

The following pages present a brief estimation of the extent to which SRI International's evaluation of the Palm Education Pioneers Program satisfies portions of the Program Evaluation Standards (2<sup>nd</sup> ed). The paper is broken into six parts: a brief program evaluation description, and an explanation of the five standards that appeared to have been substantially satisfied by the SRI evaluation (including evidence from SRI's Final Evaluation Report).

**Program Description.** The Palm Education Pioneers Program was a 2001-2002 research program designed to discover and record K-12 educator's experiences using handheld PDA technology in a broad variety of classroom settings. The PEP Program was not designed to bring about specific changes or improvements in classrooms but to act as an "evaluation of handheld technology" as a tool for education in general.<sup>1</sup> The goals of the program were to provide objective research for others to make decisions with, to offer ideas for future uses of handhelds, and to collect the advice of teachers on using palm pilots in the classroom.<sup>2</sup> The PEP program involved 102 classroom teachers using class sets of Palm Pilots in a variety of ways in classes ranging from science to ESL. SRI's evaluation of the project sought to record, (a) teachers own estimations of handheld technology in the classroom, (b) strategies/difficulties in implementing handheld technology into learning and teaching, (c) approaches to assigning handheld devices to students, and (d) ways to manage/control student usage in and out of class. The project ran for two school semesters and involved over 425 students.

**Standards Clearly Addressed in the PEP Study.** Following are five of the Program Evaluation Standards that appeared to be clearly addressed by SRI as they evaluated the PEP program.

**1.(U3) Information Scope and Selection** – one of the primary strengths of the PEP program evaluation document was in revealing how many sides of the handhelds-in-education

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<sup>1</sup> Palm Education Pioneers Program, *Final Evaluation Report*. SRI International, p1.

<sup>2</sup> Ibid, p1.

issue were examined. The program scope was wide enough that even as a 70 page article, the *Final Report* could only give summaries of certain aspects of the study.

The scope of the project can be illustrated by listing a few of the facets studied in the PEP program. Examples would include: (a) Looking at the effects of handheld computers at different grade levels.<sup>3</sup> (b) Assessing which subject areas seemed to find handheld computers most useful.<sup>4</sup> (c) Considering what aspects of classroom life and student experiences were most affected by handheld computers.<sup>5</sup> (d) Difficulties and shortcomings of the hardware itself.<sup>6</sup> (e) Noting behavioral and parental issues connected with using handheld devices.<sup>7</sup> (f) The study even looks at the peripheral devices and software that educators deemed essential to making the handhelds truly effective.<sup>8</sup>

Unlike many programs, the PEP program seems to be build on the back of stakeholders input. Page three tells us that “the core of the PEP evaluation study was the PEP teacher questionnaires,” including many open ended responses.<sup>9</sup> Thus scope matches stakeholder perspectives.

Unfortunately we are not told if the study aligned to the goals of the company the funded this project. Since SRI both administered and created the surveys, I assume that the primary stakeholder (project funding source) was consulted on the scope of information to be collected.

The one sphere of information that did not seem to be strongly addressed (it is hinted at in passing comments) is the capacity of schools and teachers to afford handheld computers. Budgets and low pay bar educators from using many classroom resources. Since educators are primary stakeholders, I am surprised this concern of theirs did not find a place in the PEP study.

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<sup>3</sup> Ibid, p9, 36.

<sup>4</sup> Ibid, p10.

<sup>5</sup> Ibid, p11-13.

<sup>6</sup> Ibid, p37, 46.

<sup>7</sup> Ibid, p47, 53-57.

<sup>8</sup> Ibid, p25, 33.

<sup>9</sup> Quotations of ended responses make up a large part of the Final Report itself.

