IBM's *Learning Village* from a Teacher's Perspective:
An Evaluation of *Learning Village* as an Electronic Performance Support System

Rob Power
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Introduction:

The evaluation of an Electronic Performance Support System (EPSS) could be seen as a two-stage process. The first stage would be to gauge a particular system or package's ability to meet the requirements of an EPSS in general – its ability to fit the definition of an EPSS. The second stage would be to look at the specific performance supports needed by users of the system, and to gauge the ability of the system to meet those demands – its ability to do what it is needed to do.

Electronic Performance Support Systems were originally developed for the business sector. However, efforts have been undertaken to adopt this use of technology for the purposes of education systems. IBM's *Learning Village* could be seen as an example of this. To

determine whether or not *Learning Village* is a successful example of an EPSS, it is necessary to compare it to the criteria of what an EPSS entails, and to evaluate its ability to meet the requirements of a typical user, such as a teacher. Further, because of *Learning Village*'s highly adaptable, customizable nature, it would also be helpful to take a close look at an example of how it has been implemented within an actual educational community. Such an evaluation would be useful in gaining a better understanding of the effectiveness of *Learning Village* as an EPSS, from a user's point-of-view. It would also help in developing an understanding of how *Learning Village* could be improved, and how users could improve their implementations of *Learning Village*, to increase its effectiveness as an EPSS for educators.

Part 1: *Learning Village* as an EPSS

IBM's *Learning Village* is a powerful, highly adaptable system. But does it qualify as an Electronic Performance Support System? And is it effective as an EPSS, from the point-of-view of a teacher? To answer these questions, it is necessary to look at what *Learning Village* is, how and why it was created, and what performance supports it actually provides. It is also necessary to compare *Learning Village* to the definition of an EPSS, and to evaluate it, from the point-of-view of an educator, against the criteria of an effective EPSS, and the types of supports needed by a typical user, such as a teacher.

What is IBM's *Learning Village*?

According to IBM, *Learning Village* is a performance support system designed to be a flexible, web-based framework that utilizes a number of tools to help strengthen instruction and ties between the school and the community (IBM, 2000, *a, b, c*). *Learning Village* is an initiative

that grew out of IBM's own *Reinventing Education* grant program, and that is aimed at providing funding, consulting and technology to help resolve modern educational challenges (*Ibid*.). *Learning Village* can be implemented by an educational institution, or district, using the client's own Information Technology infrastructure, infrastructure provided by IBM, or that of a cooperating third party (*Ibid*.). The framework is designed to provide a number of specialized tools, including an Instructional Planner, Home Page Designer, School / District Event Calendar, Registration and Directory, Team Projects Facilitator, Online Discussion Forums, Private Conferencing, and a Database of Strategies and Best Practices (*Ibid*.). *Learning Village* also incorporates Planning and Technical Support, Infrastructure Configuration and Installation, and User-Support, including training to maximize the ability of users to utilize all of the tools provided (*Ibid*.).

In addition, *Learning Village* is designed to be adaptable and customizable, allowing schools or districts to implement any or all of the available tools, or to integrate any range of tools and applications to suit individual needs or desires (*Ibid*.).

Does *Learning Village* Meet the Standards of an EPSS?

A web-based tool, or set of tools, does not necessarily constitute an Electronic Performance Support System. In order to be an EPSS, a framework must meet a number of criteria. An EPSS can be defined as:

> "…an organization wide, computer-based, user-controlled, knowledge and information retrieval system that provides access to discrete and task-specific information prior to or at the time the task is to be performed. Incorporating minimalist design principles, it reduces the need for prior training and preparation to complete a task. Information can be provided "just-in-time" to the user in the workplace, in a variety of formats (images, video, text) enabling the user to achieve desired performance in a minimum amount of time" (Alexander, et. al., 2003, *a*; Alpert-Sleight, 1993; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999).

In addition, an EPSS should feature a number of key components, including productivity tools, an information base, hypertext online help and an interactive expert system advisor, and learning experiences such as interactive tutorials, simulations, and scenarios (*Ibid.*).

