

How do people learn?



The change agenda



INTRODUCTION

It has never been more vital for companies to harness the power of learning. Today, intellectual capital is the key organisational asset for competitive advantage – and intellectual capital is based on employees' knowledge and ability to learn. Add to this the speed at which organisations need to make decisions and respond to change, and it is clear that employees need to learn more or less constantly and in ways that reflect their increasingly busy and mobile patterns of work.

The training profession is experiencing a period of significant change, not least due to the reassessment of strategy caused by e-learning. But with so much change in evidence how can training professionals know how to respond before the scene shifts again? It was with this dilemma in mind that the CIPD decided to go back to basics and support research that looked at exactly what we do know about how people learn. The idea was to put together a clear picture of which theories, ideas and research findings have carried the most weight in the last 50 years or so.

It was an enormous task and the resulting research report, entitled *How Do People Learn?* is a fascinating, though not quick, read. The document you are reading is a summary of the research report, commissioned so that those short on time can get an overview of the main ideas. But it is no more than a summary, and for a more in-depth view of how people learn, the research report is essential reading.

Too much concern with theory can be impractical, but an understanding of the theories that dominate the thinking on learning and training provides a foundation of knowledge that can be called on when new approaches are needed. There is currently much talk of blended learning, but this tends to refer to learning delivery mechanisms. A theoretical basis can help to develop blended learning programmes that mix approaches, processes and styles, not just modes of delivery.

UNDERSTANDING LEARNING THEORIES

Arguably, the learning theories that have exerted the most influence over the past 50 years can be grouped into four clusters:

- learning as behaviour
- learning as understanding
- learning as knowledge construction
- learning as social practice.

LEARNING AS BEHAVIOUR

The first cluster is concentrated around the theory of behaviourism and the work of B.F. Skinner. These theories originate from the natural sciences. Behaviourism asserts that any change in an individual's behaviour is the result of events, known as stimuli, and the consequences of these events. Reinforcing responses through reward is the behaviourist's way of encouraging the desired behaviours. By rewarding the desired behaviour, the behaviourist conditions the individual to perform the action again and again.

Reinforcement is a key feature of the behaviourist theories. A reinforcer is anything that strengthens the desired response. In a work context, this could be a financial reward linked to particular performance criteria, verbal praise from a manager or colleagues, or simply a feeling of accomplishment by the learner. Reinforcers always strengthen behaviour. Punishment cannot be said to be a reinforcer because it is designed to suppress rather than encourage particular types of behaviour.

Verbal instruction is a uniquely human way of reinforcing behaviour. It does this by giving directions that lead to successful outcomes. This instruction-based approach has been popular in schooling, clinical settings and adult education, and is how many still characterise the classroom learning experience.

Problems with behaviourist learning theories

Behavioural reinforcement certainly can be effective at developing skills under controlled conditions such as the classroom. But its focus on the delivery of 'correct' responses to specific contrived situations may not prepare learners adequately to deal with the new and different situations they encounter in real life. Equally, the power relationship between the learner and instructor can limit creativity and self-expression. Recognising that instruction helps to support learning, but that it is not its only source, enables us to build strategies that blend it effectively with other kinds of learning models.

LEARNING AS UNDERSTANDING

Unlike behaviourism, which focuses on the conditioning of behaviour, cognitive learning theories view learning as a process of understanding and internalising the principles, connections and facts about the world around us. Seen this way, the learner is like a powerful machine that processes information and internalises it as knowledge. Theorists such as Robert M. Gagné, Jean Piaget and Benjamin S. Bloom, have all written about cognitive development.

Piaget's notions of assimilation and accommodation offer an interesting perspective on how learning takes place. Assimilation refers to the integration of perceptions into existing mental models, whereas accommodation involves the alteration of mental models to explain perceptions that could otherwise not be understood. Equilibrium is achieved when a coherent mixture of strategies and rules can comfortably explain the world.

Another key concept in cognitive learning theories is the idea of cognitive dissonance. This refers to how individuals come to terms with experiences that do not comply with their existing mental models. Leon Festinger is the theorist most associated with this idea. He believed that people seek consistency and change their beliefs, attitudes and behaviours in order to reduce the level of dissonance between their beliefs and experience.

