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# *Identifying Training Needs in Using Educational Technology: a New Integrated Model*

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*ABSTRACT*

*The coronavirus global epidemic compelled over 190 countries to cancel traditional face-to-face classes and transition to remote learning - suddenly, unexpectedly, and unevenly (UNESCO, 2021). According to UNESCO (2021), at the height of the crisis, more than 85% of students around the world were absent from regular school, and by October 2020, 108 nations reported missing an average of forty-seven days of face-to-face instruction - or approximately a quarter of the academic year. Digital technologies have the potential to revolutionize education worldwide if used properly in the classroom. The COVID-19 pandemic has had some positive effects, such as accelerating the adoption of digital technologies in schools. The extensive use of remote learning opened the door to further digitalization, including the fusing of digital tools with conventional teaching techniques. But bringing traditional pedagogies or approaches online is only one aspect of effective digital learning. The pandemic demonstrated how digital tools were thrown into remote learning carelessly and unevenly. Digital solutions frequently rested on the creativity of a single teacher or the commitment of a single school administrator. Teachers required assistance and instruction on how to use digital technologies effectively if they are to do so. Training for an educational culture that uses digital technologies to improve its operations has become more and more crucial. This paper looks at three prominent training needs analysis models before formulating a new integrated model in the second part. The function of analyzing training needs is one that is acknowledged as being a crucial element of all effective training programmes. In its simplest form, requirements assessment is the act of determining "what is" and "what should be" and proposing solutions to close the gaps between them. This method produces information that can be used to help planning, decision-making, and problem-solving initiatives. This information can be used internationally to investigate educators' current use of technology and desired level of use of technology; and then propose training and non-training solutions to bridge the identified gaps.*

Keywords: Educational Technology, training, digital technologies, educational therapists

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## INTRODUCTION

Over the years, the definition of educational technologies has undergone numerous changes as a result of different approaches to dealing with learning processes, conceptual frameworks, theory and practice, as well as the most recent research and ethical standards for integrating technological resources and processes. Although the term "application of educational technology" has many different definitions, this study will use the concept of the activity of designing, developing, utilizing, managing, and evaluating classroom technologies that are linked with learning processes. Projectors, Smart Boards, PCs, tablets, and software for teaching and learning including GSuite (Google Docs, Google Slides), Microsoft Office, and online and app-based tools are a few examples of educational technology that may be found in DAS classrooms.

### Educational Technology

In the Dyslexia Association of Singapore (DAS), the phrase "educational technologies" was first used in 2005 in conjunction with touch-typing, although the initiatives were modest in scope and not organization-wide. In order to support therapists' use of educational technology in the Main Literacy Programme classes, further organization-wide measures were launched in 2015, including the acquisition of 334 iPads. Projectors, SMARTboards, and MimioTeach Interactive systems were also introduced in addition to iPads. Numerous web- and application-based tools were also introduced in addition to the hardware. It is now time to assess the expected degree of technology use for remediation and see if the therapists are adhering to those criteria after some years of exploratory uses of educational technologies.

### Importance of Educational Technology in Special Education

We are seeing borders gradually disappear in the modern world. This approach has applications outside of business and politics. Nowadays, practically everyone can access medical or educational services anywhere in the world, regardless of citizenship or physical condition.

Due to cognitive, physical, and sensory impairments, students with special education needs have difficulties learning. They stand out due to their variability. Improving these pupils' conduct and interactions with their environment must be one of the key goals of the classroom. However, they also need to learn how to carry out everyday tasks on their own, communicate better, grow intellectually, and discover new things. Learning opportunities should be given to disabled students so they can reach their full potential. They should not face prejudice but should be allowed to engage in education and training on the same terms as pupils without impairments and special educational needs . Educational technologies are now widely used and freely available as a result of the information technology industry's development, which makes it possible to use

them to give students new opportunities which were previously not possible.

The US had 6.7 million children receiving services under the Individuals with Disabilities Education Act (IDEA) in 2015–2016, according to the National Center for Education Statistics. This figure equates to 13% of all students in public schools. While the proportion of these students has been largely constant over the past few years, their overall number has grown by 0.3 million since 2011–2012. The National Center For Education Statistics web page displays the percentage distribution of the various forms of impairments. These students have the chance to participate in fundamental drill and practice, simulations, exploratory, or communication activities that are tailored to their particular needs and talents thanks to technology (Bertini & Kimani, 2003; Edwards, Blackhurst, & Koorland, 1995).