IBM's *Learning Village* is defined as a web-based framework, meeting the computer-based requirements of the definition of an EPSS (IBM, 2002, *a, b, c*). In addition, *Learning Village* is designed to be implemented and used across an entire school or school district, and is most often implemented at the district level (*Ibid.*). Thus, *Learning Village* also qualifies as organization-wide. IBM describes the purpose behind *Learning Village* as being to provide tools to help strengthen instruction and ties between the school and the community (*Ibid.*). In this respect, it is designed to facilitate access to, and the sharing of information and tools between all parties in the educational community, allowing for better job performance by educators, and more effective communication between all parties. *Learning Village* provides a wide range of productivity tools, including its Instructional Planner, Home Page Designer, Team Project Facilitator, and tools for recording attendance and evaluation of students (*Ibid.*). It also provides an information and knowledge sharing base through such tools as the Registration and Directory, the Database of Strategies and Best Practices, online Discussion Forums, and Private Conferencing (*Ibid.*). Some of these tools, such as the Database of Strategies and Best Practices, function as an interactive expert system advisor, while other productivity tools, such as the Instructional Planner and Home Page Designer offer interactive support in the form of tutorials and simulations. As a framework, *Learning Village*, as developed by IBM, certainly has the potential to qualify as an Electronic Performance Support System. It meets the basic definition of an EPSS, and contains all of the key components necessary for such a system. Having met these

criteria, we can turn our attention to evaluating the effectiveness of *Learning Village* as an EPSS for educators.

How does *Learning Village* Rate as an EPSS for Teachers?

Rating the effectiveness of *Learning Village* as an EPSS for teachers requires an examination of the types of supports a teacher would require from an EPSS, the types of supports the framework purports to offer, and the actual ability of the framework to do what it says it can do – meet the specific EPSS needs of the teacher. It is difficult, in this context, to do a full examination of the particular needs of all teachers. However, examining the typical support needs as identified by an English Language Arts teacher, such as myself, could be beneficial in evaluating *Learning Village*'s overall effectiveness as an EPSS. Such task supports include lesson planning, finding learning resources, test and exam creation, evaluation, classroom management, and maintaining a personal web site (Power, 2003). As noted above, *Learning Village* is designed to provide supports for all of these typical tasks, which means that it has the potential to be a very effective EPSS. A number of criteria could be used, in a format such as a checklist, to aid in evaluating exactly how well *Learning Village* achieves its goals, and meets the needs that have been identified. A list of such criteria could be developed based on the definition and key components of an EPSS, and the types of criteria examined in reviews of other EPSS' in either the business or education sectors (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999):

Table 1: Essential EPSS Evaluation Criteria
1. Accommodates learner diversity and different learning styles
2. Aids goal establishment
3. Allows customization
4. Automates tasks
5. Can be controlled by the worker
6. Can be used on the job
7. Contains embedded knowledge in the interface, support resources and system logic
8. Establishes and maintains a work context
9. Excludes irrelevant information
10. Institutionalizes strategies and best approaches
11. Integrates information, advice and learning experiences
12. Is computer-based and requires no other non-computer components
13. Is specific to user needs
14. Is consistent
15. Is easily updated
16. Provides fast access to information
17. Provides support resources without breaking context
18. Provides discrete, specific information and tools as needed to perform a task
19. Provides discrete, specific information and tools at the time the task is to be performed
20. Reduces the need for prior training
21. Reflects natural work situations
22. Shows evidence of work in progress
23. Supports individual learning
24. Supports group learning

Again, a difficulty arises in this context with regards to closely using and examining the capabilities of an actual full implementation of *Learning Village*. This makes it difficult, and perhaps misleading, to collect and evaluate the EPSS based on quantitative data. However, a more qualitative examination of the framework will suffice to provide an indication of the potential effectiveness of *Learning Village* as an EPSS for teachers. In this case, the evaluation could be based on whether or not *Learning Village* as a whole, as designed by IBM, displays the attributes listed above.

In the case of *Learning Village*, at least sixteen of the twenty-four criteria listed in Table 1 are evident with only a cursory, qualitative examination. The productivity tools provided by

IBM certainly appear capable of aiding in the establishment of work goals, such as lesson planning, evaluation, or the design of a web page (*Ibid*.). They appear capable of automating some tasks, such as attendance and evaluation (*Ibid*.). And they appear to incorporate embedded knowledge and logic, information, advice and learning experiences, and to be specific to the user needs (*Ibid*.). The framework, as a whole, appears to be highly customizable, allowing schools or districts to select from a variety of available tools, or to add their own (*Ibid*.). It can be used on the job, and access to tools and information can be controlled by the user (*Ibid*.). It appears that *Learning Village* can provide fast, discrete, specific information and tools as needed to perform a task, and at the time the task is to be performed, and that the EPSS excludes information irrelevant to the task at hand (*Ibid*.). The framework appears to be consistent and easily updateable, and a database of strategies and best practices appears capable of satisfying another criteria (*Ibid*.).