Strategies for cognitive development frequently deploy facilitation to assist understanding. By exposure to learning materials and guidance the learner can pass through developmental stages more quickly than if left to their own devices. Clearly, the facilitator needs to have a good understanding of where the learner is starting from in order to guide them effectively.

Problems with cognitive learning theories

The assumption that learning is a process of information absorption – that the human brain is really a big sponge – tends to result in training methods built around the transmission of large volumes of content to the learner. Where this occurs at the expense of more discursive or experience-based methods, there is a risk that learners will leave the experience 'knowing that' but not 'knowing how'.

This ties into the issue of assessment. If learning is viewed as an internal process, the probability is that it will be assessed using the kinds of tests that rely more on memory recall than on a true understanding of the issues. Thus people may not be measured on their ability to perform in a particular role, but rather by the information – not all of it practical – that they have managed to recall from the learning process.

LEARNING AS KNOWLEDGE CONSTRUCTION

Constructivist theories view the individual as an active agent in their own learning.

Constructivists believe that all knowledge is personal knowledge – in other words knowledge is not something ‘out there’ ready to be grasped. This means that knowledge is subjective, tacit and highly dependent on context. Constructivists would argue that knowledge management systems in fact manage information rather than knowledge, since the latter only exists inside people’s heads.

Individuals assign meaning to knowledge that they have obtained through their own experience and only then does it become useable. This focus on the learner contrasts with behaviourism where the ‘expert’ is the source of learning and with the cognitive approach where ‘content’ is emphasised. In constructivist theories it is the learner who is at the centre of the learning experience. Interaction and dialogue (with other learners or with a facilitator) are used by the learner to enhance his or her own personal experiences and understanding.

Problems with constructivist learning theories

Because constructivist theories regard learning as a process of extracting meaning from personal experiences, a lifetime of activities, memories, ideas and feelings will affect what and how an individual learns in any one situation. Learning is therefore a highly subjective issue – dependent on many more factors than the quality of learning materials, or the charisma of the trainer. At the very least, job functions and job organisation will affect how the individual constructs meaning and hence how they learn. To cope with such factors head-on in a training situation may require significantly greater resource inputs than methods inspired by behaviourist or cognitive learning theories. While the results may be highly effective, scalability may be difficult to achieve.

LEARNING AS SOCIAL PRACTICE

Social theories of learning do not contradict the behavioural, cognitive or constructivist theories. Instead, they simply argue that learning is more effective when it arises and is applied in a social setting. This idea goes back to the work of L.S. Vygotsky, who observed children interacting with older individuals. He discovered that they could perform well above their age if given the chance to interact with someone older. This led him to conclude that social interaction was crucial to some forms of learning.

Anthropologists, sociologists, social psychologists and cognitive theorists have all contributed to this cluster of theories. There are several different forms of social learning theories. Cognitive-social theories, as exemplified by Albert Bandura, regard learning as the outcome of social interactions that foster shared standards of behaviour. Activity theories regard established patterns of social interaction as the source of learning, for example, problem resolution within established work processes and patterns. Lastly, theories of social practice, made famous by Jean Lave and Etienne Wenger, point to the importance of participation in communities of practice as the source of learning. Here individuals don’t so much learn facts and principles about the world; they learn instead, how to ‘be’.

Problems with social theories of learning

Organisational culture can have a huge impact on how much informal interaction takes place between employees and how much this is valued. Physical or cultural barriers to communication, for example, as exist in many organisations, can act to diminish the potential of this form of learning. Fortunately, no organisation can operate without a degree of interaction between its employees – even when such interaction is not recognised as beneficial, it remains a powerful source of learning within the organisation.

ORGANISING LEARNING THEORIES INTO A WORK-ORIENTED FRAMEWORK

We can apply the above theories into a framework that takes account of:

- learning for work
- learning at work
- learning through work.