On the home front, Singapore has put a lot of work into creating processes that are more inclusive in the educational system since the early 2000s. In order to improve the quality of support for learners with special needs and/or disabilities in both mainstream and SPED schools, the Ministry of Education (MOE) and Ministry of Social and Family Development (MSF) have collaborated with Voluntary Welfare Organisations (VWOs).

Teachers who use inclusive classroom strategies and allied educators with expertise in learning and behavioral support work with over 27,000 students in mainstream schools who have mild special education needs. 7,000 more children with moderate to severe needs are currently enrolled in 22 Sped schools. This represents around 20% of all pupils who were reported to have special educational needs (Teng, 2022).

The potential advantages of computer-based instruction are founded on fundamental principles of learning theory and apply to all students, including those who have modest disabilities and those who do not. When a computer is used to give well-designed and well-managed instruction through curriculum changes, technology use can improve a student's acquisition of skills and subject-matter knowledge (Woodward & Rieth, 1997).

In Singapore, since 2018, the Infocomm Media Development Authority (IMDA) and Society for Persons with Disabilities (SPD) have jointly set up eight satellite loan-libraries in polytechnics and colleges for assistive and information technology devices. This initiative helps students to try out the various devices and softwares before purchasing the most suitable one. In 2020, to support students with special needs acquire basic digital skills, the MOE introduced the Baseline Digital Skills training, which includes cyber wellness, cyber security, information literacy and using digital technologies on a day-to-day basis. This is part of the National Digital Literacy Programme, which aims to strengthen students' digital literacy and introduce new educational technologies.

**Actual Use of Educational Technology in Classrooms**

There are many variables that influence how teachers use technology in the classroom. According to national and international data, schools all over the world are getting better and better computer equipment (Collis et al., 1996; Statistics Canada, 1999) and Internet connectivity (Statistics Canada, 1999; Greene, 2000; Riel & Becker, 2000). However, descriptive statistics that show Internet connections and student-to-computer ratios do not provide much information regarding the type and volume of computer-related interactions between students and teachers. For instance, Rosen and Weil (1995) found that although computers were present in almost all of the schools they studied, barely 50% of the teachers actually used them. Similarly, Cuban et al. (2001) discovered that at schools with high access to computer technology, just 4 out of 13 teachers had significantly changed how they taught in the classroom.

From the studies done so far, there may be a wide range of potential obstacles standing in the way of a successful application of computer technology. These obstacles range from equipment-based problems, such as restricted access (Sutton, 1991; Rocheleau, 1995), technical issues and malfunctions (e.g., Hadley & Sheingold, 1993; Sandholtz et al., 1997), to individual differences in attitudes and abilities among teachers (e.g., Becker, 1994; Anderson, 1996; Becker & Ravitz, 2001; van den Berg, 2002; Wood et al., 2002), as well as social issues that impact more widely (e.g. Podmore, 1991; Schofield, 1995). It is difficult to assess the long-term effects of these possible impediments due to the quick development of computer technology and the shifts in educational technology policies. For instance, the access difficulties that were raised in the early 1990s may no longer be pertinent to today's instructors given the greater usage of technology in schools. Significant changes in computer use and technical challenges have been observed in short-term longitudinal studies at intervals as short as two years (Conlon & Simpson, 2003).

Similar to this, as more teachers with computer experience enter the teaching profession and as less experienced computer users have greater access to workshops and training, individual characteristics such as "technophobia" or computer anxiety, which have been identified as a reason why teachers do not implement computers despite increased availability of hardware, may become less of a concern. The degree and prevalence of anxiety may or may not be a concern to teachers given that high computer anxiety is typically associated with low levels of knowledge and experience with computers (e.g. Anderson, 1996; Wood et al., 2002) and that even simple interventions such as giving teachers information and practice using computer technology reduce computer anxiety (Wood et al., 2002).

Given the evolving level of technology integration into the classroom coupled with teachers' confidence levels of handling technology, regularly conducting training needs analysis can be a fruitful approach to assess how well training programs are working.

Organizational leaders might, for instance, go through the process again every six months to assess if they have successfully filled the skills shortages they were targeting.

## AIM OF STUDY

The purpose of this study is to provide a new model to identify the obstacles to the use of educational technology in supporting children with special needs internationally. More specifically, to help therapists in the DAS Main Literacy Programme identify any gaps between what they now know and can accomplish and what they should and might know about using and integrating educational technology in their remediation of dyslexic learners.

It has been noted through observation that the ability to consciously incorporate educational technology into the lesson design is allegedly still not prominent in its application, despite having deep knowledge and skill sets to provide remediation for dyslexic learners. If appropriate steps are taken to close the gaps in the therapists' knowledge, competence, and attitudes, this might have an impact on the organization's goals.

