Models for Trainers: A J to Z Guide

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CONTENTS

INTRODUCTION

This is an A to Z guide and resource book of the best learning models currently available for learning facilitators/trainers. The book is in two parts – part one covers A to I while part two covers K to V. It is the first of a series of guides on models. Others in the series are Models for Personal Development (part one and two), Models for Coaches/Mentors, Models for Teams and Models for Managers. Students studying for qualifications in the learning and development profession will find this series of books a useful jargon buster and introduction to difficult concepts in learning and behavioural psychology.

In fact, anybody interested in the exciting and intriguing world of learning will find the book a fascinating collection of learning models, and a source of information to be dipped into as the urge or need arises. You don't have to spend years delving into texts about learning psychology to acquire the information to meet your needs as a learning facilitator, trainer or teacher. It's all in this book in an easily accessible and understandable form. In fact, this book required a major effort, though a labour of love, on the author's part, requiring thousands of hours of dedicated study, research, reading, and writing. It is also a reflection of the author's experience over many years lecturing, teaching and training in industry and academic colleges.

The models range from the ADDIE model of course design in part one to the VAK model of learning in part two. In between you will encounter many other models, some of which are critical to a good understanding of modern training, learning and teaching practice. It took this eclectic source of information to reveal the secrets of learning.

The models will enable learning facilitators and trainers to improve their training and teaching sessions by capturing and engaging the imagination of learners. The totality of models in this series of books cover a huge range of topics – all of which have relevance for the various types of professionals in the training, coaching, mentoring and teaching game and those interested in personal development. The models will help learners grasp some seemingly daunting and esoteric topics and will enable trainers, learning facilitators and teachers build the models into appropriate sessions as core concepts, making them enjoyable and understandable.

Mnemonics in the form of acronyms have been used throughout the text as a memory aid to make some of the models more memorable. Those interested in knowing more about the process of learning will find the Adult Learning model, CAP model, Kirkpatrick's Training Evaluation Model and Four Styles of Learning Model beneficial.

Each model is accompanied by an illustrative diagram and appropriate quotation. The diagrams will help users to grasp the key concepts behind the model quickly and easily. A conclusion is reached on each model showing its strengths and weaknesses and relevance to learning. Each model is discussed in a user-friendly manner making them very accessible to trainers, learning facilitators, teachers and students alike. Detailed references are provided to enable users to research the topics in more depth if they wish.

Good luck in your quest for excellence in the learning, training and development, and teaching fields.

Samuel A Malone November 2018

1 KIRKPATRICK'S TRAINING EVALUATION MODEL

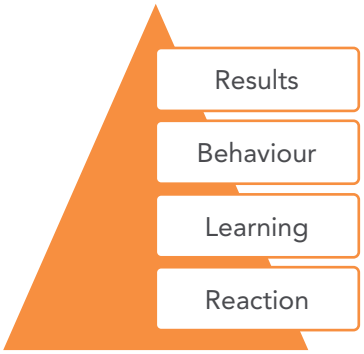

Fig. 1. Kirkpatrick's Training Evaluation Model

> **"One of the great mistakes is to judge policies and programs by their intentions rather than their results."**
>
> **– Milton Friedman**

Evaluation is about assessing the relevance, worthwhileness, effectiveness and impact of training courses on an organisation. Kirkpatrick called the four levels of evaluation - the chain of evidence. At level 1 you get evidence that they liked the programme; at level 2 that they learned the knowledge, skills and attitudes; at level 3 that they changed their job-related behaviour and level 4 that you are going to get the desired organizational results from the training.

The four levels of evaluation in more detail are:

- ***Level 1. Reaction.*** This refers to participants' feelings or attitudes toward the training intervention, usually collected through questionnaires. Commonly known as 'happy sheets.' These assess participants' opinions on various aspects of the training intervention such as relevance, content, structure and delivery. They may also assess

the competence of the training officer's presentation, and solicit suggestions for the improvement of the overall programme. Issues such as enjoyment, environment, comfort and practicability may be covered. This is a measure of participant personal satisfaction taken immediately on the conclusion of the training course. At best it provides subjective impressions and should not be considered proof of learning. Nevertheless, it is good to know whether or not people were happy or disappointed with the training. In addition, the feedback can be used to improve the content of the training expeditiously. Although favourable reactions may provide a positive atmosphere for learning, they do not always lead to learning.

- ***Level 2. Learning.*** The assessment of learning involves determining how much of the training material participants have absorbed. This includes the principles, theories, facts, techniques, skills, knowledge and attitudes that the training is designed to convey. A variety of techniques, including paper and pencil tests, multiple choice questions, question and answer sessions, simulations, interviews, and peer evaluations, can be used to test learning. A pre-test and post-test can be carried out so that any change in learning as a result of the training can be identified and quantified. This type of evaluation is highly relevant for technical skills training and compliance training, but can be difficult where measurement of attitudes is involved.
- ***Level 3. Behaviour.*** This level focuses on the use of learned materials in the workplace. Since learning demonstrated in a training course may not be applied on the job, participants' performance following the training intervention indicates to what extent behaviour has actually changed. Observation and interviews may be used to assess the degree of behaviour change. Participants should be encouraged to draw up action plans for skills learned so that they can transfer them to the job after the training is complete. Skills and knowledge that are not quickly transferred are forgotten so that the benefits of the training are lost. The evaluation of job performance should target aspects of the job related to the training objectives. Behaviour rating scales are frequently used in the type of evaluation.
- ***Level 4. Results.*** This category deals with the relationship between the results of the training intervention and organizational goals. Results include outcome measures such as profitability, return on investment, productivity, achievement of standards, turnover, job satisfaction, morale, accident rates, improved teamwork, and grievances. The selection of results measures should be based on the intended outcome of the intervention. External factors such as political, economic, social and technological forces greatly affect organizational and business performance so that the results attributable to training may be hard to isolate.
- ***Level 5. Return on Investment.*** This level has been added to Kirkpatrick's model by some academics. It translates the output of the training intervention into financial value. This requires a cost/benefit analysis to determine the return on investment to the organisation. This is very time consuming and expensive to carry out and consequently is rarely done.

Conclusion

The main strength of this model is the focus on the change in behaviour and results. In addition, it takes evaluation beyond the classroom and into the business. Because of the cost and time involved most training is evaluated at the reaction level only. Ideally evaluation should be aligned with the organisation's goals and strategies. However, the model does not consider the measurement of other critical areas before training, such as objectives, contents and equipment needed for training.

Evaluation gets progressively more difficult, costly and time-consuming to do as you move from reaction to learning, to behaviour, and finally to results. One should bear in mind that training is only effective to the extent that it is transferred successfully to on-the-job situations and organizational results. It is vital that training contributes to business success. Nevertheless, the model is probably the most widely used evaluation model in HR and Training and Development, making the idea of evaluation known and accepted.

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2 LEARNING CURVE

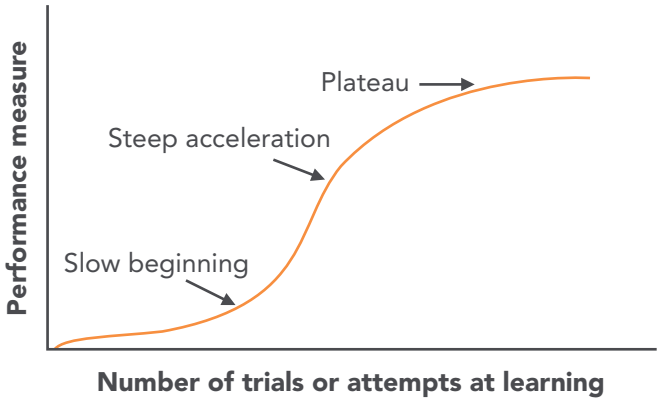

Fig. 2. Typical Learning Curve based on the 'S-curve.'

> **"There's always a learning curve, where you've got to learn what your subject is all about."**
>
> **– Brad Gilbert**

A learning curve is a measure of the increase in speed in which learning happens after the repetition of identical or similar learning events. Such curves have been studied by experimental psychologists since the 1920s and 1930s although the first person to describe a learning curve was Hermann Ebbinghaus in 1885. In the US aircraft industry in 1936 an eighty per cent learning curve was found to apply by T.P Wright of Curtis-Wright Corporation, who invented a mathematical formula for measuring the phenomenon.

An 80 per cent learning curve means that the cumulative average time to produce an aircraft fell by 20 per cent for each doubling of output of that type of aircraft. Initially it was thought that the learning curve effect was totally due to workers' learning when doing repeated tasks. Later, it was observed that other factors also affected the learning curve rate such as improved tools, techniques and working conditions, and the application of different management approaches.

Since then the learning curve concept has been extended to other industries including service ones. For example, medical procedures like heart surgery follow a learning curve. Research indicates that the death rate during heart transplants performed by surgeons' drops significantly after practice and experience. This is similar to the findings in many industrial companies. It seems that the proficiency of doctors and medical teams improves with experience and that practice does make perfect. So, your chances of surviving a heart transplant are vastly improved with a competent experienced surgeon of many years standing.

The learning curve is a graph that can be drawn to represent the pattern of learning in many production, construction and mining tasks. The learning curve effect particularly applies to a group of workers who do the same job repetitively with the same equipment and machinery. A typical learning S-curve, similar to the one illustrated above in Fig. 2, goes through three stages of a slow beginning, steep or rapid acceleration, before eventually arriving at a plateau.

It has been found that the time required to do most tasks of a repetitive nature gets shorter as people acquired experience, proficiency, expertise and develop better methods of doing the work. The accumulative average time per unit produced is assumed to fall by a constant percentage every time total output of the product doubles. The learning curve is concerned with cumulative batch production, rather than the production of a single unit or batch at a particular moment in time. In personal learning, there is usually a rapid advance at the beginning, which then levels out into a plateau or period of stability. However, not all learning curves follow this pattern. Some people may experience very slow progress at the beginning of a new learning task.

