Adaptability of Information Technology-Based Media in Selected Higher Education Institutions (HEI) in the Philippines

Ralph Sherwin A. Corpuz

Abstract

This study was conducted to determine the factors that influence the IT-adaptability skills of students and faculty members in selected HEIs in the Philippines. It involved a total of 494 respondents with 41 faculty members and 453 IT-related college students, specifically, 44 from De la Salle Araneta University, 233 from Technological University of the Philippines – Manila, 66 from St. Paul University – Manila, 69 from Gordon College – Olongapo City, 44 from Southern Luzon State University – Quezon, and 38 from Don Bosco Technical College – Mandaluyong. The researcher conducted field survey and interview to the respondents during the data gathering process; used Statistical Package for Social Sciences (SPSS) programs in data computation and analysis, in which, specifically used descriptive statistics and the multiple regression analysis for hypothesis testing. The study concluded that (1) the smaller the school size is, the higher the level of adaptability of the respondents; (2) the higher the educational attainment of a faculty is, the more he/she can contribute to the level of adaptability of students; (3) faculty members who have worked in a HEI recently can contribute more to the level of adaptability of students; (4) the older the faculty is, the more he/she can influence the adaptability skills of students; (5) female faculty members can contribute more to the adaptability of students than the males; (6) the higher the academic rank of the faculty is, the more he/she can contribute to the adaptability skills of students; (7) respondents whose courses are Information Technology and Computer Science are more adaptable than those of other IT-related courses; (8) the higher the year level of the student is, the higher the level of adaptability to IT-based media; (9) the following IT-based media contribute to the level of adaptability of the respondents, namely: for Faculty Members – Email/social sites; Chat; E-books; Computer unit; Internet connectivity; for Students – Chat and Online worksheets.

Keywords: IT Adaptability, Educational Technology

Corresponding Author. Instructor 1 Tel.: +63 925 628 3641
E-mail address: ralphsherwincorpuz@icloud.com
Introduction

The modern era has brought a momentous success in human civilization – the fast-paced proliferation of technology and the promising glimpse of convenient, comfortable living of tomorrow. Welcome to the 21st century’s digital age, where everything is now touch-based, visual, interactive, and fun. Today, change is the constant and its survival depends upon innovation, flexibility, and an adaptive mind-set (Drucker, 1985, 1988; Kanter, 1983).

Information Technology is a key enabler of change and nowhere is change more pervasive than in the Information and Communication Technology (ICT) workplace (Freeman & Aspray, 1999; Gallivan, 2004; Straub & Watson, 2001). It thrives on innovation and the past few decades have witnessed the innovation imperative progress inexorably upward in the scale of organization imperatives, from desirable through essential, to a necessity for survival (Cairo et al., 1996; Freeman & Aspray, 1996).

However, not everybody is equally well equipped to deal with constant change for which some people find it difficult to cope up in highly unstable, changing environments. In the academe, educators are continually reminded that the world is rapidly changing and that they must adapt the curricula and pedagogy to prepare the students for jobs that do not yet exist. Global society, international competitiveness, technology-driven workplace—such phrases abound and shape the upcoming educational environment and the mission of schools (Ahmes, 2008). The surge of new technologies and social media is altering the media landscape for which convergence is everywhere. It is easier than ever to reach a large audience, but harder than ever to really connect with it and these changes are affecting the way people behave unfortunately (Economist’s Third Annual Media Convergence Forum, 2009).

According to Prensky (2001), today’s students (Digital Natives) are no longer the people our educational system has been designed to teach. They are instantaneous, information saturated, wired. They think and process information fundamentally different from their predecessors (Digital Immigrants). They are active learners; they require information to be relevant, non-linear, and visual. The digital world has wired the modern students differently, thus, making them incredibly sophisticated. The availability of the Internet has conditioned them to ask questions and get answers instantaneously, which is a far cry from the card catalogue and encyclopaedias most digital immigrants grew up with (Gandhi, 2009). This is the first generation of students who are more proficient with technology than their teachers are (Moe, 2009). Teachers who fumble with technology may struggle to persuade students that the information they’re presenting is
worthwhile (Rudi, 2009), thus this calls for their challenge to prepare the students to be more imaginative, creative, entrepreneurial and have the capacity for “high touch” abilities such as compassion, personal rapport, social interaction, and caring and helping others (Ahmes, 2008).

This study focused on determining at what extent do students and faculty compliment with each other in terms of adaptability to various IT-based media, thus improving the teaching and learning experiences, and what specific predictors could help them one way or another. Could schools and universities adequately prepare people and their children for the future (Young, 2012)? Should these Digital Natives learn the old ways, or should their Digital Immigrant educators learn the new?