### Identifying the Source of the Performance Gap

At the time of this study, there was little published literature on technology-based training needs assessments for educators worldwide, and there is a need to identify the reasons for this. This is also true in Asia, working in Singapore's special education sector. There is a need to identify knowledge and skill gaps among DAS therapists in their efforts to integrate educational technologies into the remediation sessions for dyslexic students, given the paucity of publications in this area, and even greater lack of local publications. The growing need and interest in educational technologies, particularly for students with learning differences like dyslexia, motivates this study.

### What are Performance Gaps?

A performance gap in training is the discrepancy between what trainees should be doing and what they actually do. These gaps can be located and their causes ascertained with the aid of data analysis, essentially a needs assessment. Training programs that will aid employees in bridging these performance gaps can be created if the causes are correctly identified through a needs assessment.

### Training vs Non-Training Needs

Needs assessments are the most crucial sort of analysis for instructional design since they inform whether or not training is required to solve the current problem. This is due to managers' natural tendency to request training right away even when it will not address

the performance issue or yield the expected results.

Needs analyses are carried out to identify the root causes of a company's performance problems. The right remedies can be devised or suggested once the problem(s) have been located and fully understood.

Needs analyses specifically respond to two important questions:

- Why are employees not working at the level they are expected to (desired standard)?
- What will enable them to function to the desired standard?

As one might expect, the answers to the first question directly influence those to the second. If it is discovered that employees are not performing at the level expected of them due to an organizational problem (such as not having access to a tool they require), then it would be appropriate to address the organizational barrier rather than attempting to solve the problem by providing training.

Training is designated for a particular kind of performance issue; it can only assist in resolving the problem when the issue is brought on by a knowledge or skill gap. Therefore, if employees cannot perform at the expected level because they lack the knowledge or skills to do so, training will aid them in moving closer to the performance objective. Needs analyses are therefore carried out before any other studies because of this.

The training requirements analysis is used to examine whether training is the best solution to a workplace issue once a performance gap has been identified. Often, a training requirements analysis reveals the need for training that is specifically targeted (McArdle, 1998, p. 4). An organization can confirm that training is the best course of action for a performance issue by carrying out an effective assessment (gap).

Problems brought on by subpar system design, insufficient funding, or understaffing cannot be resolved by training (Sorenson, 2002, p. 32). Sometimes improving an employee's knowledge and abilities would not fix the issue or shortcoming, therefore training would be a waste of time and money.

The needs analysis ultimately establishes the need for training, specifies the sort of training required, and looks at the kind and extent of resources required to support a training program (Sorenson, 2002, P. 32). Training Needs Analysis (TNA) can be used to identify the knowledge and skills necessary to fulfill organizational goals (Brinkerhoff & Gill, 1994), while it can also be used to determine the nature and scope of performance issues and how to address them (Molenda, Pershing & Reigeluth, 1996).

The performance analysis model developed by Mager and Pipe (1997), the synthesized human performance technology developed by David Wile, and the purpose-based model developed by Rossett are some of the primary models for needs assessments that will be covered in the part that follows.

**Training Needs Analysis Models**

Three well-known needs analysis models that are regarded appropriate for the training needs analysis at the DAS are described and discussed in this section.

**Performance Analysis Model**

The Performance Analysis Model, developed by Mager and Pipe (1997), is a method for analyzing performance issues. It is organized as a thorough flow chart (Table 1) with questions and instructions based on possible replies that are directed by seven steps, as shown in Table 1 below.

**Table 1.** The Seven Steps of Performance Analysis Model, (Mager & Pipe, 1997).

| | | |
|---|---|---|
| Step 1 | What is the performance problem? | Description of performance deficiency:<br>*What should be happening?*<br>*What is actually happening?* |
| Step 2 | Is it worth fixing? | What would happen if nothing was done to fix it? |
| Step 3 | Can a quick fix be applied to the performance problem? | Do the employees know what is expected of them?<br>Are the employees equipped with adequate tools / equipment / resources needed?<br>Do employees receive feedback on their performance? |
| Step 4 | Are the consequences appropriate? | Is the desired performance punishing?<br>Is poor performance rewarding?<br>Are performance consequences used effectively? |
| Step 5 | Is there a skill deficiency? | Is it a skill deficiency?<br>Could employees do it previously?<br>Is the skill used often? |
| Step 6 | Are there other causes? | Can task be made easier?<br>Are there any other obstacles?<br>Do the employees have the potential to change? |
| Step 7 | Which solutions are the best? | Are the solutions feasible?<br>What are the costs of possible solutions?<br>Draft and implement the action plan. |