Understanding the nature of learning curves is important to a manager. The obvious message is that the pace of improvement in a skill or knowledge area is not constant. It will be rapid and dramatic at times and at other very slow or at a standstill. The learning curve has also important implications for manufacturing processes. Any change in production schedules and processes initially reduces efficiency because it involves some learning or relearning. On the other hand, if learning curve improvement is achieved when scheduling, the result may be labour and production facilities being idle for a portion of the time. Consequently, firms may refuse additional work because they do not allow for the improvement in efficiency and thus avail of attractive business opportunities. For similar reasons, the cost characteristics of new products tend to improve with the passage of time as machine speeds; labour efficiency and material usage improve.

From a personal development viewpoint, any new learning challenge will have periods of rapid progress, of no progress and of slow progress. To be a successful learner you must not get discouraged, frustrated or demotivated, but persist through the periods of no progress and slow progress and realise that plateaus are the norm for most learners. When you start learning something new and complex your progress at the beginning of the learning curve is very slow. This is due to the fact that you have to familiarize yourself with the new topic or procedure, get an overview of what's going on and learn new definitions and terminology. When you eventually learn the new vocabulary your understanding improves quickly, stages of no progress are few and far between and you start to make rapid progress. You build up a good overview of the topic and so you are able to integrate knowledge quickly. Eventually as your progress the learning curve slows down and you enter a plateau or stability stage where you now know most of what there is to know, and so it becomes more and more difficult to go any further.

The learning curve can also have an impact on company strategy, because it can have important implications for a company's costs, pricing, productivity and market share. A company that moves into a new market, and has its production staff move up the learning curve ahead of its competitors, will be more productive, and can compete more effectively on price and thus win more market share. There is also a sales learning curve where new sales representatives are not fully productive in the first few months on the job as they learn more about the product, the customers, the market and the competition. The more they learn about the product being sold the more efficient they become at selling. Typically, sales start out slowly, accelerates for a while, and then flattens out as the new product matures in a classic S-shape curve.

Accountants are able to predict the effect of the learning curve on costs and prices by using mathematical formula simulating the effects of the learning curve. Similarly, production managers and engineers can use the learning curve for production planning, staffing and logistics scheduling. There are software packages available to help them in this process. The learning curve enables them to estimate how long it will take to make new products and set prices more competitively. This results in higher profits and the winning of more business. Some professionals also use methods of prediction based on judgement. This helps them in planning, control, decision-making and budgeting. Purchasing officers who are able to determine suppliers' costs may be in a better position to negotiate attractive prices.

Limitations of the learning curve are:

- Learning curves differ from company to company and from industry to industry. Therefore, it is important that they are developed for each organisation rather than relying on ones developed for other companies or generic versions.
- Learning curves are usually based on the time necessary to complete early batches. Therefore, these times must be accurate. As more current information becomes available revaluation and recalculation is necessary.
- Any changes in the workforce, production process and procedures, will affect the learning curve causing it to change in the short term before it stabilizes in the long term.
- The culture of the workforce as well as changes in the process may have implications for the learning curve. For example, as a project ends workers' interest, energy and motivation may drop and affect the learning curve in an adverse way.
- The benefits of the learning curve may not be realised if the repetitious tasks are boring, uninteresting and demotivational.
- The learning curve only applies to learning new tasks and experienced learners will not benefit from the learning curve unless they are learning something new.

Conclusion

The learning curve is a naturally occurring human phenomenon. It happens because people are creative and resourceful and are continually looking for ways to do work more efficiently. The learning curve model has wide practical applications in manufacturing and service industries since it can predict how long it will take to undertake future tasks. This helps accountants, industrial engineers and other professionals in industry to plan, control and make better decisions. It also helps in negotiating with suppliers, budgeting, cost control, variance analysis and pricing.

In personal development learners can use the concept of the learning curve to realise that people learn at different rates, and overcome different obstacles. Following a typical learning curve of no progress, slow progress, you should realise that learning plateaus are typical and should not discourage learners from persisting with their learning when they feel like giving up.

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3 LEARNING CYCLE

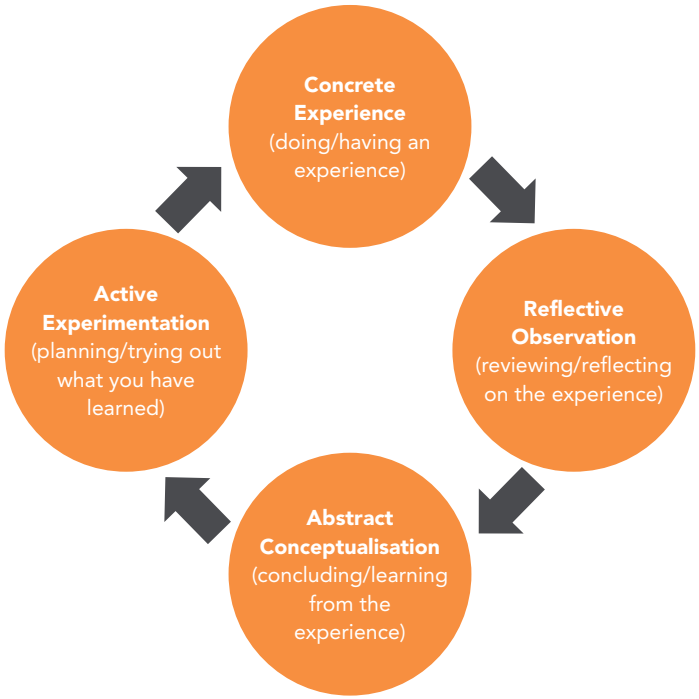

Fig. 3. Learning Cycle by David A. Kolb

> **"Learning is the process whereby knowledge is created through the transformation of experience."**
>
> **– David A. Kolb**

David Kolb created the learning cycle in 1984 from which he developed the learning style inventory, used extensively in training and development circles particularly in the USA. Kolb maintained that understanding your learning style type, and the strengths and weaknesses inherent in that type, is a major step toward increasing your learning power, and getting the most from your learning experiences. The work of Honey & Mumford which is based on Kolb's learning cycle is more popular in the UK, and is widely used in management training

and development. The learning cycle highlights the importance of reflection, concluding and continuous improvement and learning. It is a simple idea, and simple ideas are often the best. Newton said that simple laws explain complicated things. It is claimed that people learn best when the format of the presentation matches their preferred learning style.

The mnemonic DRUD will help you remember the steps involved and the associated four styles of learning. **DRUD** stands for:

- **D**o something
- **R**eflect on it
- **U**nderstand it
- **D**o it differently

Do something (Activist)
In the real world of business, you learn through concrete experience by actually doing things, by identifying and exploiting opportunities. On-the-job learning involves using direct experience, feelings and emotions to engage with the world and is possibly the best and most rewarding type of learning. It brings all the senses, visual, auditory and tactile, to bear on the learning experience. On-the-job learning includes job enrichment, job enlargement,

job rotation and job secondments. It also includes coaching, mentoring, demonstrations, secondments, project work, and overseas assignments. In formal training programmes, trainers try to recreate the real world by using models, simulations, role-play and case studies. People who score high on concrete experience tend to have greater interpersonal relationship skills, have an education in the liberal arts and are in people oriented careers such as sales, teaching, public relations and human resources. They like to be involved in real situations and have an open-minded approach to life. They are often good intuitive decision makers relying on their gut feelings, and function well in unstructured situations. Some studies show that women typically score higher on collaborative learning than men. Collaboration is a key characteristic of the concrete experience orientation which emphasizes empathy, cooperation and careful listening. On the other hand, men are innately programmed to be more confrontational, logical and analytical.

Reflect on it (Reflector)

At the end of the day, you should review and reflect on your successes and failures and record them in a learning log or diary. A learning log forces one to invest time in reflecting and bringing lessons to mind for review and to develop new perspectives. Learning from your mistakes and applying the lessons learned is the most effective form of learning. Aristotle believed that asking probing questions is the best way to learn. If you ask the right questions, you'll elicit the right answers. Directed curiosity about why certain things happen the way they do, how things work, and cause-and-effect relationships will help you learn from the present and the past. Apply questions like what, why, when, how, where and who to your experiences to maximize your learning. How can you apply the lessons in the future to help you avoid repeating those mistakes made in the past and perform more effectively? One expert has called this process the "Santayana Review," quoting the famous philosopher George Santayana, who coined the phrase "Those who cannot remember the past are condemned to repeat it." Unfortunately, too many people today are indifferent to the past and by failing to reflect on it and understand it, valuable lessons for the future are lost. Henry Ford is reputed to have said that thinking is the hardest work there is, which is probably the reason why so few do it. People with a reflective orientation are good at considering alternatives, looking at things from different perspectives and at appreciating different points of view. They like to rely on their own thoughts and feelings to form opinions, arrive at conclusions and make decisions. They value patience, impartiality, and considered, thoughtful judgment.

Understand it (Theorist)

Make sense of your experiences and make plans to guide future actions. To get a greater insight into your experiences, relate them to theoretical concept and models. Practice, by nature, will always differ from theory. But the theory may help you understand and guide your experiences, and thus help you do it better in the future. The impetus for the development

of new concepts is provided by new experiences. The trick is to take what is useful from the theory, apply it and discard the rest. We learn by trying out new skills and abilities. Those old theories are discarded and replaced by new understandings. All scientific knowledge has been acquired through carrying out experiments, carefully observing what went on, making any necessary adjustments and making sense of what happened. The latter is often followed by the formulation of scientific laws or mathematical formula such as Einstein's E = MC2. People who score high on abstract conceptualization tend to have greater cognitive skills, have a science education and be in technical and scientific careers. They are good at systematic planning, manipulation of abstract symbols, and quantitative analysis. They like the discipline of analysing ideas, and the aesthetic quality of a neat conceptual system.

Do it differently (Pragmatist)
This is the final stage of the learning cycle. It means adapting your ideas if necessary and trying them out, learning through 'hands-on' experience. You are exploring, discovering and finding out what works and what doesn't work. You are solving problems and making decisions. Certain actions elicit certain outcomes. It is only by changing our actions that we can hope to change the outcomes. If you keep on doing the same things you are going to get the same results. If something doesn't work, you need to try something else until you get the desired results. This feedback channels your energies and determination in a positive and constructive way. This will enable you to solve problems and make decisions. After this, the learning cycle starts again and continues its indefinite cycle. People with an active experimentation orientation enjoy and are good at getting things done. They are willing to take some risks to achieve their objectives. They also value having an influence on the environment around them and like to see results. The learning cycle is thus a cycle of continuous feedback of learning and relearning as people encounter new experiences.