**2. (U5) Report Clarity** – Wisely, SRI has written its evaluation of teachers and handheld devices in language that teachers can understand. This should go a long way to usage and reception of the report among teachers and public school personnel. In 70 pages of the Final Evaluation Report, I only came across one spot (p57-58) that was difficult to comprehend. There is a striking absence of technical or statistical jargon throughout the entire document. The report reads like a good magazine article, even to the point of including enlarged breakout “quotations” typically found in layman books and literature.<sup>10</sup>

In addition to being very readable, the evaluation report is full of clear and attractive charts that illustrate quantitative aspects of the study. The charts include clear phrases, numerical percentages that correspond to extremely helpful color-coded bars, titles and color legends. It was clear the authors took the extra step to make the charts attractive and crisp.

While the U5 standard calls for brevity, the breadth of this study makes that unfeasible. As a result, the document layout of the study, although lengthy, was a good format. Attempting to present this information in any other form other than a lengthy document or documentary video would probably be less effective. For example, a verbal presentation covering this much information runs the risk of being very dry.

A direct application of the U5 “Report Clarity” standard is the use of examples to communicate findings to stakeholders. The Final Report is full of direct quotations from stakeholder teachers. Explicit examples are built into the teach chapter of the report under the title of “PEP Projects: A Closer Look.”<sup>11</sup>

**3. (P1) Service Orientation** – It is the opinion of this paper's author that the very existence of the PEP program and evaluation fulfills the P1 standard. SRI staff clearly state that the actual purpose behind the study was to give others an objective tool to use in making decisions before diving into the world of handheld computers. Additionally, they aim to share

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<sup>10</sup> See page 7 example: “Approximately 90% of PEP teachers stated that...” etc.

<sup>11</sup> Ibid., p 6, 20, 34, 43, 59.

ideas and provide advice to teachers. The clarity (see U5 above) of the report supports this. While not stated in the SRI Report, it appears that a company benevolently donated thousands of dollars to run and evaluate the PEP program for the benefit of educators in general as opposed to company profits and advancements.<sup>12</sup>

Nearly every one of the “Standards” A-H recommendations for P1 are visible in this program. (A) “Promoting excellence in education” is another way of stating the primary aim of the PEP study on page 1 of the report. (B) The stakeholders could hardly have not been “aware of the purposes of the evaluation” and benefited from it directly. (C) The very nature of the study is built around “program features most likely to affect participants” (i.e. how do handheld computers effect education!). (D) Intended and unintended effects on learners were described for the benefit of future educators. ... (H) The proposal/award based structure of the study ensured that the project was built around the classroom teachers goals for using the handheld devices and did not interrupt (but enhanced) instruction.<sup>13</sup>

**4. (P5) Complete and Fair Assessment** – Unlike the evaluation of highly political programs, the PEP program (being more “exploratory” in purpose) more readily lends itself to being described in terms of both strengths and weaknesses. The evaluation was not of a department, process, course, or even a specific product. Instead it was of a “type” of technology. Revealing shortcomings and weaknesses, as well as the strengths and advantages of handheld computers in education was a purpose for the program in the first place.

Interestingly the type of charts used very clearly showed both the positive and negative side of opinions teachers held about aspects of handheld computers in their classrooms. SRI could have easily stated only the percentages of educators voting one way or the other on an issue (such that detractors from that point would have been less obvious). Instead their color coded graphics, make it easy to see exactly who stood where on what issue; pro and con.

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<sup>12</sup> It is entirely possible that the grant was made possible by Palm Pilot or Pocket PC manufactures to open new markets in the education sector. Even if this was the case, the study still fulfills the P1 standard.

<sup>13</sup> Ibid., p2.

Since the general purpose of the study “seems” to be to promote handheld usage, it is worthwhile to point out where the negatives of handhelds are mentioned. Page 32 of the report clearly lists five drawbacks of using handhelds. Page 37 includes a large chart clearly ranking eight technical problems experienced using handhelds, while page 46 charts an whopping sixteen problems in a way that allows readers to see which of the problems were most and least experienced by teachers. For example, 30.7% of teachers experienced “many problems” with repairing or replacing damaged and malfunctioning equipment.<sup>14</sup> Earlier portions of the report, list subject areas that teachers indicated were most and least likely to be improved by handhelds.<sup>15</sup> Page 13 contains a chart showing which aspects of learning activities handhelds did and did not improve. All in all, the negatives and positives were both presented.