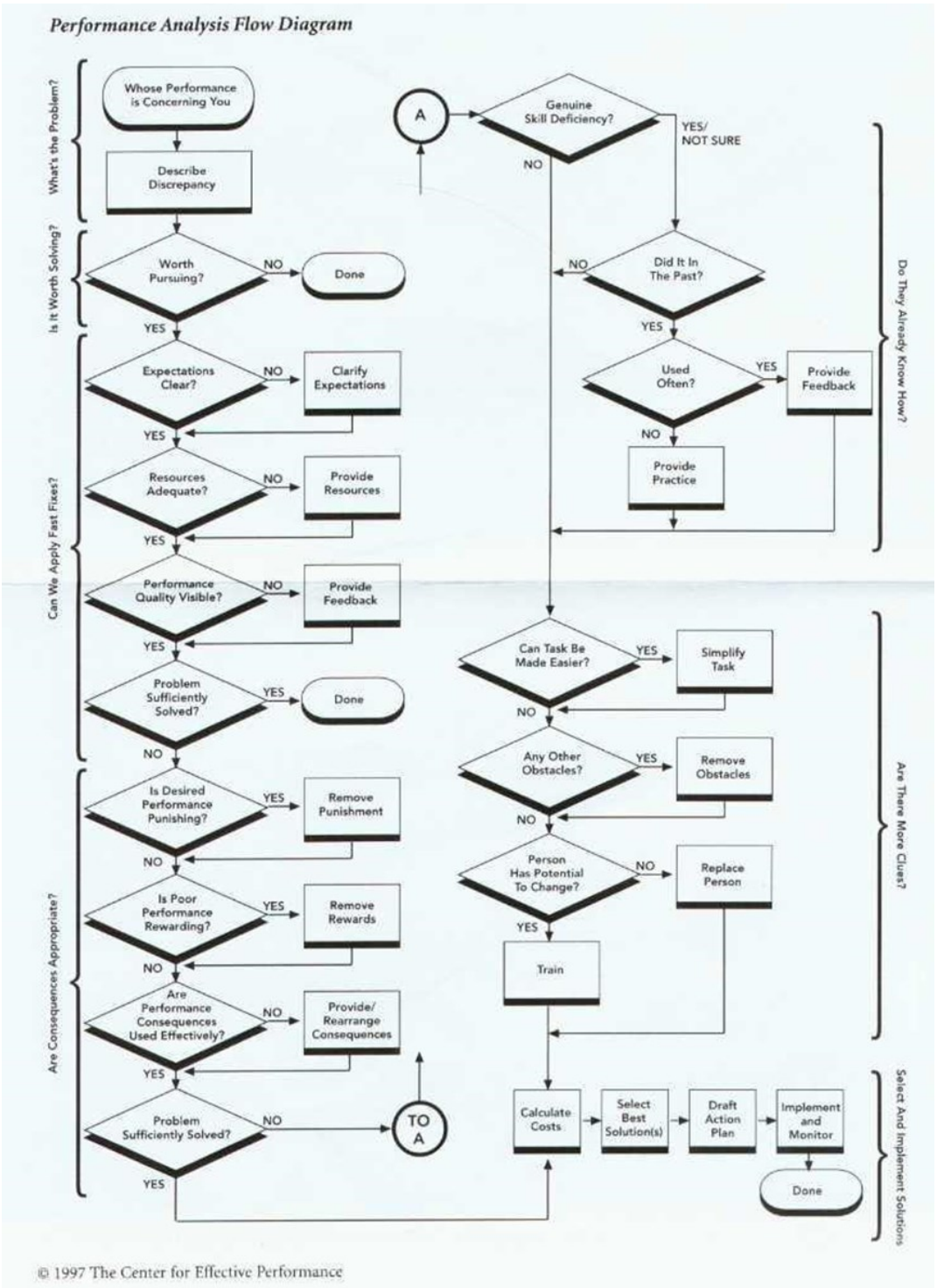


*Figure 1: Performance Analysis Model Flowchart. Source (Mager & Pipe, 1997, p. 32)*

With reference to figure 1, the framework of this model is created to be applicable to actual interactions between instructional designers and customers. Although in theory Mager and Pipe's (1997) model claims that non-training solutions could eliminate performance issues like unclear expectations, unclear performance measures, insufficient resources, and rewards/consequences not directly linked to the desired performance outcome, it may be misleading to inexperienced practitioners who may not fully understand how other performance factors function in relation to training. Mager and Pipe's model provides a one-to-one ratio of training to performance factors. For instance, Gilmore's (2009) research on illustrative cases in human performance technology (HPT) reveals that organizational systems are often the main factors affecting performance, with incentives coming in at a close second, followed by training in third place.