Reducing the need for prior training is a difficult criterion to evaluate in this context. IBM states that it will provide support in the form of training to maximize users' ability to utilize all implemented tools (IBM, 2000, *a, b, c*). Ideally, an EPSS should not require training to put to use (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). And, without the ability to fully evaluate *Learning Village*'s tools at use, it is difficult to determine how well users of the EPSS could perform and learn the types of tasks a teacher would use the system for. It is doubtful that any EPSS could fully eliminate the need for training in the fundamentals of lesson planning, for example, even though tools are available to make this task easier (Kemp, et. al., 1998).

The ability of Learning Village to establish and maintain a work context, and to reflect natural work situations, are also difficult criteria to evaluate (IBM, 2000, *a, b, c*). Ideally, an EPSS should not require training to put to use (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). Each teacher's work context may be somewhat different, and many of the tasks that teachers must perform – such as those an EPSS might support – may not always be undertaken under routine circumstances. The demands of classroom teaching and management dictate the performance of some tasks at times and in contexts of convenience (Kemp, et. al, 1998; Murphy and LaFerrière, 2002), so defining a work context and natural work situation to establish may not be as easy a task as it would be for a business sector EPSS (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999).

Finally, the criteria of supporting individual and group learning are tenuous to evaluate without a detailed, quantitative analysis of data relating to *Learning Village* and its users (*Ibid.*). However, the facilitation of user learning is secondary to the support of task performance and access to information in the context of an EPSS (Alpert-Sleight, 1993; Leighton, *n.d.*; Miller, *n.d.*; Zolper, 1999), so the inability to evaluate these criteria is of minor consequence to an evaluation of the effectiveness of *Learning Village* as a whole.

Qualitatively speaking, *Learning Village* meets the definition of an EPSS, and it contains the key components of such a system. As such, *Learning Village* purports to provide a number of supports that a typical teacher would demand. Using a list of criteria essential to an effective EPSS, it does appear that *Learning Village* is effective in this capacity from the point-of-view of teacher users.

Part 2: Evaluating an Example of *Learning Village* at Work

A framework such as IBM's *Learning Village* has the potential to serve as a powerful and effective Electronic Performance Support System for teachers, but that does not necessarily mean this promise will be fulfilled if a school or district implements it. Whether or not *Learning Village* becomes an effective EPSS for teachers depends on how well it is implemented, what tools are provided in the implementation, and how well the actual implementation is utilized by the intended users, namely teachers. Taking a close look at an example of one such implementation can help to give a better sense of the potential of *Learning Village* as an EPSS, and how effectively this platform is actually being used as an EPSS to meet the specific needs of teachers. One such implementation can be seen in the Manhattan High School District (Manhattan High School District, *n.d.*). This district's implementation is a good example for an examination of the issues of the potential effectiveness of *Learning Village*, the benefits and drawbacks associated with actual integrations of the framework into the context of real school districts, and the types of improvements that could be made to specific implementations, and *Learning Village* as a whole, to improve the overall effectiveness of *Learning Village* as an EPSS.

How has *Learning Village* been Integrated?

Manhattan High School District appears to have first implemented *Learning Village* in 1997 (*Ibid.*). The implementation can be accessed by both registered users, and guest users— although guest users do not have access to the full range of tools that have been integrated into the District's EPSS. Becoming a registered user is a quick and simple process, meaning that

gaining full access to the EPSS is a straightforward process, requiring no detailed prior explanations.

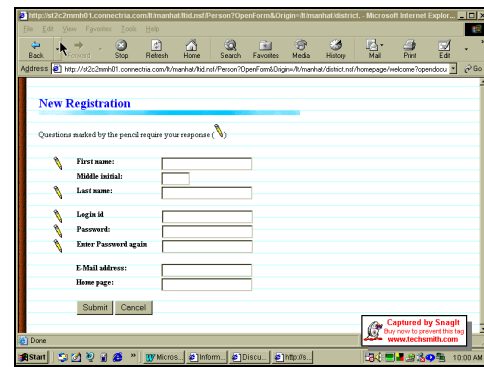**Figure 1: Accessing Manhattan High School District *Learning Village***

Figure 2: Step-by-Step User Registration

In it's implementation of Learning Village, Manhattan School District has integrated a number of the available tools designed by IBM, including the Event Calendar, Instructional Planner, Home Page Designer, Registration and Directory, and the Teacher's Lounge discussion forum (*Ibid.*). In addition, Manhattan School District has facilitated such features as Private Conferencing, allowing students, teachers, and parents, to communicate constructively and privately from remote locations, at their own convenience (*Ibid.*).