Statement of the Problem

The study sought to determine the level of adaptability of faculty members and students in selected Higher Education Institutions in the Philippines to various IT-based instructional media used at home and school. Specifically, it sought answers to the following questions:

1. What is the socio-demographic profile of the respondents in terms of:
   A. Faculty Members
      i. Age
      ii. Gender
      iii. Length of Service
      iv. Academic Rank
      v. Highest Educational Attainment
      vi. Major or Field of Specialization
      vii. Income Level
   B. Students
      i. Age
      ii. Gender
      iii. Number of Units Enrolled
      iv. Year Level
      v. Major or Field of Specialization
      vi. Occupations of Parents/Guardians
   C. Available IT-based Media used at Home and School
      i. Hardware
      ii. Software
   D. School Size
2. What is the perception of the respondents to their level of adaptability to the IT-based media in terms of:
   i. Availability
   ii. Mobility
   iii. Cost-Effectiveness
   iv. Interface

3. Which of the following socio-demographic status contribute to the level of adaptability of IT-based media:
   i. Faculty Socio-Demographic Status
   ii. Students’ Socio-Demographic Status
   iii. Available IT-Based Media
   iv. School Size

Research Paradigm

The research paradigm of the study was based on the Independent Variable (IV) – Dependent Variable (DV) Model as shown on Figure 1 below:

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLES (IV)</th>
<th>DEPENDENT VARIABLE (DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respondents’ Socio-Demographic Profiles</td>
<td>1. Level of Adaptability</td>
</tr>
<tr>
<td>A. Faculty Members</td>
<td>• Availability</td>
</tr>
<tr>
<td>• Age</td>
<td>• Mobility</td>
</tr>
<tr>
<td>• Gender</td>
<td>• Cost-Effectiveness</td>
</tr>
<tr>
<td>• Length of Service</td>
<td>• Interface</td>
</tr>
<tr>
<td>• Academic Rank</td>
<td></td>
</tr>
<tr>
<td>• Highest Educational Attainment</td>
<td></td>
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<tr>
<td>• Major Field of Specialization</td>
<td></td>
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<tr>
<td>• Income Level</td>
<td></td>
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<tr>
<td>B. Students</td>
<td></td>
</tr>
<tr>
<td>• Age</td>
<td></td>
</tr>
<tr>
<td>• Gender</td>
<td></td>
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<tr>
<td>• Number of Units Enrolled</td>
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<tr>
<td>• Year Level</td>
<td></td>
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<tr>
<td>• Major Field of Specialization</td>
<td></td>
</tr>
<tr>
<td>• Occupation of Parent/Guardian</td>
<td></td>
</tr>
<tr>
<td>2. Available IT-Based Media at Home and School:</td>
<td></td>
</tr>
<tr>
<td>A. Hardware</td>
<td></td>
</tr>
<tr>
<td>• Computer Unit</td>
<td></td>
</tr>
<tr>
<td>• LCD Projector</td>
<td></td>
</tr>
<tr>
<td>• Mobile Phones</td>
<td></td>
</tr>
<tr>
<td>• Internet Connectivity</td>
<td></td>
</tr>
<tr>
<td>B. Software</td>
<td></td>
</tr>
<tr>
<td>• Chat</td>
<td></td>
</tr>
<tr>
<td>• Online Worksheets</td>
<td></td>
</tr>
<tr>
<td>• Email/Social Networking Sites</td>
<td></td>
</tr>
<tr>
<td>• E-books</td>
<td></td>
</tr>
<tr>
<td>3. School Size</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. The Research Paradigm
Research Hypothesis

The study postulated that the following factors, singly or in combination, could contribute to the level of adaptability of IT-based media of the respondents, namely: (1) Socio-Demographic Status; (2) Available IT-based Media used at Home and School; and (3) School Size.

Methodology

The study was a descriptive analytical research that utilized the multiple regression analysis in predicting the relationship between the independent variables – respondents’ socio-demographic status, available IT-based media, and school size, and the dependent variable – level of adaptability in terms of availability, mobility, cost-effectiveness, and interface.

The faculty and students respondents from various Higher Education Institutions (HEIs) working or studying under IT-related programs, were selected through random sampling method. Table 1 shows the distribution of respondents as of first semester of School Year (SY) 2012-2013, in which, 41 (27.33%) out of 150 faculty members and 453 (17.76%) out of 2550 students have joined the research survey. Overall, there were 494 respondents of the study, which constituted to 18.30% of the total population of the 6 selected Higher Education Institutions.