The reach of Mager and Pipe's paradigm includes each performer directly and, indirectly, the entire organization. Furthermore, the approach is basically reactive and is primarily designed to modify the status quo at the level of performance for individuals and small groups.

The model has the benefit of directing a methodical examination to find performance-related solutions. It places a strong emphasis on cost effectiveness when resolving performance issues at every stage, including deciding whether the issue is even worth fixing, selecting less expensive non-training solutions over training solutions, and identifying simpler solutions; however, it does not specifically describe the method by which alternative solutions are generated. Additionally, despite this being a goal of the "Performance Analysis Flow Diagram," Mager and Pipe do not specifically address formative review and continual improvement based on data-driven decision making.

In terms of choosing an intervention, the Mager and Pipe (1984) methodology uses a flowchart approach to connect particular treatments to the results of performance analysis. As a result, it helps to eliminate a gap between real and desired performance. However, the model does not offer much advice on how to choose the "best solution(s)". The cost-effectiveness, practicability, and feasibility of the treatments are the sole criteria offered for evaluating them by Mager and Pipe (1984).

**Synthesized Human Performance Technology**

Wile researched five widely used models of human performance and sought to reconcile the differences between them in order to provide a synthesis of the various factors that have been recognized as influencing performance. By conceiving his Synthesized Human Performance Technology (HPT) Model, Wile (Wilmoth, Prigmore, & Bray, 2014) offers insight into the factors that influence human performance. Wile distinguishes between internal and external factors in connection to the performance in this model (figure 2), and then further separates the external domain into intangible and tangible categories, emphasizing that each requires a particular set of interventions.

The following performance criteria are listed by Wile:

a) Organizational system
b) Incentives
c) Cognitive support
d) Tools
e) Physical environment
f) Skill and knowledge
g) Inherent ability