Conclusion

Being aware of the learning cycle can help you become a better learner and improve the way you make decisions. Kolb suggests that teams who know their learning styles can improve their performance. Team learning can also be enhanced by having different learning styles within the group so that individuals learn from others with contrasting styles to their own. His learning cycle and learning styles has had a major influence in training and development for many years. He is a believer and advocate of experiential learning. He maintains "When a concrete experience is enriched by reflection, given meaning by thinking, and transformed by action, the new experience created becomes richer, broader, and deeper." Employers who identify the learning style preferences of their employees may develop more effective professional development programmes and more productive employees, partly by encouraging them to think creatively and avoid being stuck in one line of thought.

There have been many criticisms of Kolb's theory. This is a summary of the main criticisms as presented by Mark K. Smith: "A number of criticisms can be made of the Kolb model. It pays insufficient attention to the process of reflection; the claims made for the four different learning styles are extravagant; the model takes very little account of different cultural experiences/conditions; the idea of stages or steps does not sit well with the entire reality of thinking; and the empirical support for the model is weak." In addition, Rogers points out, that "learning includes goals, purposes, intentions, choice and decision-making, and it is not clear at all where these elements fit into the learning cycle." Frank Coffield, professor of education at Newcastle, who did research on behalf of the Learning and Skills Development Agency, said that some of the learning styles instruments – many of them well-known commercial products – make extravagant claims of success that are not upheld when subjected to scrutiny.

Nevertheless, Kolb's theory has made a major contribution to understanding how learning happens and the model provides a focus for study and debate. The idea that the learning facilitator should match the style of the learner is intuitively appealing but in fact has little empirical evidence to support it. Nevertheless, the model remains a powerful planning and thinking tool for learning facilitators. Irrespective of the model we must also bear in mind that learners' capacity to learn differs depending on their ability, aptitudes, talents, intelligence, interests, motivation, attitude, and preferences. They also bring different levels of knowledge and experience to the learning task. In addition, some learners may have learning disabilities which constrain their ability to learn. The learning culture and the learning environment in which learning takes place also have an effect on learning outcomes.

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4 LEARNING STYLES DUNN & DUNN

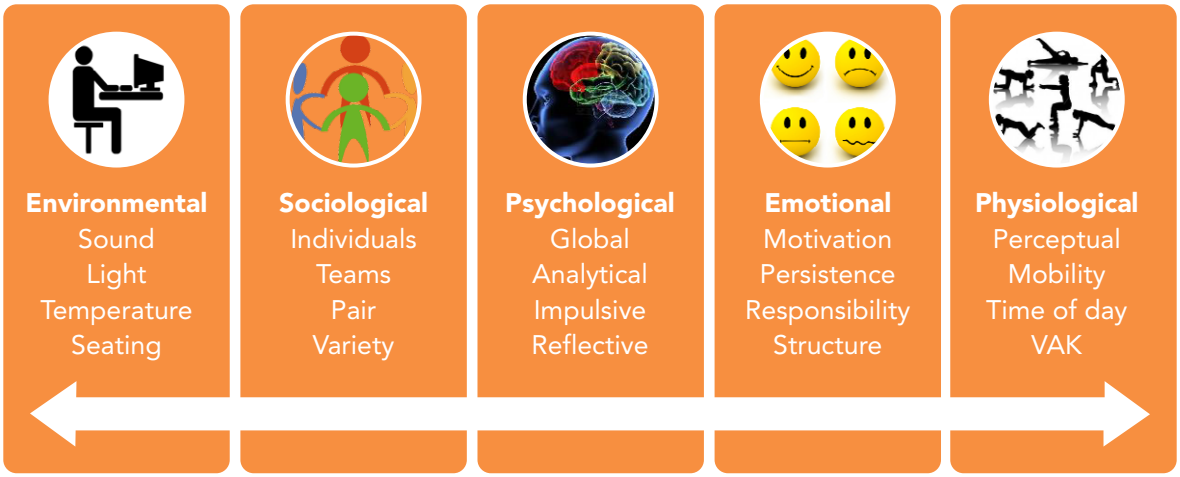

Fig. 4. Dunn & Dunn Learning Style

"The contrast between the enormous popularity of the learning styles approach within education and the lack of credible evidence for its utility is, in our opinion, striking and disturbing. If classification of students' styles has practical utility, it remains to be demonstrated."

– Pashler et al. (2009)

Rita and Kenneth Dunn carried out research in schools on the way students learn. Their learning styles model emerged out of 30 years of research into how children learn differently. They defined learning styles as "The way in which each learner begins to concentrate, process and retain new and difficult information. That interaction occurs differently for everyone." They concluded that there are five dimensions on which students learning styles differ. These are environmental, sociological, psychological, emotional and physiological – all of which contributed to the effectiveness of how students learned.

1. **Environmental.** This is the place where students learn. Some students prefer a noisy, busy, well lit, warm environment with plenty of interaction while others prefer a quiet, subdued and cooler environment. All students prefer a friendly welcoming threat free environment. Most people like learning posters on the wall to remind them of key learning points. Some people like to study to background music. Some people need a quiet place when they are learning, while others notice neither noise nor movement. Once they begin to concentrate; they can "block out" sound. Some

people work well under very bright light; whereas, others need indirect or low lights. Many students cannot 'think' when they feel hot, and others cannot 'think' when they feel cold; some concentrate better in either warm or cool environments. Some students prefer a formal learning environment with rows of desks and chairs, while others prefer less formal seating arrangements, such as studying on the floor or using beanbag chairs or cushions to sit on.

2. **Sociological.** Some students prefer to learn on their own particularly when confronted with a difficult task and feel intimidated by groups, while others prefer the synergy, excitement of working in the company of others. Some people like to learn with a friend with or without an adult or expert present. Many prefer traditional teaching while others prefer collaborative learning arrangements.
3. **Psychological.** Some students are global learners looking for the big picture, while others are analytical and like to analyse issues by breaking problems down into elements. Global learners prefer to work in an environment with soft lighting and informal seating. According to Rita Dunn the majority of students at all academic levels are global rather than analytic. This means that they respond better to information taught globally than they do to information taught analytically. They need breaks, refreshments, mobility and sound. Analytic learners prefer to work in an environment with bright light and formal seating. They work best with few or no interruptions, in a quiet environment, and little or no snacking. They have a strong emotional need to complete the task they are working on. Some students are impulsive and jump into problems, figuring out things as they go along, while others like to pause to reflect before starting. Teachers who are learning style aware routinely start their lectures by providing a birds-eye overview of each new topic to cater for global learners.
4. **Emotional.** Some students are self-directed learners taking responsibility for their own learning while others need considerable support and structure. This means that some students love doing assignments and project work while others lack the skills, initiative, self-discipline and confidence to do so. Some students have great motivation and persistence to learn, while others tend to procrastinate and need considerable encouragement and guidance to help them stick to the task. Some people like to multitask, while others like to concentrate on one thing at a time. Persistence is the ability to stick to and complete tasks.
5. **Physiological.** Consider whether the student is an auditory, visual, tactile or kinaesthetic learner. Boys and girls, and men and women, tend to learn differently. The perceptual strength of males is often visual, tactile, and kinaesthetic. They tend to need more mobility than females, and function better in an informal environment. Frequently, males are peer motivated and nonconforming. On the other hand, females tend to be more auditory, need a quiet place while studying, work best in a formal setting, and need to move about less frequently. Often, they are more

conforming, authority-oriented, and self-motivated than males. Some students like to move about when learning or need frequent breaks while others can sit for hours while engaged in an interesting absorbing learning task. Some students learn best in the morning, while others perform best during the afternoon. Thus, many people refer to themselves as night owls or early birds because they function best at night or in the morning. Some students like to snack or drink while learning while others prefer not to do so.

In summary, the main points of the Dunn & Dunn learning theory are as follows:

- Learning style preferences differ significantly from each other and can be measured.
- The stronger the learning style preference, the more important it is to provide compatible instructional strategies.
- Catering for the five dimensions promulgated in the theory results in increased academic achievement and improved student attitudes towards learning.
- Most students can learn to capitalize on their learning style strengths when concentrating on new or difficult academic material.

Conclusion

Students learn best when their general processing styles such as global or analytical are catered for. You also need to cater for their preferred learning styles such as auditory, visual, tactile or kinaesthetic and meet their needs as regards context, structure, responsibility and authority. There is considerable research supporting this model but many find that the claims made are exaggerated, questionable and need further proof. Nevertheless, the model is popular in teaching and academic circles and is used widely internationally.

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5 LEARNING STYLES PROFILER BY JACKSON

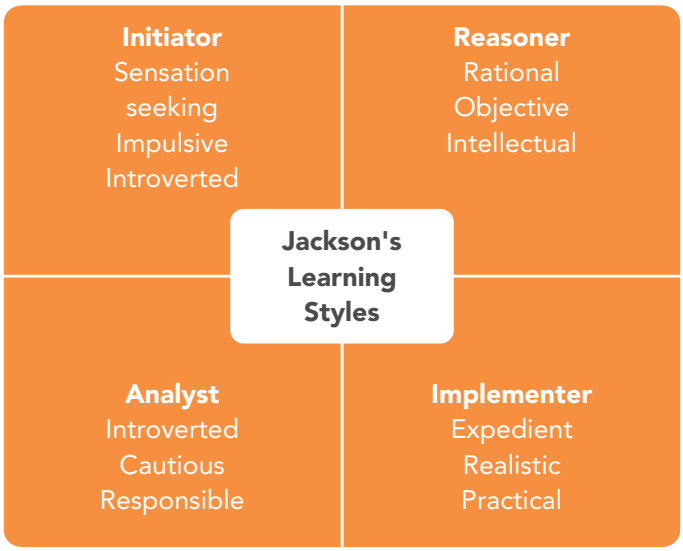

Fig. 5. Jackson's Learning Styles Profiler

"When mismatches exist between learning styles of most students in a class and the teaching style of the professor, the students may become bored and inattentive in class, do poorly on tests, get discouraged about courses, the curriculum, and themselves, and in some cases, change to other curricula or drop out of school. Most seriously, society loses potentially excellent professionals. To overcome these problems, professors should strive for a balance of instructional methods (as opposed to trying to teach each student exclusively according to his/her preferences)."