Figure 3: Tools Available to Registered Users

All of these tools are available to registered users of the EPSS, while guest users are limited to access to databases of web pages created using the Home Page Designer, instructional resources

created or added by registered users with the Instructional Planner, and the framework's Registration and Directory (*Ibid.*). The entire EPSS is web-based, and can be accessed by both registered and guest users with Internet access (*Ibid.*)

How does this Implementation Rate as an EPSS for Teachers?

Manhattan High School District's implementation of *Learning Village* meets the requirements of the definition of an Electronic Performance Support System, and it contains the key components of such systems (Alexander, et. al., 2003, *a*; Alpert-Sleight, 1993; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). But how effectively have the components of *Learning Village* actually been implemented? How well does this example of *Learning Village* meet the needs of teachers who would use the system? To answer these questions, we can examine the types of functions fulfilled by the tools that have been implemented, and we can also turn back to the Essential EPSS Evaluation Criteria outlined in Table 1 above.

Restricting the task supports required of the EPSS to those of a typical English Language Arts Teacher, such as myself (Power, 2003), the Manhattan High School District *Learning Village* appears to be well equipped. The Instructional Planner tool provides the supports needed to perform the tasks of lesson planning, finding learning resources, test and exam creation, and student evaluation (Manhattan High School District, n.d.; Power, 2003). These tasks, as well as those of classroom management and the additional task of maintaining lines of communication with students, colleagues, and parents, are all facilitated through the Teacher's Lounge and Private Conferencing Tools (*Ibid.*). And the Home Page Designer provides the supports needed to design, maintain, and publish a personal web site, as well as the ability to search sites created by other system users for additional educational resources and communications needs (*Ibid.*).

The tools are present to support the types of tasks that a typical English Language Arts teacher would need to use the system for, but how effective are these tools? Again, it is difficult in this context to gather and analyze detailed quantitative data on the Manhattan High School District *Learning Village*, or its users, so any evaluation of the effectiveness of this EPSS would have to be restricted to a cursory, qualitative analysis of the implementation. The Essential EPSS Evaluation Criteria outlined in Table 1 above could be used to aid such an examination. In this instance, at least nineteen of the twenty-four criteria outlined in Table 1 are evident after a cursory analysis of the implementation. The system is computer-based, specific to user needs, as described above, and it is consistent (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). Fast access to discrete, specific information and tools is provided as needed, and when needed, to perform specific tasks, and information that is irrelevant to the task at hand is excluded (*Ibid.*). Support resources are provided without breaking the task context (*Ibid.*). The help features are provided in a pop-up window where information provided is restricted to that relevant to the current task.
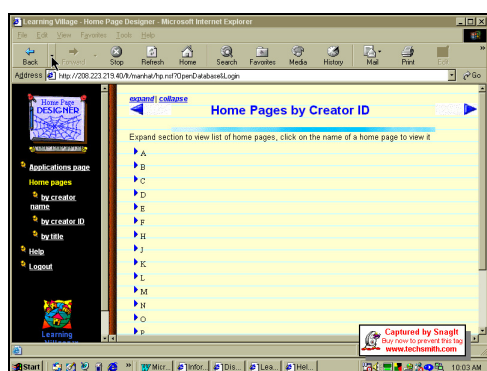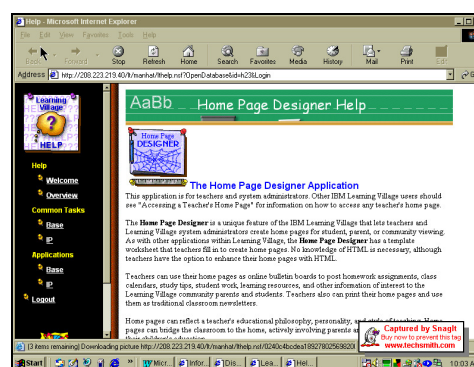

