it has been poorly implemented. Some of the most closely related researches were the study by Milheim (2012) which relates to online learning designs based on Maslow's Hierarchy of Needs model. The study design of Maslow's model is in line with the study of m-PAT regarding the formation of student's competence. Moreover, the design of the present study shows the aspect of online pedagogy that can stimulate the student's self-actualisation by providing student guides (manuals), humanitarian (assistance) and learning tools. These online pedagogy help students to explore their own abilities which is in line with the design elements learning environment in m-PAT.

Subsequently, the principle of PPNP that stimulates the cultivation of confidence value is a safe learning environment and the construction of a virtual community. Feeling safe in online learning is created in m-PAT by pre-project (briefing), providing activities for accessing and exploring m-PAT as well as training on technical aspects of online learning. Moreover, consistent designs and formats (interfaces) of m-PAT were also provided in order to make it easy for the students to get familiar with the format. In addition, students were also given the opportunity to participate in creating collaborative basic rules through virtual community building activities. These activities provided an inclusive climate factor or sense of belonging to the virtual community group. All these aspects, provided a safe and comfortable feeling to the students and thus enhance their confidence in online learning. This finding supports a study by Milheim (2012) which discusses the aspect of students' self-esteem in the aspect of group acceptance. It can be created through an online pedagogy design that provides course preparation in term of briefing, feedback within the support group of learning community, evaluation and promotion of involvement of every member of the learning community within an inclusive climate.

Beside, connection with fellow community members and values of being caring can be enhanced through another aspect of the PPNP principle for example the positive support of the virtual community (including the support of virtual mentors). The positive support of the virtual community

in m-PAT was created through activities that supported social interactions between students with hardware, learning resources, partners and communities in m-PAT. Moreover, positive support among members in the virtual community can enhance the value of being connected and being concerned about in the m-PAT community. This support was able to create a sense of craving for individuals and togetherness in the learning community. This finding is consistent with the study by Abedin *et al.* (2010) who found that a sense of community can be measured based on the individual's sense of cohesion and the awareness of others in the community. Individual relationships emerge emotional relationships such as feelings of love, attitudes, and relationships among members of the learning community. Furthermore, the study of Grandzol and Grandzol (2006) also found that the most important thing in online learning is building a virtual community where the quantity and quality of interaction among members of the learning community can increase the participation of students in learning activities.

In addition, the inculcation of positive characteristically values among students during the m-PAT exercise may be applicable by the presence of cyberspace support which is one of the principles of PPNP embodied in the learning environment of m-PAT. The presence of a cyber mentor has guided the participants in conversations over online, for example, the Internet-related ethics (Netiquette) and cyber-safety references to rules of principle in top-tier communication. This may foster the positive value of the learner in respect of the interactions over which should apply in harmony, offsetting and respectful. In addition, learners were also mentored by a virtual mentor to judge something good or bad. This was also shown in results of previous studies by Bernard *et al*. (2000) and Salmon (2000) that found cyber mentors who play a positive community role by contributing counterfeit coaching can be role models and provide a good example to the learner. This is also in line with the opinion of Lerner *et al*. (2005) who pioneered the Contextual Development Model of PYD (Positive Youth Development) which is used for this m-PAT study. The model state that the necessary environment to foster positive values of 6C's among adolescents is the environment in which a viable relationship exists between teenagers with a committed adult (virtual mentor) who may teach certain skills to teenagers and can promote healthy relationships between adolescents and the environment. In addition, earlier studies by Conrad (2002), Brown (2001), Curtis and Lawson (2001) also found exposure to the Internet ethics (Netiquette) and

cyber safety referring to rules of principle in communication over online may foster values associated with harmonious interaction, toleration and respect among students.

Furthermore, the inculcation of values regarding willingness to contribute also happened among the students when all rest of the five values within the 6C's have been succeeded to be inculcated among the participants. This statement is based on the results of studies by Lerner *et al*. (2003) and Lerner (2004) that indicate, when a teenager showed the realisation of all five constructs of 6C's, then the sixth construct, which is the attitude of willing to contribute (Contribution) to the self and surroundings of the family, community and the surrounding communities, would also be realised.

The above discussion shows that the findings of the present study on the inculcation of 6C's positive values during the implementation of m-PAT are in line with the previous research (Lerner *et al*., 2003; Lerner, 2004) findings. Even though, this study does not examine the direct relationship between PPNP principles and 6C's positive values, the previous research findings provide a considerable amount of overview about the relationship between the two variables as well as support the findings of the m-PAT study.

Overall, this study found that the competence value can be nurtured with the existence of virtual mentor support and meaningful learning environment. While confidence value is created through the existence of a safe learning environment and the construction of a virtual community. Connection and caring values are created with the presence of positive support from the virtual community. Positive characters values are created through the support of virtual mentors as role models and virtual community building activities that provide exposure to ethical and virtual security aspects. Furthermore, the willingness to contribute can be nurtured within the individuals when all other 5C's positive values have been nurtured within the individuals.

CONCLUSION

The findings of the m-PAT study confirmed that the Positive Youth Development approach based on the PYD Contextual Development Model which is often implemented in face-to-face community programmes, can also be implemented in a virtual community environment through an online project-based learning approach. Through an online project-based learning approach, learning environments that support inculcation of positive values (PPNP principles) are able to be created, thus inculcating the positive value of 6C's among students especially on the positive use of the Internet.

The development of such online learning modules can benefit from use of the 1BestariNet network and the VLE Frog platform introduced by Ministry of Education (MOE) (2003) across schools in Malaysia. Implementation of the Online Project-based module that is able to inculcate 6C's positive values using the VLE Frog platform enables the learning approach featured by m-PAT to be implemented extensively and continuously. It is hoped that this will positively influence the use of the Internet among students and indirectly address the problem of Internet abuse among students due to lack of guidance from teachers and parents.

Besides, online project-based learning approaches highlighted, m-PAT also promote student-centred learning and support authentic collaborative activities among students. This collaborative skill is one of the 21st century skills required by students to cope with life and career in the 21st century. The inculcation of 6C's positive values among students especially via Internet usage is expected to produce students who are competent in the technical aspects of online, information retrieval and online communication; confident in managing learning matters and dare to try new things as well as build positive relationships with friends at school and friends in a virtual learning community; have a positive character by following virtual rules and can distinguish good things from the bad in moral and religious aspects; be attentive to friends and be prepared to contribute to the family, the community and the surrounding communities. The positive values of 6C's that are nurtured among students regarding the use of the Internet indirectly develops student manipulative skills in the form of information, media and technology skills (Information, Media and Technology Skills) which is another aspect of the 21st century skills required by students in the face of life and career in the current globalisation.

Finally, findings of this study show an implication that the positive values which has been examined separately by other researchers in the field of online learning, has been successfully combined and nurtured simultaneously and planned in the form of 6C's positive values through online project-based learning module (m-PAT). With more data that can support this study in the future, m-PAT studies can be considered viable and have a bright future especially in the context of national education policies as intended by the Malaysia Education Blueprint (2013-2025). Among them is the implementation of a standard curriculum for primary and secondary schools that emphasizes project-based learning (Paradigm Shift 1); developing students who places significance on values (Paradigm Shift 3); as well as suggestions for educators to supplement learning materials (online) for best practice sharing goals (Paradigm Shift 7). Hence, the results of this study will contribute to enriching the collections of process-oriented online learning materials and integrating values and hence, to be applied in the education world in Malaysia.

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