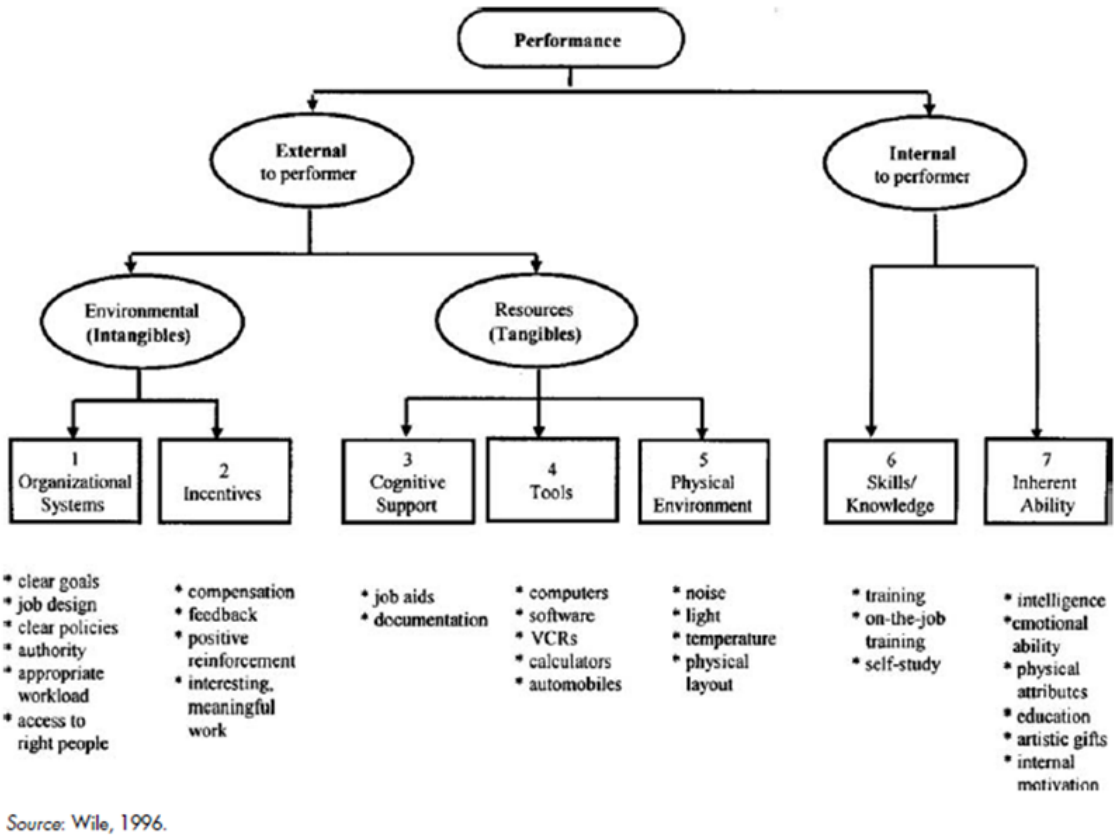


*Figure:2 Wile's Synthesized HPT Model. (Source: Wile, 1996, 35(2), 30-35)*

This approach is distinctive in that it distinguishes between interventions that are training-based solutions and those that are not and provides actual solutions to a variety of performance issues. The user can quickly start correcting a performance issue because of the straightforward diagnostic procedure in this model.

In the context of performance enhancement, it is crucial to take into account whether the variable is internal to the performer or external to the performer. Wile focuses in, and

distinguishes between tangible and intangible factors that are external to the performing entity. Organizational structures and incentives are examples of intangibles. Tangibles are components of the physical environment, tools, and cognitive assistance. Wile (1996) does not, however, explain the selection process or connections between the cited performance factors. Quantifying the amount of each performance aspect required to improve performance would therefore be challenging for the model's user.

This model explains why using technology to fix performance issues is not a simple fix. For instance, even if a technology tool is available, performance might not increase if the true problem is that a person lacks the motivation to finish an academic job. Likewise, speed improvements will be constrained if a tool is only accessible in one environment.

**Purpose Based Model**

The goal of Allison Rossett's model is to close the performance gap between "ideal" and "actual" performance for individuals and small groups. It is perhaps one of the most popular training requirements analysis methods now utilized by business and industry. Rossett's definition of TNA is "The study to design and develop instructional and informational programs and materials, after the performance analysis has determined that training and informational materials are indeed appropriate."

An initial examination of the situation is conducted prior to doing a needs assessment in order to evaluate whether a more thorough TNA is required. In order to complete this activity, one must first determine the cause of performance gaps (causal analysis), after which one must acquire opinions and ideas utilizing mostly qualitative data collection techniques like surveys and interviews. Performance issues, new systems and technologies, and automatic or habitual training are the three categories of initiators listed by Rossett as causing the requirement for TNA processes (Rossett, 1987).

She suggests that the framework for assessing the needs for purpose-based training would be helpful in determining what potential causes might underlie the initial issues and what pertinent data might be acquired to determine the remedies. This is because the Purpose-Based Model's method for conducting TNA is extremely targeted and it aids in the planning of what data should be gathered.

One is interested in the knowledge, abilities, and attitudes that employees need to have in order to perform the job as expected (Rossett, 1987) when looking for information about optimals. The actuals would represent what the personnel already know and are capable of doing at this time. The discrepancy between these data (optimals and actuals) reveals performance gaps or areas that require improvement. The employee's views or ideas about their duties or new responsibilities must be taken into account, however, since they may shed light on why some processes or activities do not go as planned. Performance gaps must have causes or reasons, and it is desirable that

recommendations and solutions to close the gaps are offered after extensive, thorough fieldwork.

Four different categories of information are obtained during TNA using Rossett's purpose-based model:

- Optimal performance requirements - What are the staff members' expected levels of performance?
- Description of current performance – What are staff doing right now, and how are they doing it?
- What are the key players' feelings on the problem or the new adjustments at the grassroots level?
- What are the possible solutions to the issue, and how might they be prioritized?

Rossett (1987) suggests using the suitable TNA techniques and instruments to carry out the investigations in an effort to get the answers to these aims. The decision can be made based on:

a) how the TNA objectives affect the procedures and questions that are chosen, and
b) how the context affects the methods used and the information sources contacted.

**Table 2.** Causes and solutions of performance problems (Rossett, 1997)

| **Causes** | **Lack of skills or knowledge** | **Shortcomings of incentives** | **Shortcomings of environment** | **Lack of motivation** |
|---|---|---|---|---|
| **Information Needed** | Are the learners able to do the task? | Feeling, consequences of task performance | Environmental support | Feelings |
| **Possible Data Sources** | Records and outcomes, observation, interviews | Observation, Interviews, focused groups, records, questionnaire | Observation, interviews, focused groups | Interviews, questionnaires |
| **Solutions** | Job-aids<br>Training<br>Coaching<br>Mentoring | Enhanced policies<br>Training for supervisors<br>Improved incentives | Redesign of work environment / layout<br>Enhancement of tools<br>Proper matching of task and employee | Training to improve success (confidence)<br>Reward system to boost morale<br>Recognition of effort<br>Coaching |

The TNA approaches include tools including questionnaires, surveys, focus group discussions, observations, and interviews as well as analysis techniques include existent data analysis, needs assessment, subject-matter analysis, and task analysis.