Figure 4: A Typical Task Screen

Figure 5: Help Support in a Second Window

The range of tools available certainly help to establish work goals (*Ibid.*). For instance, access to local and state curriculum standards is provided when using the Instructional Planner, as are

tools for efficiently producing lesson and unit plans, and access to such resources shared by other teachers. A variety of the tasks performed by typical teachers can be somewhat automated using the EPSS, such as the creation of web sites without a working knowledge of HTML coding, or the step-by-step creation of subject-specific evaluation rubrics (*Ibid.*).
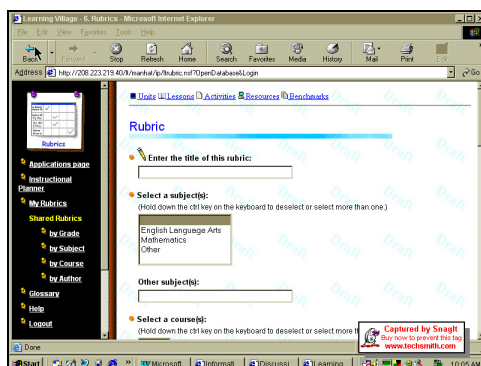

Figure 6: Automated Creation of Evaluation Rubrics

The system shows evidence of work in progress as the tools are being used, it can be used on the job by teachers, and it is easily updated as teachers locate or create new resources (*Ibid.*).

As with the evaluation of *Learning Village* as a whole, it is difficult without the collection of detailed quantitative data, to evaluate some of the criteria of an effective EPSS. The support of individual or group learning, again, is secondary to the support of user task performance and access to information, so a lack of access to how effectively the Manhattan High School District *Learning Village* has supported user learning is of little consequence (Alpert-Sleight, 1993; Leighton, *n.d.*; Miller, *n.d.*; Zolper, 1999). As well, it is again difficult to evaluate the ability of the EPSS to establish and maintain a work context and natural work situations, given the highly flexible, adaptable, and context-specific nature of classroom teaching (Kemp, et. al, 1998; Murphy and LaFerrière, 2002).

With this particular implementation of *Learning Village*, there appears to be little need for prior training in the use of the framework itself (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993;

Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999).   As noted above, becoming a registered user of the system is a straightforward process requiring no prior instruction other than the directions provided by the registration tool itself. Accessing and utilizing the tools implemented in the Manhattan High School District *Learning Village* is also an easy process requiring no prior training. However, the system cannot reasonably be expected to support effective performance of some tasks, such as lesson planning, without prior training in the fundamentals of such a task (Kemp, et. al., 1998). The tools make it easier for those who are already trained in this area – teachers – to do their work.

One area that is a cause for concern, based on a cursory, qualitative examination of the Manhattan High School District *Learning Village*, is the extent to which the EPSS has actually been accepted and utilized by teachers, and the district itself. While there are a number of registered users of the system (Manhattan High School District, *n.d.*), one would expect a much higher number given the context of Manhattan's high population of residents, and teacher personnel. In addition, the last update to the 'News' bulletin page is dated August 22, 1998 (*Ibid.*). A number of the teacher web sites accessed through the Home Page Designer directory have not been updated in anywhere from two to three years, and their visitor counters indicate that less than fifty users have accessed the web sites since 1999-2000 (*Ibid.*). Although it is difficult to gauge typical user satisfaction with the system without access to detailed, quantitative data, these factors seem to point to low use of some of the key tools provided by *Learning Village*. While the framework appears to be otherwise well-implemented with the potential to be highly effective, it is difficult to determine to just what extent implementing *Learning Village* has provided organization-wide access to its supports in the Manhattan High School District, or

how effectively it has institutionalized strategies and best practices (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999).

What Improvements Could be Made in this Implementation Context?

Manhattan High School District *Learning Village* appears to be a fairly comprehensive implementation of *Learning Village*, incorporating a wide variety of the available tools designed by IBM (IBM, 2000, *a, b, c*; Manhattan High School District, *n.d.*). However, the level of actual regular use of this implementation is, after only a cursory examination, questionable. This begs the question, what could be done to make this implementation more effective from a teacher's point-of-view?