**5. (A5) Valid Information** – Although not as clearly applied as the preceding four standards, there is a distinct component of this study that highlights its validity. Due to the purpose of the study being to “discover” the potential or the pro’s and con’s of handhelds in the classroom it was vital that a wide variety of classrooms be examined. The study could have examined only a large number of high school classes, or only the math subject area from elementary to high school. Had this been the case, the PEP study conclusions could have been open accusations of weak validity due to the neglect of various realms of K-12 world. Yet the PEP study looked at the handheld computer from enough angles to make their conclusions believable. The study considered (a) student age groups ranging from the elementary to high school level, (b) over twelve subject areas, (c) four different ways to distribute/assign handheld usage to students (d) a full school year of usage, as well as (e) schools drawing their population from urban/rural/suburban/public/private demographic groups. This wide horizontal sampling effectively shuts off the PEP study conclusions from accusations like, “These findings are probably only true for private schools,” or “I doubt the same would be true in high school

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<sup>14</sup> Ibid., p 46.

<sup>15</sup> Ibid., p 10.

classes.” While one could certainly challenge the validity of handhelds values in any one subject or grade, the overarching claim that handhelds have a bright future in education is hard to dispute after hearing from so many corners of the education word.

While the PEP report seems to only directly quote information from two sources (teacher surveys and open ended responses), we are told that several different strategies were used to collect data: teacher surveys, open ended questions, student surveys, and self evaluation reports.<sup>16</sup> While these approaches may seem less “sophisticated” than others, the SRI team gives a believable rationale for their selection of these study tools.<sup>17</sup> Either way, using the multiple strategies that they did strengthens validity.

In conclusion, the PEP program appears to provide a great start into the investigation of handheld computers role in school classrooms. The report was characterized by breadth of focus, clear communication, benevolent purpose, fair treatment of the issues, and believable conclusions. What is also noticeable is that since the PEP study was more like a research project exploring uncharted (undocumented) waters, many of the Program Evaluation Standards do not seem to apply as they would to a program that claimed to deliver certain concrete results in knowledge, skills, or attitudes. For this reason, it is the authors opinion that carrying out this same assignment on a program of the latter type may be more helpful in helping him to learn Program Evaluation Standards than on an open ended research study like the PEP program.

**(SEE NEXT PAGE FOR STANDARDS TABLE)**

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<sup>16</sup> Ibid., p 3-4.

<sup>17</sup> Ibid., p 3.

# Application of Evaluation Standards

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	<i>The standard was addressed</i>	<i>The standard was partially addressed</i>	<i>The standard was not addressed</i>	<i>The standard was not applicable</i>
U1 Stakeholder Identification	X			
U2 Evaluator Credibility		X		
U3 Informatin Scope and Selection	X			?
U4 Values Identification		X		
U5 Report Clarity	X			
U6 Report Timeliness and Dissemination		X		
U7 Evaluation Impact			X	
F1 Practical Procedures		X		
F2 Political Viability			X	
F3 Cost Effectiveness			X	
P1 Service Orientation	X			
P2 Formal Agreements			X	
P3 Rights of Human Subjects				X
P4 Human Interactions				X
P5 Complete and Fair Assessment	X			
P6 Disclosure of Findings			?	X
P7 Conflict of Interest				X
P8 Fiscal Responsibility				X
A1 Program Documentation		X		
A2 Context Analysis	?	X		
A3 Described Purposes and Procedures		X		
A4 Defensible Information Sources		X		
A5 Valid Information	X			
A6 Reliable Information	?	X		
A7 Systematic Information				X
A8 Analysis of Quantitative Information		X		
A9 Analysis of Qualitative Information		X		
A10 Justified Conclusions	X			
A11 Impartial Reporting	X			?
A12 Metaevaluation		X		?