– Richard Felder

The learning style profiler (LSP) is based upon Chris J. Jackson's hybrid model of learning in personality. The LSP model can be part of E-learning systems. This model argues that there is a common biological basis to positive and negative outcomes within the workplace, education and the general community. It is called a hybrid model because it combines biological personality theories with socio-cognitive and experiential types of learning. The model attributes observable behaviour to individual differences in two fundamentally distinct

types of learning. These are called 'temperament' and 'character.' Individual differences in temperament reflect biases in unconscious information processing related to neurogenetic mechanisms. Individual differences in character reflect higher level biases in conceptual learning.

Jackson suggests that temperament is comprised of two dimensions of learning, including impulsivity and emotional independence. He argues that impulsivity or sensation seeking is an instinctive biological drive compelling people to explore the environment. He specifically argues that sensation seeking is neither positive nor negative. Sensation seeking is seen as a relative primitive drive which needs reexpression by more sophisticated socio-cognitive ways for it to be the basis of functional learners. Functional learners are cognitively equipped to use their sensation seeking wisely whereas dysfunctional learners are not. Jackson argues that if a person has the cognitive skills to redirect, control, or delay their sensation seeking, then that person will be a successful functional learner. Such a person possesses self-reliance, self-control and rejects chance, luck and intuition in favour of rationality. It is a learning style linked with low anxiety and high emotional intelligence. On the other hand, if they lack the cognitive skills to control their sensation seeking, then the person will be an unsuccessful dysfunctional learner.

Character is the more sociocognitive part of learning related to will or the ability to prevent instinctive responses. Jackson suggests that character comprises two learning systems responsibility and practicality. Responsibility is regarded as the defining aspect of a mature character, and the development of responsible learning is seen to inhibit impulsivity. People high in responsibility are said to direct learning experiences toward functional outcomes in both educational and professional contexts. Impulsive individuals are less likely to develop mature levels of responsibility. On the other hand, emotionally independent individuals are more likely to develop mature levels of responsibility and, thus, engage in functional behaviour. Accordingly, people high in emotional independence should be low in impulsivity, since self-control will tend to inhibit impulsivity. The role of responsibility is akin to the role of conscientiousness in the Big Five model of personality.

Practicality is thought to reflect sociocognitive as opposed to temperament processes. Unlike the other learning styles, however, practicality reflects experiential interest in learning as opposed to being a basis of learning. A practical person is someone who tends to be expedient, functional and tends to engage in learning only when it serves a practical purpose. It is similar to active experimentation in the Kolb model.

Sociocognitive mechanisms are divided into the following:

- Goal oriented achiever – a mastery or learning goal orientation allocating cognitive resources towards the achievement of difficult goals. This means that the more cognitive effort we put into a task then the more likely it is that we will succeed.
- Conscientious achiever – providing responsibility, planning and perseverance. Conscientious achievers are responsible and clever. They can learn by collecting, analysis and review of information before action. They prefer to analyse all aspects of a problem. Thus, they can connect discrete data to each other and avoid a mistake. These people usually have extensive knowledge in their area of interest.
- Deep learning achiever – a deep understanding and knowledge about problems and systems thinking rather than simply tackling the surface issues. They want to know how they can use previous knowledge in a practical situation. They can learn effectively when they know the practical value of something. Thus, they are in a position to test the theory or idea. Learning is difficult for them, if they don't know the purpose of the learning.
- Emotionally intelligent achiever – providing rationality and emotionally independent thinking. They are patient learners and are most effective when they know the logic of the problem. They can generalize well, and often divide a problem into small and understandable parts in order to solve it.

Jackson's model maintains that learning styles are influenced by a variety of factors including experience, personal choice and biology. The profiler is designed to assess how people learn at work and so is used in organizational and business settings. It consists of four styles; initiators who get things moving, reasoners provide caution through reflection and objectivity, analysts give structure and implementers put the analysts' plans into action and save them from being paralyzed by detail (paralysis by analysis). The following discusses the four learning styles in more detail:

1. **Initiator style.** People with this style tend to be sensation seeking, impulsive and extroverted. This triggers off approach behaviour when there is a chance of reward. This person does not usually think carefully before doing anything. Look before you leap is not something they take into consideration. They generally do and say things without stopping to think. They are inclined to speak before thinking things through, and do not weigh up the advantages and disadvantages before they make up their minds.
2. **Reasoner style.** People with this style tend to be intellectual, rational, thoughtful, insightful and objective. This inhibits behaviour when confronted with possibilities of punishment. People with this style believe they have control over the direction of their lives and can influence the way things happen. They rarely find it difficult to cope with life.
3. **Analyst style.** People with this style tend to be introverted, responsible, cautious and methodical. It is a self-regulatory goal-oriented tendency, which serves to maintain interest in a problem so that it can be thoroughly understood. This person tends to be consistent and organised in their work. They do not procrastinate, rarely leave things to the last minute but prefer to do them promptly. They are reliable and trustworthy people.
4. **Implementer style.** People with this style tend to be expedient, realistic, practical and down to earth doers. It is a logically necessary addition if plans are to be carried out. No neuropsychological basis is claimed for the implementer style. This person rarely philosophizes about the purpose of life. They are not overcome by a sense of wonder when they visit historical sites. They rarely discuss the causes and possible solutions of social and political issues with friends. They do not meditate about things in general.

Conclusion

The Jackson model is a sophisticated instrument in terms of its theory base and computerized format. It is designed for use in business, education and human resource such as training, selection and assessment. It emphasizes the importance of personal development through building up multiple strengths. It is well to remember that learning styles is just one of numerous factors that determine how effectively we learn. Others include context, culture, teaching methods, learning objectives, attitudes and the natural ability of the learner.

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6 MEGGINSON'S LEARNING MODEL

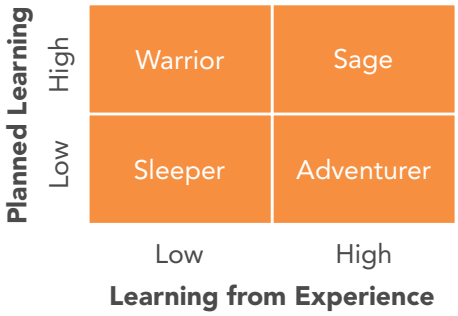

Fig. 6. David Megginson's Learning Model

> **"A man is but the product of his thoughts – what he thinks he becomes."**
>
> **– Mahatma Gandhi**

'Planned learning' in this model implies that learners take responsibility for the direction and control of their training and development. 'Learning from experience' implies that learners respond to their experience in a thoughtful and reflective way. Four types of learner are highlighted in the model:

- Warriors – Warriors plan their experiences but tend not to learn from them. This is because they don't review and reflect on their learning. Because of this they tend not to learn from their mistakes. We describe planned learners as 'warriors' because they have focus, direction, clarity and persistence…but due to lack of reflection have little insight on their learning.
- Sage – The sage is the ideal learner. Sages plan, reflect and learn from their experiences. Sages have personal development plans and an integrated approach to on-the-job and off-the-job training. Sages have the qualities of warriors and adventurers. They realise that formal and informal learning is complementary, and that both are essential to long-term management development.
- Sleeper – Sleepers show little initiative or response to their experiences. They are low on planned learning and low on learning from experience. They lack an awareness of the need to exploit job activities as learning opportunities. They are ineffective learners. Sleepers have much to learn from warriors and adventurers.

- Adventurer – Adventurers respond to and learn from opportunities that come their way unexpectedly, but tend not to plan and create opportunities for themselves. This is because of a lack of purposeful or prospective learning. We call emergent learners 'adventurers' because they have curiosity, creativity, flexibility and opportunism, and because they live in the here-and-now. Adventurers are thus reactive rather than proactive.

Conclusion

Learners needs to be strong in both planned and emergent learning (experiential) if they want to be effective self-development learners. Sleepers can become better learners through greater awareness, engagement, reflection and attention. Taking on the persona of a warrior or adventurer will also help them become more effective and better learners.

Warriors are likely to enjoy planned learning. They can deepen their learning by developing their capability as emergent learners. Using learning logs and reflecting on what they learn is useful in this regard.

Adventures are advised to take a more balanced approach to learning and engage in lots of planning. Their strengths are most effective when they engage in self-development.

Sages are already impressive learners. The challenge facing them is to keep up the momentum they already are engaged in. They should also help others to learn and act as learning role models.

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7 MUD MODEL OF LEARNING

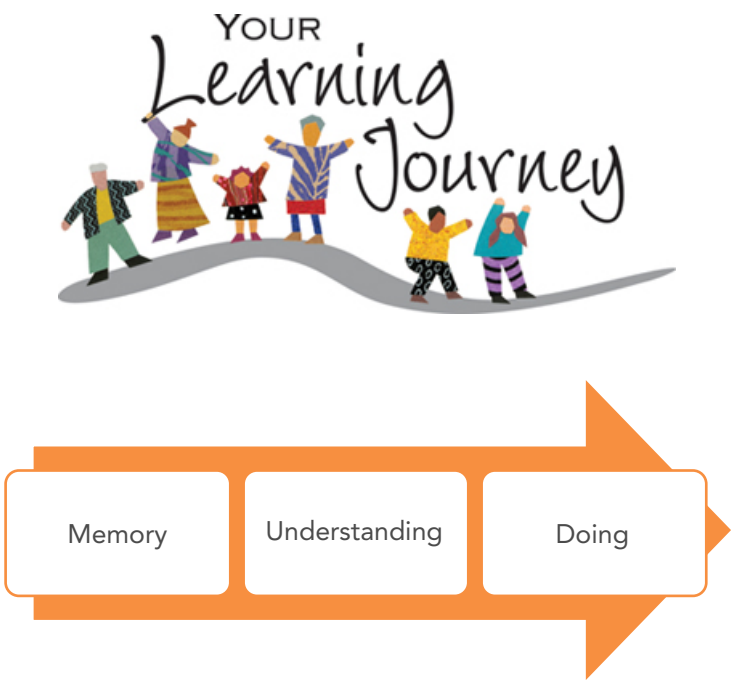

Fig. 7. MUD Model of Learning.