One of the first drawbacks to this implementation of *Learning Village* appears to be the inconsistent level of use by teachers and administrators throughout the Manhattan High School District (Manhattan High School District, *n.d.*). Although the district has invested in *Learning Village*, and has attempted to integrate a wide variety of supports and resources, this integration does not appear to truly be organization-wide. It's efforts to institutionalize strategies and best practices, through a framework such as *Learning Village*, do not appear to have been successful (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). Several strategies could be employed to try to improve this situation. First, more effort could be taken to familiarize teachers with the presence of the system, and to encourage them to start using it (*Ibid.*). Second, both teachers and administrators should be encouraged to contribute resources more frequently, and to keep elements of the system, such as news bulletins and web sites, up-to-date (*Ibid.*). The sense that the system may not be kept reasonably up-to-date may discourage

potential users from expanding use of this EPSS, and hindering its chances for district wide utilization, and ultimate success (*Ibid.*).

There are elements of the implementation of *Learning Village* that could also be improved upon in order to make this EPSS ultimately more effective for teachers. Users have a great deal of control over how they use the system, in terms of which tools they decide to access. However, the degree of user-control over the type, and amount of information presented is questionable (*Ibid.*). Help is not available in the form of discrete hints or suggestions as tasks are being performed, and this support can only be accessed by opening a second window (Manhattan High School District, *n.d.*). In this Help window, information is primarily available in textual format, with the integration of some images to assist in user understanding of how to perform tasks. More variety of supports, such as more detailed tutorials or simulations of task performance, could be provided (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). These functions could be easier to access when using task-specific tools (*Ibid.*). And the system should allow for user customization of the type and amount of support available (*Ibid.*). Finally, while the tools designed by IBM are powerful, they can be a little confusing to the novice user. When initially accessing these tools, users are taken to a screen that allows them to search from pre-existing examples of the task to be performed (Manhattan High School District, *n.d.*). The option to create new examples of the tasks, such as lesson plans, unit plans, evaluation rubrics, or even personal home pages, are accessed through a small, textual hyperlink on the page – and can be difficult to spot for those unfamiliar with the system.

Overall, the Manhattan High School District *Learning Village* appears to have the potential to be a powerful example of an EPSS. However, its particular drawbacks may

discourage novice users, and those less comfortable with technology in general, from making the initial leap into using the system on a regular basis. The sense that the system is infrequently and haphazardly updated, and utilized, may discourage both novice and more familiar users from returning to the system (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). And the lack of diversity in the types and levels of help supports available may discourage users as well (*Ibid.*). Novice users may not find the particular help they need in a format that is easiest for them to understand (*Ibid.*). And more familiar users may become frustrated with the inability to customize the information they access (*Ibid.*).

Conclusion:

IBM's *Learning Village* is a powerful collection of tools that are specific to the needs of teachers and educational administrators (IBM, 2000, *a, b, c*). They also facilitate communication and cooperation between all members of the educational community, including students, teachers, administrators, and parents. The *Learning Village* framework, as designed by IBM, meets the definition of an Electronic Performance Support System (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). And a cursory, qualitative analysis of *Learning Village*, using a list of criteria essential for any EPSS to be effective, indicates that this framework has the potential to effectively satisfy the supports that a typical teacher would require of an EPSS (*Ibid.*). But *Learning Village* is not a standardized framework for all schools and school districts that have integrated it (IBM, 2000, *a, b, c*). *Learning Village* can be customized for client schools or districts, and not every implementation of this framework will

necessarily live up to its full potential. A cursory examination of an example of *Learning Village* in action demonstrates this. The Manhattan High School District *Learning Village* has integrated a wide array of the tools available from IBM, and provides powerful supports for the user-specific needs of typical teachers (Manhattan High School District, *n.d.*). However, this example of *Learning Village* does display some drawbacks which may discourage potential users from utilizing the system as effectively as it could be, if not discourage them from using it at all (Alexander, et. al., 2003, *a, b*; Alpert-Sleight, 1993; Cantor, *n.d.*; Hardin, 1995; Leighton, *n.d.*; Miller, *n.d.*; Raybould, 1995; Tracey, 1998; Wallace, 2001; Zolper, 1999). In addition, this example demonstrates that the less customizable an EPSS is to the preferences of individual users, the less effective it may be (*Ibid.*). The Manhattan High School District *Learning Village* has the potential to be an effective EPSS for teachers, if certain considerations are addressed, and certain improvements made (*Ibid.*). However, as it stands, this example of *Learning Village* does not appear to have met with success in becoming an organization-wide framework from supporting productivity in the Manhattan High School District.

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