Rossett (1997) also provides the following possible causes of performance problems and their possible solutions (See Table 2).

**Introducing the Integrated Model**

Given the benefits and drawbacks of each model discussed in the preceding sections, an integrated strategy has been developed (figure 3) to holistically draw on the breadth and depth of Wile's Synthesized Human Performance Technology Model, Rossett's Training Needs Assessment Approach, and Mager and Pipe's Performance Analysis Model.

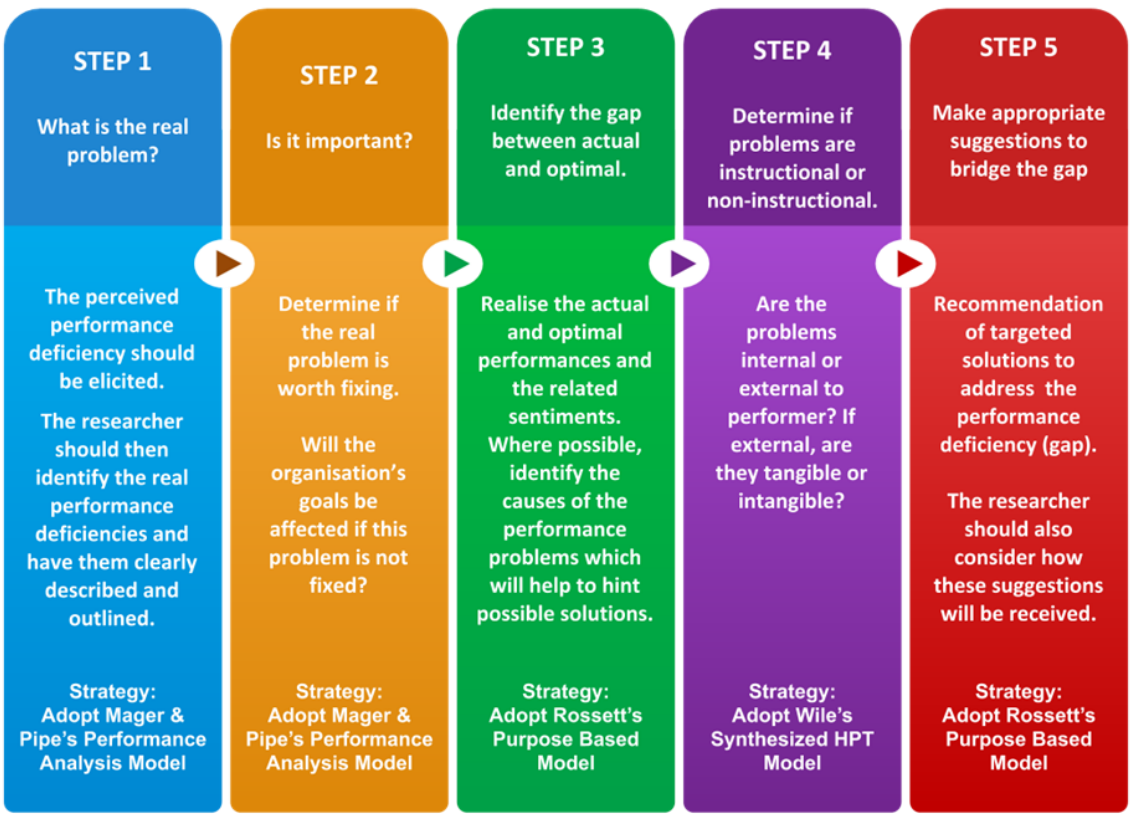


*Figure 3: Integrated TNA Approach used in this study*

Overall, the Integrated Approach consists of the following five major steps:

| | | |
|---|---|---|
| Step 1 | **What is the real problem?** | a) probing of the perceived performance deficiency<br>b) identification of the real performance deficiency |
| Step 2 | **Is it important?** | c) determining the importance of the performance deficiency<br>d) determining the impact on the organisation's goals if the performance deficiency is not addressed |
| Step 3 | **The gap between the actual and the optimal** | e) identifying the gap between the actual and the optimal performance levels<br>f) understand the sentiments on the ground with regards to the current and optimal performance levels<br>g) investigating the possible causes of the gap |
| Step 4 | **Is training the solution?** | h) determining if the problems require training or non-training solutions |
| Step 5 | **What are the possible solutions?** | i) recommending possible solutions with considerations to acceptance and feasibility |

It is simple to assume that giving everyone the same set of knowledge and abilities will fix performance issues from your point of view. However, it might not always be a training issue, or even a problem that has to be fixed. For stages 1 and 2, the Integrated TNA Approach uses the Performance Analysis Model developed by Mager and Pipe. The Performance Analysis Model guides the user through the initial steps of problem identification and helps them decide whether or not the issue warrants fixing.