Table 1  Population and Sample Respondents

<table>
<thead>
<tr>
<th>Higher Education Institution</th>
<th>Faculty Population</th>
<th>Faculty Sample</th>
<th>Student Population</th>
<th>Student Sample</th>
<th>Total Population</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>De la Salle Araneta University – Caloocan</td>
<td>11</td>
<td>4</td>
<td>131</td>
<td>40</td>
<td>142</td>
<td>44</td>
</tr>
<tr>
<td>Technological University of the Philippines – Manila</td>
<td>72</td>
<td>16</td>
<td>1169</td>
<td>217</td>
<td>1241</td>
<td>233</td>
</tr>
<tr>
<td>St. Paul University – Manila</td>
<td>8</td>
<td>6</td>
<td>104</td>
<td>60</td>
<td>112</td>
<td>66</td>
</tr>
<tr>
<td>Gordon College – Olongapo City</td>
<td>20</td>
<td>7</td>
<td>655</td>
<td>62</td>
<td>675</td>
<td>69</td>
</tr>
<tr>
<td>Southern Luzon State University – Quezon</td>
<td>21</td>
<td>4</td>
<td>217</td>
<td>40</td>
<td>238</td>
<td>44</td>
</tr>
<tr>
<td>Don Bosco Technical College - Mandaluyong</td>
<td>18</td>
<td>4</td>
<td>274</td>
<td>34</td>
<td>292</td>
<td>38</td>
</tr>
<tr>
<td>Overall Total</td>
<td>150</td>
<td>41</td>
<td>2550</td>
<td>453</td>
<td>2700</td>
<td>494</td>
</tr>
</tbody>
</table>

Percentage 27.33 17.76 100 18.30
The research utilized a survey questionnaire as the chief instrument in gathering data, supported by pertinent school size documents obtained from the Higher Education Institutions as of first semester of School Year 2012-2013. Follow up surveys were also conducted to key people in the HEIs to validate the results of the survey obtained. The data gathered were coded and computed using Statistical Package for Social Sciences (SPSS) version 17, for which specifically, the following tools and techniques were employed in the interpretation of the results of the study: (1) the descriptive statistics for the computation of the mean, mode, minimum, maximum, sum, frequency, percentage, and standard deviation; (2) matching sampling technique in obtaining the internal validity of responses among students who are under a specific faculty respondent; (3) categorical dummy variable treatment as reference in interpreting the relationship between the available IT-based media and the adaptability levels of the respondents; (4) and the multiple regression analysis for identifying the contributors of adaptability, which has been used to test the validity of the hypothesis assumed.

Results and Discussion

After thorough data analysis and interpretation, the following results have been summarized to validate the objectives of the study, namely:

1. The modal socio-demographic profile of a faculty respondent is 29 years of age, female, has length of service of 3 years, has an Instructor academic rank, a Master’s degree holder, majoring in Information Technology and Computer Science fields, and has gross family monthly income of 30,000 pesos.

2. The modal socio-demographic profile of a student respondent is 18 years of age, male, has earned 26 units during the first semester of School Year 2012 – 2013, second year level, majoring in Information Technology and Computer Science, and has parent/guardian who is a skilled worker.

3. In terms of IT-based media used at home and school, most of the faculty and student respondents have mobile phones (hardware) at home and e-books (software) at home.

4. In terms of school size or the total faculty and students’ population, De la Salle Araneta University – Caloocan has 2488, Technological University of the Philippines – Manila has 14892, St. Paul University – Manila has 1847, Gordon College – Olongapo City has 3077, Southern Luzon State University – Quezon has 1990, and Don Bosco Technical College has 1095, respectively.
5. In terms of availability, the respondents generally perceived that the IT-based media used at home and school are “sometimes to often” available ($\bar{x} = 3.81$). Specifically they agree that “sometimes to often”, in school, an IT-based medium is readily available whenever it is needed ($\bar{x} = 3.67$); it is properly maintained and cared ($\bar{x} = 3.83$); it is immediately replaced if defective ($\bar{x} = 3.32$); and there is a reasonable number of people who share the IT-based medium in school at the same time ($\bar{x} = 3.89$). “Often to very often”, the respondents are allowed to use IT-based media in the classroom ($\bar{x} = 4.11$) and such that there are also shops that offer or sell IT-based media near school ($\bar{x} = 4.05$).