> "The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice.
>
> – Brian Herbert

The **MUD** model is an acronym guide to how things can be learned; the acronym **MUD** stands for **M**emory, **U**nderstanding and **D**oing and is based on a mnemonic by G. Gibbs in his book How Do I Learn (1973).

- Memorizing includes association, repetition, review, paraphrasing and self-testing (one of the most effective ways of learning). Don't memorise a formula without understanding it first. This understanding will help you recreate the formula if your memory fails you. You may achieve adequate comprehension of a concept, but may be unable to recall the facts associated with it. Hence, you need to repeat, review and reflect on the issues you want to recall.
- Understanding is about making sense of information, extracting meaning and relating information to the realities of everyday life. We gain a great understanding of the world through the application and reinterpretation of knowledge. Understanding involves questioning, comparing, contrasting, analysis, synthesis, evaluation, acquiring insights and problem solving. Look for similarities, advantages and disadvantages, and

relate everything that you can to your existing fund of knowledge and experience. Professional and university examinations test students' capacity to demonstrate their analytical and problem-solving abilities rather than rote memorisation. So, identify the key learning points, organise your material in a meaningful way, and make sure that you understand what you are committing to memory.

- Doing involves a physical activity of some sort, with practice sessions to achieve perfection. There is an old saying that there can be no learning without action, and no action without learning. You don't become a competent footballer by studying a 'how to book' and memorizing the rules. You learn the sport by getting out there on the field in competition with an opposing side, and playing with experienced players. The same applies to any craft, job or profession. It is about developing skills and methods and testing ideas in the real world. This is what experiential learning is all about. Confucius said: "I hear and I forget. I see and I remember. I do and I understand."

Conclusion

Obviously, if you really want to remember something you should understand it and practice it. Memory is just one of the ingredients of an effective memory. Use the MUD model of learning when you want to commit things to memory and learn effectively and comprehensively.

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8 NOTES MODEL OF TRAINING

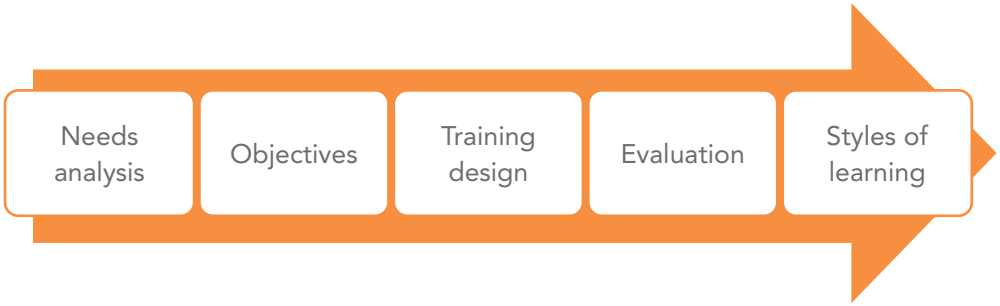

Fig. 8. NOTES model of training

> "A good trainer can inspire hope, ignite the imagination, and instil a love of learning."
>
> – Brad Henry

The **NOTES** model is an acronymic guide to remembering the elements of training. It stands for Needs analysis, Objectives, Training design, Evaluation and Styles of learning.

Needs analysis – Before you contemplate any training, you must first of all identify exactly the training needs of the potential participants. How much do they need to know? How much do they know already? There is no point in presenting information that they know already or imparting skills they are already proficient in. Their existing level of knowledge and skills can be established through a training survey.

Objectives – Having identified the training needs, you must define the overall objectives for the training and set down learning outcomes for each session. If people know what they are supposed to learn they can compare what they've learned and ascertain how successful they are. Learning outcomes facilitate this process.

Training design – Having completed the first three stages, you must design the training programme and the type of training techniques you intend to use to maximize learning. This may be a combination of on-the-job and off-the-job training methods. On-the-job training methods include project work, shadowing, coaching and mentoring. Off-the-job training methods include role play, case studies and discussions. The more experiential or practical the learning the more enjoyable, lasting and memorable it is.

Evaluation – Having finished the training, you must evaluate the training to see that overall training objectives and session-learning outcomes have been achieved. More importantly you should feedback the results into the training design so that it can be improved next time around. Worthwhile training occurs when the results of the training are applied successfully back on the job resulting in improvements.

Styles of learning – Determining the learning style of proposed participants before you undertake the training will help you design training in harmony with their unique learning styles. The trainer should match his learning style with those of the course participants for more successful learning.

Conclusion

NOTES provide a systematic approach to training design and delivery. It ensures that all aspects of the training are considered. Before they design training programmes, trainers should identify what the training needs of participants are. The learning outcomes for each session should be defined so that learners know what they are expected to learn. The most appropriate training approach should be used to make it as easy as possible for participants to learn. After the training people should be evaluated to ensure that the appropriate training has been acquired. Finally, the trainer should try to ascertain the learning styles of participants so that he can match his own learning style with theirs and has it in mind when he is presenting his material.

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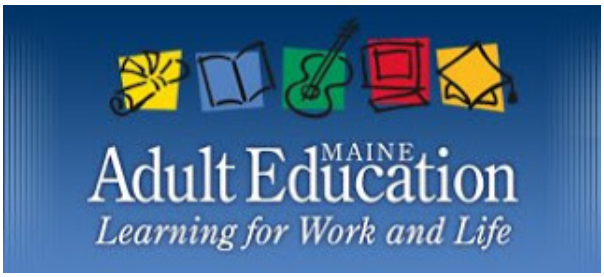
9 PRATT'S MODEL OF LEARNING



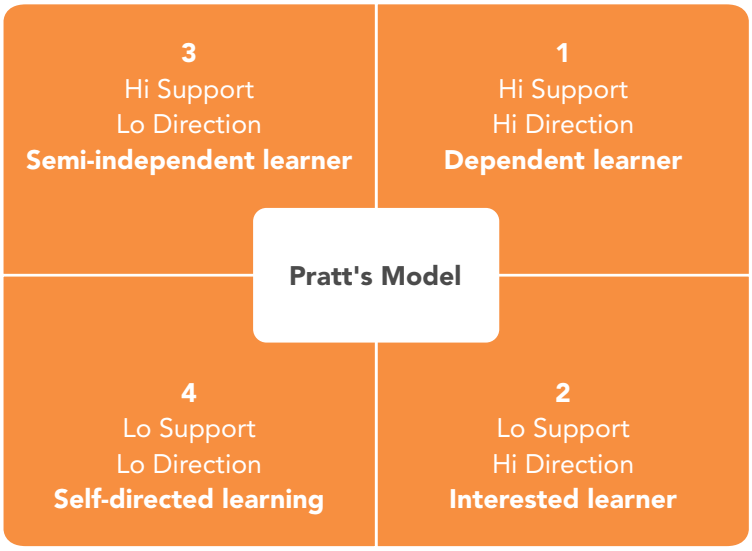


Fig. 9. Pratt's Model of Learner Direction and Support

> **"I never teach my pupils, I only provide the conditions in which they can learn."**
>
> **– Albert Einstein**

Pratt believed that most learning experiences depend on the situation, and that the learner may act differently in different contexts and with different styles of teaching. Some learners may need a lot of direction while others may need a lot of emotional support. Some need direction in addition to emotional support. In particular, adult learners crave a lot of caring, encouragement, respect, trust, shared decision-making and acknowledgement. Depending on prior knowledge and expertise one learner may be very confident and self-directed in one situation, while in another the learner may lack confidence and need a lot of teacher or trainer direction and support in the form of inspiration, encouragement and praise. In any event, good teachers and trainers provide clear expectations and reasonable goals for all learners.

Pratt's Model reflects this situation and is a four-quadrant model showing combinations of high and low direction or support. Direction refers to the learner's need for assistance from a teacher or trainer to help them learn. The level of direction depends on the learner's competence and general need for dependence. The ability to be self-directed depends on the situation in that one may be self-directed in one subject, and a dependent learner in another subject. It depends on the level of prior knowledge, expertise and competence that the learner brings to the event and the technical complexity of the subject. Learners who are highly competent in the subject matter with a low dependence need will be much more independent than those of low competence with high dependence needs.

Support refers to the amount of encouragement that the learners need from others including teachers, trainers and peers. In addition, it is the product of two factors: the learner's commitment to the learning process and the learner's confidence about their ability to learn. This means that learners who are emotionally mature and highly committed and confident will need less support than those without these strengths.

On the vertical axis, is the need for support ranging from low at the bottom to high at the top. On the horizontal axis, is the need for direction ranging from low on the left to high on the right. The range goes from directed learning to facilitative learning and from low dependency to high dependency. It ranges from an authoritarian or teacher centred style of teaching to a democratic empowerment style or learner centred approach.

Those in quadrant 1 need a lot of direction and support in their learning from the teacher or trainer. Some learners need maximum direction and support because they lack the necessary knowledge and skills and confidence to be successful learners. They are known as dependent learners and need the direction of an authoritarian figure to give them instructions on what to do, how to do it, and when. Learners in quadrant 1 are teacher-centred. They treat the teachers as experts and passively wait for them to tell them what to do. Dependent learners lack the knowledge, skills, and experience or motivation, and self-confidence to pursue educational goals. They tend to be surface rather than deep learners and to memorise content rather than understand it. Therefore, they respond best to a clearly organised and rigorous approach to a subject.

Those in quadrant 2, also need a lot of direction but are emotionally self-sufficient. They are not ready for self-directed learning and need considerable learning to learn skills before they can progress to be self-directed learners. They can be inspired by a good teacher but need close supervision, goal setting, structured projects, encouragement, immediate and frequent feedback, and study skills.

Those in quadrant 3, are more capable of self-direction and independence in their learning but still need a high level of emotional support from another person. These learners are well on the road to becoming self-directed learners but may have insufficient experience, confidence and motivation to be self-directed learners. They are capable, willing and able to get involved in collaborative learning but first need to learn a complex body of learning to learn skills.