The third step entails identifying the current standards (actual) and establishing the ideal standards (optimal) by gathering data from various stakeholders and subject matter experts using a variety of tools such as focus groups, focus interviews, surveys, and observation. As it is thorough and covers four types of information in the data collection process, Rossett's Purpose Based Model will be used for this step. These are a) specifics of optimal/desired performance, b) description of current/actual performance, c) emotions on the ground levels, and d) causes to the problems which can lead to targeted solutions. The Purpose-Based Model aids in locating potential causes of performance issues, such as a lack of abilities, inadequate rewards, an unfavorable environment, and a lack of drive. These are obtained by comprehending the levels of ideal performance, analyzing actual performance, and determining the discrepancy between these two standards.

The next stage will be to identify if the problems are instructional or non-instructional in nature, which would indicate whether or not the solutions are training-related. Wile's Synthesized HPT Model is used to examine performance as a whole, including the performers' cognitive and action tasks. First, Wile's Synthesized HPT Model aids in separating the EdTs—external and internal factors influencing the performer—from each other. Skills, knowledge, and ability would constitute the EdTs' internal factors. The model divides the external variables into tangible and immaterial components. Organizational structures and incentives are examples of intangible elements, whereas tools, the physical environment, and cognitive support are examples of tangible factors. The proper selection of solutions for each problem in the subsequent stage depends on this classification.

Making recommendations of solutions based on what has been learned about the factors that have led to the performance issues would be the final step. Rossett's purpose -based model is used once more in this situation because it offers insight into a number of perspectives on the underlying causes of the identified performance gaps, including 1) a lack of knowledge and skills, 2) a deficiency in incentives, 3) a deficiency in the environment, and 4) a deficiency in motivation. The adoption of these recommendations will also be taken into account.

## DISCUSSION

Human performance has a direct influence on organizational performance. Human performance issues occur when there are reasonable grounds to believe that task performers have the necessary level of capability and knowledge to do what is expected of them, when they may not. Given the strengths and limitations of each model described in the previous sections, the three models will be combined into a five-step integrated model to investigate the training needs for educational therapists in the Dyslexia Association of Singapore by comprehensively tapping on the extensiveness and depth of a process model: Mager and Pipe's Performance Analysis Model; a diagnostic model: Wile's Synthesized Human Performance Technology Model; and a holistic model: Rossett's Training Needs Assessment Approach.

The performance analysis model developed by Mager and Pipe has been identified as a process model. Mager and Pipe's performance analysis model compares the desired performance state (optimal) to the actual performance state (actual) (Burner, 2010; Rummler, 2006). If there are differences between these two states, it is critical to select and implement the appropriate interventions to close the gap between the desired and actual states of performance.

Wile's human performance technology analyzes organizational systems and work environments to optimize effectiveness by determining the underlying causes of performance gaps. While performance analysis can help identify performance gaps

within an organization, human performance technology can help identify the causes of those gaps, addressing the big question of what motivates performance levels.

Rossett's model is based on a systematic study of problems that incorporates data and opinions from a variety of sources. Rossett's holistic approach, as described in section 2.2.3, collects four types of information when planning a needs assessment: 1) Desired performance description, 2) current performance descriptions, 3) ground-level emotions, and 4) ways to solve problems.

## DIRECTIONS FOR FURTHER RESEARCH

In Mubarak (2022 in preparation) a complete analysis of the use of the new integrated training needs analysis model with educational therapists will be presented. In order for DAS to plan and get ready for training routes based on the determined training needs of the therapists, the findings from this research and the suggested solutions will be communicated with the organisation.

## CONCLUSION

More attention must be paid to the effectiveness of educational technology integration in educational establishments worldwide in order to achieve the optimal impact of educational technologies, particularly with students who have learning differences. The deliberate and meaningful integration of educational technologies will not occur simply because gadgets and resources are available; rather, the main emphasis here is how technology tools enhance the learning experience. This includes insights into why educators integrate educational technologies, how such integration can be effective, and how educators can be better supported to adopt and incorporate technology for teaching in their lessons. This is what the new integrated model, which will be described and used in Part 2 aims to achieve, while remaining straightforward and simple to use.

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