6. In terms of mobility, the respondents generally agree at “moderate to great extent” ($\bar{x} = 3.73$) that IT-based media are definitely mobile and can be helpful anytime at either home or school. Specifically, the respondents perceived that at “great to very great extent”, they study using IT-based media at school ($\bar{x} = 4.05$); they make sure at “moderate to great extent” that they stay connected online wherever they go ($\bar{x} = 3.45$). Likewise, at “moderate to great extent”, they perceived that in using IT-based media, they are able to access school materials/references even at home ($\bar{x} = 3.64$), they able catch up on lectures and submit requirements online ($\bar{x} = 3.69$), and they can communicate with their colleagues even IT-based media even after class ($\bar{x} = 3.92$).

7. In terms of cost-effectiveness, the respondents agree at “great to very great extent” ($\bar{x} = 4.27$) that IT-based media are generally more efficient compared to the old-style instructional materials. In details, the respondents “agree to strongly agree” that IT-based media are more cost-effective than the traditional method of teaching or storing information ($\bar{x} = 4.25$); IT-based communications are usually time-efficient ($\bar{x} = 4.36$); IT-based media are practical and useful ($\bar{x} = 3.85$); and IT-based media save time on preparing instructional materials ($\bar{x} = 4.45$). On the other hand, however, the respondents perceived to be “uncertain to agree” in the idea that they would prefer using e-books than the old-type textbooks ($\bar{x} = 4.55$).

8. In terms of interface, the respondents perceived at “great to very great extent” ($\bar{x} = 4.40$) that IT-based media are generally user-friendly and can yield positive factors toward their work and studies. Specifically, the respondents “agree to strongly agree” that IT-based media (i.e., laptops) are user-friendly ($\bar{x} = 4.59$); IT-based media increase motivation to study/to work ($\bar{x} = 4.47$); IT-based media are interactive ($\bar{x} = 4.38$); IT-based delivery of lessons (i.e. visual presentations) is fast-paced ($\bar{x} = 4.42$); IT-based delivery of lessons (i.e. visual presentations) is easily adaptive ($\bar{x} = 4.39$); and IT-based media increase high memory retention ($\bar{x} = 4.21$).
9. The level of adaptability of the faculty members ($X = 4.22$) is interpreted as “high to very high”, while the students ($X = 3.91$) are interpreted as “moderate to high”. The grand mean of 4.05 suggests that the respondents are generally adaptable at “high to very high” level.

Table 2
Regression of Level of Adaptability to the Independent Variables

<table>
<thead>
<tr>
<th>Contributors</th>
<th>B</th>
<th>β</th>
<th>T-Value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. School size</td>
<td>-3.41</td>
<td>-.508</td>
<td>-11.067</td>
<td>.000</td>
</tr>
<tr>
<td>2. Student’s year level</td>
<td>.062</td>
<td>.161</td>
<td>4.699</td>
<td>.000</td>
</tr>
<tr>
<td>3. Faculty’s highest educational attainment</td>
<td>.042</td>
<td>.102</td>
<td>2.2671</td>
<td>.008</td>
</tr>
<tr>
<td>4. Faculty’s length of service</td>
<td>-.030</td>
<td>-.532</td>
<td>-7.770</td>
<td>.000</td>
</tr>
<tr>
<td>5. Faculty’s age</td>
<td>.021</td>
<td>.333</td>
<td>5.493</td>
<td>.000</td>
</tr>
<tr>
<td>6. Student’s major</td>
<td>-.539</td>
<td>-.425</td>
<td>-7.384</td>
<td>.000</td>
</tr>
<tr>
<td>7. Faculty’s major</td>
<td>-.170</td>
<td>-.185</td>
<td>-5.253</td>
<td>.000</td>
</tr>
<tr>
<td>8. Faculty’s gender</td>
<td>-.096</td>
<td>-.111</td>
<td>-3.616</td>
<td>.000</td>
</tr>
<tr>
<td>9. Faculty’s academic rank</td>
<td>.142</td>
<td>.201</td>
<td>4.154</td>
<td>.000</td>
</tr>
<tr>
<td>10. Available IT-based media</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.1. Faculty’s available email/social networking media at home</td>
<td>.309</td>
<td>.311</td>
<td>7.907</td>
<td>.000</td>
</tr>
<tr>
<td>10.2. Faculty’s available chat media at school</td>
<td>.176</td>
<td>.205</td>
<td>4.964</td>
<td>.000</td>
</tr>
<tr>
<td>10.3. Student’s available chat media at school</td>
<td>.113</td>
<td>.131</td>
<td>3.956</td>
<td>.000</td>
</tr>
<tr>
<td>10.4. Student’s available online worksheets at home</td>
<td>.086</td>
<td>.101</td>
<td>3.341</td>
<td>.001</td>
</tr>
<tr>
<td>10.5. Student’s available online worksheets at school</td>
<td>.068</td>
<td>.071</td>
<td>2.241</td>
<td>.026</td>
</tr>
<tr>
<td>10.6. Faculty’s available mobile phones at school</td>
<td>-.141</td>
<td>-.157</td>
<td>-4.426</td>
<td>.000</td>
</tr>
<tr>
<td>10.7. Faculty’s e-books media at school</td>
<td>.162</td>
<td>.153</td>
<td>3.057</td>
<td>.002</td>
</tr>
<tr>
<td>10.8. Faculty’s available LCD projector at home</td>
<td>-.246</td>
<td>-.162</td>
<td>-4.401</td>
<td>.000</td>
</tr>
<tr>
<td>10.9. Faculty’s available computer unit at school</td>
<td>.306</td>
<td>.206</td>
<td>4.617</td>
<td>.000</td>
</tr>
<tr>
<td>10.10. Faculty’s available internet connectivity at home</td>
<td>.201</td>
<td>.170</td>
<td>4.452</td>
<td>.000</td>
</tr>
</tbody>
</table>