Those in quadrant 4, need a low level of support and guidance and a low level of direction. They are self-sufficient learners and like to share in decision-making and problem-solving with teachers and trainers. Examples of self-directed learning include discovery learning, reflection, problem-based learning, coaching and mentoring, on-the-job training, apprenticeships, internships, term projects, independent study, dissertations, student-directed discussion with minimal teacher involvement, student newspaper or magazine with faculty sponsor, and creative writing.

Many university professors are quadrant 4 teachers when supervising a student's project or thesis. They are guides on the side but remain available for consultations. They monitor the student's progress; act as a sounding board and offer suggestions to change direction if they think it is necessary for the student to do so. The ultimate role of a quadrant 4 teacher is to become unnecessary. In industry trainers who adopt problem-based approaches and encourage discovery learning are in quadrant 4.

Some learners need minimal direction and support because they have the competence, confidence and necessary knowledge and skills to be successful learners. They are equipped to become fully self-directed lifelong learners and need very little institutional support. The teachers or trainers evolve into learning facilitators and become guides on the side rather than sages on the stage. Over time the learner moves from dependency to complete self-direction and self-sufficiency, so that the teacher gradually fades into the background as the learner takes on more and more responsibility for their own learning.

All learners even those in quadrant 4 may become temporarily dependent when confronted with new topics particularly technical ones that they know nothing about. There are certain complex bodies of knowledge such as medicine, accountancy, engineering, computer science and mathematics that need the experience, tutelage and guidance of an expert.

The goal of the educational process is to produce self-directed, lifelong learners. However, current educational practice in many cases perpetuates dependency rather than produce self-directed learners. Self-directed learners need considerable learning skills such as time management, goal setting, effecting reading, memory skills, self-testing, critical thinking, problem-solving, peer critique, research competence, and how to use educational resources. These skills need to be imparted by the teacher or trainer to enable learners to move smoothly from quadrant 1 to quadrant 4.

The most severe problems arise when learners are mismatched with an inappropriate quadrant teacher. For example, if a dependent learner is mismatched with a non-directive teacher or when self-directed learners are mismatched with directive teachers. In the case of the former learners may feel frustrated and angry when they are expected to make decisions, take responsibility for their own learning, and do things that they have not the confidence, knowledge, or expertise to perform. In the case of the latter adult learners who return to college as mature students often experience the opposite problem. They are used to being independent and being in responsible decision-making jobs, and so are not used to being directed and closely monitored, and told to do things that they might not fully understand.

Conclusion

Pratt's model provides a conceptual model for teachers and learning facilitators showing how the capacity for learning varies between different learners. Some need a great deal of direction and emotional support while others don't. However, as competence increases the need for direction and support diminishes. In addition, learners need for direction and support may vary with different subjects and teaching styles depending on their difficulty and the learners' prior knowledge and expertise.

The model provides a reminder to teachers and trainers that directed learning may be more appropriate in certain circumstances, while self-directed learning might be more appropriate in others. It really depends on the competences of the learners involved and the situation in which they find themselves. However, good teaching and training matches the learners' stage of self-direction and helps them advance towards greater self-sufficiency.

Although a useful model for teachers and learning facilitators to know it has little empirical evidence to support it. In practice the direction and support a learner needs are a relatively straightforward process of assessing their strengths and weaknesses. It is often a question of assisting them to set their goals, developing appropriate learning activities, helping them to motivate themselves, and providing them with learning to learn skills and continuous feedback.

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10 SINGLE VERSUS DOUBLE VERSUS TRIPLE LEARNING

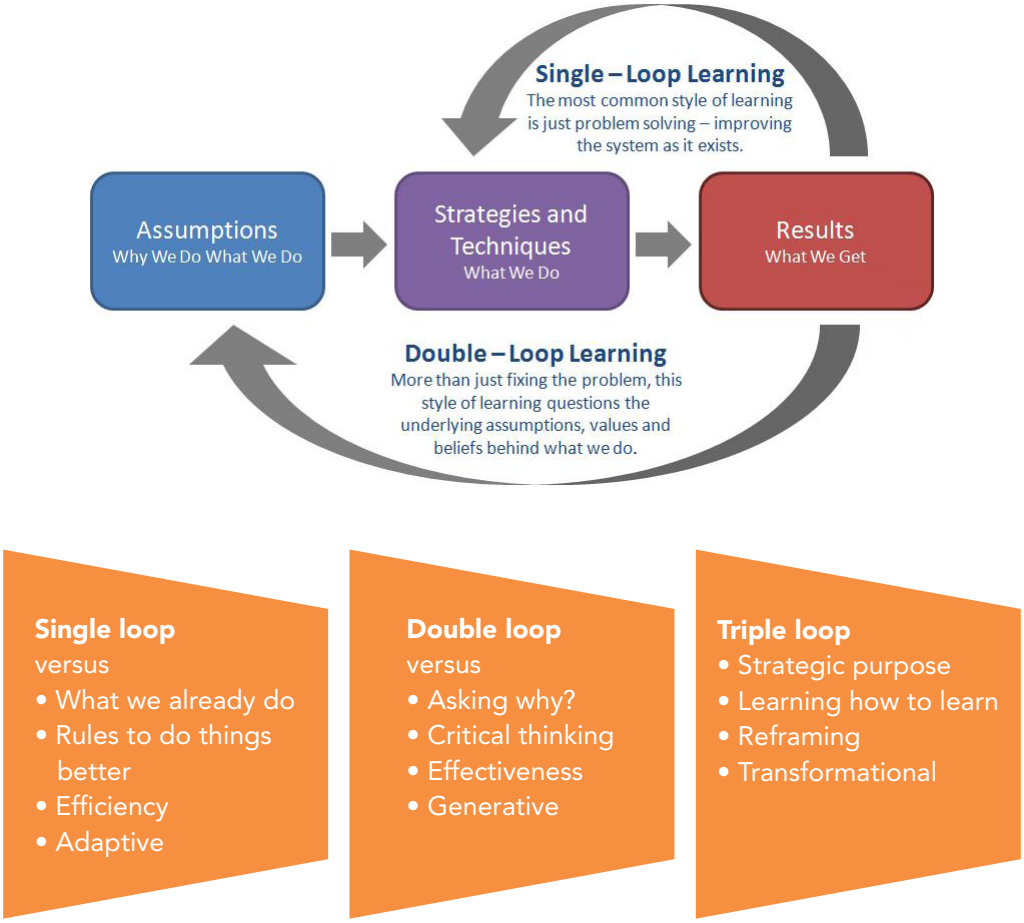

Fig. 10. Single loop v Double loop v Triple loop learning

"Most people define learning too narrowly as mere 'problem-solving, so they focus on identifying and correcting errors in the external environment. Solving problems is important. But if learning is to persist, managers and employees must also look inward. They need to reflect critically on their own behaviour, identify the ways they often inadvertently contribute to the organisation's problems, and then change how they act."

– Chris Argyris

Argyris defines learning as the detection and correction of error. Single loop learning is about following the rules; double loop learning is about changing the rules; and triple loop learning is about learning about learning. In an organizational context they roughly correspond to operational, tactical and strategic levels. The three concepts are key elements in understanding the dynamics of learning.

Single loop learning, which is also known as adaptive learning, is about just following existing rules, procedures, strategies and systems. It poses the question how but not why, which is the domain of double loop learning. Most organisations are good at single loop learning since they are government by policies, rules, regulations, systems and procedures. This type of thinking is thinking within the box or within constrains and boundaries. As well as determining that we are doing things right it also includes making sure that we are doing so efficiently. It may include correcting things that deviate from the rules or ascertaining why actual outcomes differ from desired outcomes. The common domestic thermostat is often used as an example of single loop learning. The function of the thermostat is to put on the heat when a certain temperature is reached and put off the heat when it exceeds a predetermined limit. It therefore, takes corrective action as appropriate to keep the room at a constant comfortable temperature. In business budgetary control is another example. Actual costs are compared with targets and corrective action is taken when they go outside certain limits. Learning by rote is a good example of single loop learning. We just memorise what we need to know without thinking about it in a meaningful and contextual way.

Double loop learning, which is also known as generative learning, questions the underlying causes of problems, assumptions made, and reasons why. Double loop learning is a rare phenomenon in most organisations because most are governed by policies, rules and regulations. Generating alternatives, comparing options and understanding why one solution may be better than another is not frequently done. It is considering and weighing all options before arriving at solutions to problems, instead of following the first one that comes into our head. Double loop learning routinely questions and debates underlying assumptions, norms and objectives. It may develop new rules, procedures, systems and strategies to replace existing ones that are not getting the desired results. For example, if a product is no longer profitable, without any possibility of it being turned around, then it must seriously be considered for discontinuing. Vested and powerful interests within the company may want to continue with manufacture because the particular product was so successful in the past, it's their baby, and they think they can revive its fortunes despite much evidence to the contrary. The situation is even direr! A competitor has entered the market with a much more technologically advanced product which is keenly priced and which the company is unlikely to match. Double loop learning is thinking outside the box by asking are we doing the right things. It may involve looking at issues in new ways and developing more effective ways of working. Therefore, it may involve innovative and creative thinking. Single loop learning is analogous to a thermostat adjusting to a pre-set temperature, while double loop is analogous to the questioning of whether the thermostat is set at the right temperature.

Triple loop learning is learning about learning or understanding how we learn. It is also known as transformational learning. Innovative or breakthrough learning is a similar phenomenon where people have an 'aha' experience and see things in a novel way or invent something unusual. Triple loop learning can be used to develop insightful solutions to long-standing problems or complex issues. Metacognition is a similar concept used in learning and is about thinking about one's own mental processes or understanding the way one thinks and learns. It is questioning our purpose in life, our core values, system of beliefs, and basic principles. It is a type of deep critical reflection leading to new thinking where we undergo a paradigm shift in our thinking. Rather than thinking outside the box it is thinking about the box and the process of thinking itself. Near death experiences often trigger off a radical change in our perspective of what is important in life and the way we live. It makes us realise our own mortality, and develop new priorities in life rather than being concerned about the frivolous, or obsessed with the accumulation of material things. Thinking about our own thinking and reasoning processes and behaviour and how we are perceived by others will help us gain a more realistic assessment of our strengths and weaknesses. Getting feedback from others will further help our understanding of ourselves and the impact we have on others. All this information will enable us to build on our strengths and eliminate those characteristics and habits of behaviour that are holding us back. It will also help us to get on better with others and help us network and form coalitions and progress in our careers.

Conclusion

All three types of learning are useful and the distinction between them will give us a good insight into the learning process and the different types of learning. Single loop learning tells a system if it is on target or off target. Correcting deviations from rules, policies and regulations and ascertaining the reasons for the difference between expected and actual outcomes are an important aspect of organizational life. The payoff of single loop learning is efficiency and quality. The downside is a tendency toward conformity rather than using one's initiative.

Sometimes rules become outdated and must be brought in line with modern practice. This gives rise to the need for double loop learning. It may be necessary to change the rules or create new rules to make them relevant to current business requirements and to improve the effectiveness of the business. The payoff of double loop learning is increased effectiveness, relevance, improved decision making and problem solving, better management and profitability.

Triple loop learning arises when we question our basic beliefs, purpose, core values and principles. Thinking about thinking will help us to do this by questioning and understanding our thought processes and our beliefs, core values and perceptions about life. The payoff of triple loop learning is the greater possibility of leading a more meaningful, purposeful and ethical life. On a personal level learning about learning will help us prepare for a world of change, lifelong learning and continuous improvement.

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11 TACIT VERSUS EXPLICIT KNOWLEDGE

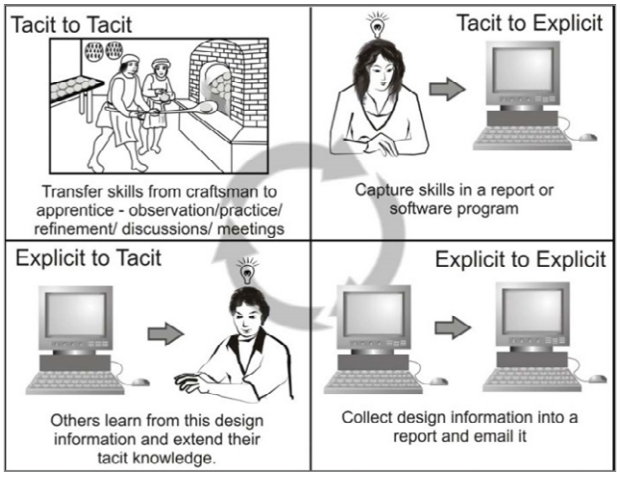

Fig. 11. Tacit versus Explicit Knowledge

> "One key lesson to be learned is that we must adopt greater people-centric perspectives of knowledge. Technology can only provide a rudimentary reasoning devoid of innovation. People are the intelligent agent that create and act on new opportunities. It is these opportunities that will bring the world forward."
>
> – Wiig (2002)

Tacit knowledge is knowledge that is understood at an unconscious level but not expressed in writing. Tacit knowledge is automatic, oral and intuitive – knowing how to do something without thinking about it. It is intangible, automatic and difficult to separate from the person or context in which it was created. It refers to common sense, wisdom and intuitive, hard to define knowledge, that is largely experience based. It includes cultural beliefs, values, attitudes, assumptions, insights, perspectives, casual conversations, cognitive models as well as skills capabilities and expertise. Examples of skills are knowledge about how to play a musical instrument, and how to operate complex machinery. These skills may be difficult to express or put into words and pass on to others. The transfer of these skills requires a lot of trust, transparency, person-to-person contact, regular interaction and shared experience.

Cognitive models affect how we make sense of events in the world. When we go to a restaurant we operate to a cognitive model or schema knowing that we will have to wait before we are seated, greeted by a waiter, shown to our table, presented with a food and drinks menu and so on. In addition, to mental models, people use metaphors, analogies, demonstrations and stories to convey their tacit knowledge to others.

Tacit knowledge is hidden from the consciousness of the knower. It resides in the human brain and cannot be easily captured or codified. It is often context based and personal in nature and often not expressed openly. It is often taken for granted, difficult to communicate and can be shared only when people volunteer information about their beliefs and perceptions, or describes and demonstrates their skills and experience. It is shared through one-to-one contact, internships, coaching, mentoring, role modelling, job rotation, on-the-job training, apprenticeships, and brainstorming.

Tacit knowledge is at the unconscious level, in somebody's head, and not formalized. It is often regarded as the most valuable knowledge an organisation has because it may lead to breakthroughs in the form of creativity and innovative solutions winning company unique and sustained competitiveness. Examples of tacit knowledge are learning how to drive a car, learning how to cycle and learning how to swim. It is only through physical coaching and mentoring that you can pass these skills to someone else. This is where communication skills come to the fore in articulating knowledge held deep within the unconscious brain. An IT specialist may solve a tricky problem using his experience and intuition which would be difficult to explain to a beginner without this experience and expertise. This is one reason why experience is so valued in companies.

Tacit knowledge does not become part of a person's store of knowledge until it is articulated and internalised. For example, Cannon applied the technology of making disposable aluminium beer cans to the manufacture of low-cost, disposable aluminium mini-copier drums. Cannon's revolutionary breakthrough technology jump-started miniaturization, weight reduction, and automated assembly. These three processes were later successfully applied to microfilm readers, laser printers and word processors.

When employees leave an organisation, they take with them tacit knowledge about customers, products, processes, projects, organisation, competitors and personal relationships. This means that the company they leave may suffer from loss of expertise and productivity while the company they go to gains by this transfer of knowledge. The company realises its full commercial potential only when the knowledge is replicated and applied successfully and becomes organizational knowledge. This knowledge may be more valuable than such fixed assets as land, buildings and machinery.

Explicit knowledge is knowledge that has been captured and recorded in formal language so that it can be shared, communicated, and used elsewhere. Most explicit knowledge is technical or academic data or information that is expressed in formal language, like reports, work manuals, mathematical formula, copyright and patents. It is sometimes referred to as know-what while tacit knowledge is known as know-how. Information in newspapers, magazines, books, work manuals, policy statements and encyclopaedias are a form of explicit knowledge. Thus, an author can copyright his books and earn royalties. Explicit knowledge is tangible, teachable, and reproducible and thus easy for competitors to imitate.

Knowledge in an employee's head realises its commercial potential only when it becomes explicit. At this stage it is a type of organizational knowledge. Product specifications for a machine are an example of explicit knowledge. Explicit knowledge is the type of knowledge suited to Knowledge Management Systems – it can be captured, evaluated, stored, retrieved, updated and easily modified. This also facilitates the process of making relevant knowledge available to those who need it, when they need and where they need it.

As illustrated in the diagram Fig.11 there are four types of knowledge:

1. ***Tacit to tacit.*** Tacit to tacit is the socialization process where tacit knowledge is passed from one person to another through observing, imitating, coaching, mentoring, modelling and practicing. A craft apprentice learns by watching the master craftsman. Learning is by role model through demonstration, discussion, observation, imitation and practice. The apprentice is socialized and culturised into the craft. However, socialization is a rather limited form of knowledge creation. The knowledge is transferred to the apprentice without either the apprentice or

master gaining any systematic insight into their craft knowledge and how it can be transmitted and learned. The knowledge does not become explicit or captured in any tangible form, and as a result the company to which both belong is unable to use that knowledge elsewhere.

2. ***Tacit to explicit.*** Tacit to explicit knowledge is knowledge which is recorded in work manuals and descriptions of procedures. Made explicit, the knowledge becomes intellectual property, which could be referenced and used to train other apprentices or generate revenue for the company in the form of consultancy fees, copyright, patents or royalties. Making tacit knowledge explicit opens up all sorts of possibilities for the company. For example, the knowledge might be made into a software package and sold commercially to external clients. The advantage of explicit knowledge is that it can be recorded, discussed, debated, and improved upon. On a personal level tacit to explicit knowledge might involve stating and recording one's personal mission in life as a forerunner to setting personal goals.
3. ***Explicit to tacit.*** Explicit to tacit knowledge is where explicit knowledge is internalised and changed by the person receiving it. It is easier to do when people trust each other and willingly contribute their own valuable knowledge resources. It becomes part of your personal store of knowledge reconstructed and coloured by your own interpretation and experience. Internalisation supports true understanding. A person's unique tacit knowledge can be applied to create ways to broaden, extend or reframe a specific idea. Some companies reward their employees for sharing tacit knowledge with others. For example, repair technicians may be rewarded for recording tips on how they solved customer repair problems, or improved existing work processes, which may assist other technicians in solving similar ones.
4. ***Explicit to explicit.*** Explicit to explicit knowledge is where knowledge is combined from various sources into a report or book and shared with others. For example, a management accountant may combine knowledge from different departments and data sources of the company and put it in a new format to assist managers to make better decisions. All that has happened is that existing knowledge has been reformulated and applied in a different context. Similarly, an author may research a topic and bring knowledge together from various sources creating a new synthesis of ideas.

The advantages and disadvantages of tacit versus explicit knowledge:

Advantages of tacit knowledge

1. It is an easy and inexpensive way to manage knowledge. The specific kinds of knowledge that each person in the organisation has must be identified.
2. The recognition of employee knowledge may improve their morale and motivation.
3. Likely to create increased interest in the process of knowledge management.
4. Important 'tacit' knowledge is less likely to leave the organisation.

Disadvantages of tacit knowledge

1. Employees may not have the knowledge they claim they have.
2. The knowledge profile of employees must be frequently updated.
3. The ability to transfer knowledge is constrained to moving employees. This is expensive to do and so the speed of transmission may be slow.
4. Organisations may lose key knowledge if employees leave the organisation or if they are incapacitated.

Advantages of explicit knowledge

1. Explicit knowledge in the form of work manuals, drawings, process descriptions and so on can be disseminated quickly throughout the organisation.
2. Codified knowledge can be proactively disseminated to employees who need it throughout the organisation and elsewhere. This is likely to improve the profitability and productivity of the organisation.
3. Explicit knowledge can be discussed, debated, evaluated and improved.
4. It is easier to identify deficiencies of knowledge in the organisation which can be rectified.