(\textit{Constant} = 2.77)  
Adjusted R Square = .665  
F = 48.300  
Significance of F = .000

10. The contributors to the respondents’ level of adaptability, as shown on Table 2, include (1) school size ($\beta = -.508; p = .000$); (2) student’s year level ($\beta = .161; p = .000$); (3) faculty’s highest educational attainment ($\beta = .102; p = .008$); (4) faculty’s length of service ($\beta = .532; p = .000$); (5) faculty’s age ($\beta = .333; p = .000$); (6) student’s major ($\beta = -.425; p = .000$); (7) faculty’s major ($\beta = -.185; p = .000$); (8) faculty’s gender ($\beta = .111; p = .000$); (9) faculty’s academic rank ($\beta = .201; p = .000$); and (10) available IT-based media at home and school, which is further characterized by ten specific predictors such as (10.1) faculty’s available email/social networking media at home ($\beta = .311; p = .000$); (10.2) faculty’s available chat media at school ($\beta = .205; p = .000$); (10.3) student’s available chat media at school ($\beta = .131; p = .000$); (10.4) student’s available online worksheets at home ($\beta = .101; p = .001$); (10.5) student’s available online worksheets at school ($\beta = .071; p = .026$); (10.6) faculty’s available mobile phones at school ($\beta = -.157; p = .000$); (10.7) faculty’s e-books media at school ($\beta = .153; p = .002$); (10.8) Faculty’s available LCD projector at home ($\beta = -.162; p = .000$); (10.9) faculty’s available computer unit at
school (β = .206; p = .000); and faculty’s available internet connectivity at home (β = .170; p = .000).

11. The adjusted R square of .665 confirms that the school size, students’ year level, faculty’s highest educational attainment, faculty’s length of service, faculty’s age, students’ major, faculty’s major, faculty’s gender, faculty’s academic rank, and available IT-based media can explain as much as 66.5% of any change in the level of adaptability of the respondents. The F-value of 48.300 and significance level of .000 indicate the strength of those 10 independent variables in predicting the level of adaptability of the respondents.

**Conclusions and Recommendations**

Based on the statistical findings, the hypothesis of the study, which stated that the respondents’ socio-demographic status, available IT-based media, and school size, singly or in combination contribute to the level of adaptability has been partly sustained. For that, the study further supported the following conclusions:

1. The smaller the school size is, the higher the level of adaptability of the respondents.

2. The higher the educational attainment of a faculty is, the more he/she can contribute to the level of adaptability of students.

3. Faculty members who have worked in a Higher Education Institution recently can contribute more to the level of adaptability of students.

4. The older the faculty is, the more he/she can influence the adaptability skills of students.

5. Generally, female faculty members can contribute more to the adaptability of students than the males.

6. The higher the academic rank of the faculty is, the more he/she can contribute to the adaptability skills of students.

7. Respondents whose courses are Information Technology and Computer Science are more adaptable than those of other IT-related courses.

8. The higher the year level of the student is, the higher the level of adaptability to IT-based media.
9. The following IT-based hardware and software media, as they are available at home and/or school, contribute to the level of adaptability of the respondents, namely:
   a. Faculty Members
      - Email/social networking sites at home
      - Chat media at school
      - E-books media at school
      - Computer unit at home and school
      - Internet connectivity at home
   b. Students
      - Chat media at school
      - Online worksheets at home
      - Online worksheets at school

References


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