Disadvantages of explicit knowledge

1. It may take considerable time, cost and effort to help employees articulate and record their knowledge.
2. Employees may need some incentives and recognition to share their explicit knowledge. Knowledge is power and some employees may be reluctant to share it with others who they consider as rivals for influence, promotion and prestige.
3. Expert committees may need to be set up to monitor and evaluate explicit knowledge.
4. The application of explicit knowledge is facilitated by adopting best practices evaluated and monitored by a committee of experts.

Conclusion

Knowledge can be classified broadly into two types – explicit and tacit. Explicit knowledge is codified knowledge in the form of facts, rules, procedures, plans, policies, books, magazines and work manuals that are recorded on paper or in electronic form and can be shared without a need for discussion. On the other hand, tacit is non-codified knowledge underlying personal skill, creativity and expertise, and its transfer requires face-to-face instruction, coaching, mentoring and in some cases apprenticeship.

It is important that tacit knowledge is converted to explicit knowledge so that it can be codified and made available to everybody who needs to access it. It helps people solve similar problems and connects them with reusable knowledge which might otherwise be lost. Modern technology in the shape of the internet has enabled the process. The codification of tacit knowledge has also been assisted by the establishment of knowledge management departments within organisations.

However, the importance and role of tacit knowledge should not be undervalued. This is closely linked to the person who created it and shared mainly through person-to-person contact. Organizations' competitiveness is often determined by tacit knowledge, and so creative problem solving by people is one of the key resources of a company. Peer to peer networks to share tacit and explicit knowledge should be encouraged. Thus, the ability to acquire and manage tacit knowledge successfully is considered the hallmark of a company's success.

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12 UNIT MODEL OF LEARNING

Fig. 12. UNIT Model of Learning

> "Success is no accident. It is hard work, perseverance, learning, studying, sacrifice and most of all, love of what you are doing or learning to do."
>
> – Pele

The four types of learning can be recalled by the acronym **UNIT** which stands for Unlearning, New learning, Incremental learning and Transformaional learning. Knowing about these will help you understand and categorise the types of learning you are currently involved in.

Unlearning. These days many old ways of doing work have to be unlearned and new ways substituted for the old. The old learning habits die hard and often interfere with our new learning. At work inefficient practices and processes are replaced by newer and better approaches. When changing your old car for a new model you often have to unlearn old habits, and learn new ones for novel features, improved controls and layouts. With personal computers new and updated programmes come out all the time where learnt commands of previous versions, which have become habitual, often give new unexpected results or indeed new commands must be learnt to get the same results. Most of us are reluctant to unlearn what we know. In unlearning you must drop existing knowledge which is now redundant to make room for something new. Pschologists use desensitisation and behavioural therapy programmes to help people unlearn destructive habits and substitute more appropriate behaviour.

New learning. In new learning you will go from a state of unconscious incompetence to a state of conscious competence. You will go through an "S" curve of progress where after an initial slow period of learning, you will make rapid progress until you come to a plateau. At this point it is important to stick to the task as eventually you will progress to a higher

plain of learning. New learning is hard work and requires determination, concentration and persistence for success. Repetition, reflection and practice is needed to consolidate the new learning. For example, learning keyboarding skills requires putting together many skilled finger movements and combinations. These movements are guided by the letters or word that you want to input. At first, you have to input letter by letter. With practice, you learn to input word by word or phrase by phrase. In verbal learning, such as memorising a poem, we learn sequences of words. We then combine these sequences into an organised whole. Such learning requires considerable repetition, and we must overlearn if we want to become truly proficient. Overlearning is learning beyond the stage that you feel you know the topic.

Incremental learning. This means building on your existing learning. For example, you may be already fairly competent in making presentations. Many people stop here and don't bother to pursue excellence. However, you can always improve by adopting an attitude of continuous improvement. There is always room for doing better and there is always more to learn about any particular job or skill. Maybe the organisation of your presentation could be improved by having a more impactful introduction and a more positive memorable conclusion. In between you might use your tone, pitch, volume and delivery to create interest and variety. Being competent in one Windows-based software package means you can transfer the knowledge to another Windows-based package and learn it quite easily.

Transformational learning. This is called a paradigm shift. Galieo's discovery, published in 1632, that the Sun, not the Earth was the centre of the universe and that the Earth moved around the Sun and not vice versa is a good example of a paradigm shift. Transformational learning is possibly the most important type of learning because it changes your whole perspective, system of beliefs and attitudes. Transformational learning can bring change, renewal, restructuring and problem reformulation, and is therefore known as innovative or breakthrough learning. This kind of learning drastically changes the sense of self and the feeling of competence, and may bring forth new talents and capacities not apparent before. It is a dramatic, fundamental change in the way an individual sees the world and themselves. In creative thinking it is the "Aha" experience when you suddenly see things in a different light. For example, you may see your job as a great source of satisfaction rather than a mere source of money. In modern times, business process engineering is a radical redesign of business processes to achieve dramatic improvement in productivity and efficiency. It is planned transformational learning.

Conclusion

Unlearning old ways of doing things and learning new methods is part and parcel of modern living. The old learning often interferes with the new learning but with practice this will fade away. New learning goes through the natural stages of unconscious incompetence to conscious competence. Nothing worthwhile is learnt overnight; so be prepared for the long haul!

Incremental learning is possibly the most common type of learning we engage in. It is also linked to the idea that nothing stays still and we need to continually update and improve our knowledge and skills. Vegetate and you die!

Transformational learning is radical and the type of learning that you need sometimes to cope with discontinuous change. People often have to go through dramatic changes of belief, culture, attitudes and skills training in order to progress. Information and communications technology and business process reengineering often give rise to the need for transformational learning.

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13 VAK MODEL OF LEARNING

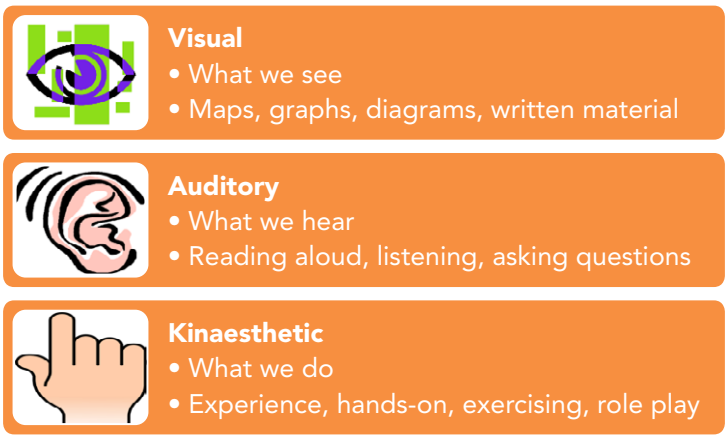

Fig. 13. VAK Model of Learning

> **"Every child has a different learning style and pace. Each child is unique, not only capable of learning but also capable of succeeding. "**
>
> **– Robert John Meehan**

VAK is an acronym which stands for visual, auditory and kinaesthetic. We learn mostly through these senses. There are other senses such as taste and smell, but for our purposes the above three are the most relevant (except if you are a cook or a wine taster where taste and smell are so important). Learning experts estimate roughly that we learn 65 per cent through our visual senses; 20 per cent through our auditory senses, and 10 per cent through kinaesthetic or sense of touch (these proportions vary depending on the source). The VAK model can be explained as follows:

- **Visual learning** might be through electronic media such as computers and TV, learning maps, pictures, cartoons, graphs, flow charts and diagrams. Visual learners relate most effectively to visual stimuli such as written information, notes, diagrams, learning maps and pictures. They have a strong sense of colour, think in pictures, can remember what they see and reproduce it visually. Visual learners like to get an overview – the big picture or purpose of what they are learning. At presentations, they like to see the speaker's facial expressions and like to take detailed notes to help them absorb information, even when notes are provided. Visual learners prefer written communication and have difficulty following spoken directions. They use phrases like "I see what you mean" and "the future looks bright."

- **Auditory learning** might be through reading aloud, asking questions, listening to lectures and brainstorming. Auditory learners relate best to the spoken word. They tend to listen to a lecture, and then take notes afterwards, or rely on handouts. Often written information will have little meaning until it has been heard and discussed. They use tone of voice, pitch and volume to interpret the underlying meaning of the speech. For more effective learning, it helps auditory learners to read out loud. They may be very good public speakers and tend to favour professions like law, acting or politics. They have a good ear for accents and can mimic people quite easily. They use phrases like "sounds good to me" and "I hear you loud and clear."
- **Kinaesthetic learners** learn through experience and doing things – actively exploring the world about them. This might be through post-it notes, cue cards, exercising while listening to cds, hand-on approach, role-play and mental rehearsal. Kinaesthetic learners learn effectively through touch and movement and learn skills by imitation and practice. They learn best through experiential or practical learning like on-the-job experience and project work. They can appear slow on the uptake if the information is not presented in a style that suits their learning preference. They remember feelings and get an overall impression of a subject. They use phrases such as "I like to get a feel for the situation" and "I must get to grips with the problem."

Conclusion

VAK is the most popular approach to learning style analysis. Visual learners like to see things being done. Auditory learners like to hear things while kinaesthetic learners like a hands-on approach. Most of us have a combination of these approaches. VAK is only one approach among many approaches to learning styles, none of which has been conclusively agreed or empirically proved. Nevertheless, they do help learners and facilitators to understand the complexity involved in how people learn, and be aware of learning styles when designing and facilitating learning.

The VAK model is intuitively appealing and easy to learn and remember – hence its popularity with trainers, coaches and other facilitators of learning. It emphasizes the important role that the senses play in learning. Most learners have a blend of learning styles with a strong preference for the visual. Learners will absorb information better if they use their preferred learning style. Presenters will get their message across more effectively if they cater for the learning styles of their listeners. This is possible with online courses where different learning styles can be catered for.

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The author's latest books have been published online by bookboon.com in 2018 namely:

- The Role of the Brain in Learning
- How Adults Learn
- Learning Models and Styles
- Experiential Learning
- Learning with Technology
- The Ultimate Success Factor
- Series of Books on People Skills for Managers
- Series of Books on Creativity Skills for Managers.