For the behaviourist theories, where learning is enhanced through instruction, this framework could look as follows:

Table 1 Learning as behaviour – approaches and examples

BEHAVIOUR	For work	At work	Through work
Approach	Priming	Training	Guiding
Examples	Vocational courses and professional updates Short courses, seminars and conferences	Coaching and tuition Training courses and master classes Induction programmes Computer-based training (CBT) and web-based training	Formal direction and feedback Supported practice

For the cognitive theories, where the emphasis is on the individual's internalisation and demonstration of knowledge, the framework could look like this:

Table 2 Learning as understanding – approaches and examples

UNDERSTANDING	For work	At work	Through work
Approach	Engaging	Enriching	Problem-solving
Examples	Books, journals and magazines Videos, CD-Roms and multimedia content, web links	Case studies, lessons learned and exemplar projects Manuals, codes of practice and internal reports Benchmarking	Analytical frameworks Knowledge bases Performance support

The constructivist theories would place the emphasis on the learner and how he or she constructs meaning through participation in and reflection on different activities:

Table 3 Learning as knowledge construction – approaches and examples

KNOWLEDGE CONSTRUCTION	For work	At work	Through work
Approach	Reflecting	Enquiring	Immersing
Examples	Personal and professional logs Records of achievement and portfolios Supported online learning	Mentoring Brainstorming, knowledge sharing and workshops Discussions with colleagues, customers, suppliers Diagnostic tools	Special projects Job rotations and secondments

Socially mediated learning emphasises networking, participation in communities and team working:

Table 4 Learning as social practice – approaches and examples

SOCIAL PRACTICE	For work	At work	Through work
Approach	Networking	Participating (in communities)	Teamworking
Examples	Professional bodies Committees, boards and advisory groups Interest groups and associations Alumni associations	Personal networks Communities of practice Internal committees and management groups Action learning sets	Project teams Functional teams Multidisciplinary teams Virtual or distributed teams Multi-organisation teams

The four frameworks can give us ideas about how to combine or layer different methods in order to create the best conditions for learning to occur.

LEARNING IN PRACTICE

Other factors add another layer of complexity to the development of new approaches to learning. These include:

- the climate for learning
- the learner's motivation
- the learner's physical environment
- learning styles.

The climate for learning

This refers to the systems and protocols in place in an organisation that promote and enhance learning and hence affect the organisation's ability to understand its environment and encourage new kinds of behaviour. Systems may be formalised, as in the case of training and mentoring strategies, or informal, as in the case of communities of practice and knowledge-sharing activities. A large number of factors are involved, including organisation size, structure, history, culture, objectives and people.

The workplace is an important source of experiential learning, and embedding learning into daily work processes encourages this. A challenge for training and development practitioners is to support this and could mean a shift from instructor mode (primarily used in the behaviourist approach) to the facilitator mode described in the cognitive learning approaches. In addition, training professionals can facilitate opportunities for social learning through such techniques as identifying and supporting communities of interest and practice, and communicating lessons learned and illustrative stories across the organisation. Most importantly, they can help to highlight the worth of learning as part of – rather than an intrusion into – working life.

The learner's motivation

Extrinsic and intrinsic factors motivate people to learn. Extrinsic factors include external rewards such as better pay and professional qualifications. Intrinsic factors are self-driven, personal ambitions and the instinctive desire to understand and solve problems. Learning theories focus on different forms of motivation – with behaviourist approaches emphasising external reinforcements and rewards and cognitive theory stressing the intrinsic factors such as the formation of goals. Combining the extrinsic and intrinsic uses the strength of both factors to encourage learner motivation.

Abraham Maslow's hierarchy of needs also provides a useful backdrop when considering learner motivation. He suggested that starting from very basic needs and progressing through the higher needs, some individuals constantly look forward to the next level until they reach a final point of satisfaction and growth he called 'self-actualisation'.

Carl Rogers emphasised the drive towards independence and responsibility as the primary motivator. He believed that because of this drive to independence, it is only possible to facilitate learning in others, not teach them directly. Other key concepts in the study of learner motivation include:

- expectancy theory – this theory, pioneered by Victor H. Vroom, held that motivation cannot be explained solely by needs or goals, it also needs to explain the choices individuals make. He proposed that people estimated the likelihood that they would achieve a particular task and used this factor, among others, in deciding their choice of behaviour.
- goal theory – research shows that harder goals encourage more interest in the learner but if the tasks (the steps needed to reach these goals) are unsupported and too difficult the learner will become discouraged. Furthermore, the more specific goals are, the more likely they are to inspire action. Breaking down the goal into a series of steps, or proximate goals, can also encourage motivation.

Neither expectancy theory nor goal theory place much emphasis on the social context in which people make their decisions. Albert Bandura tried to address this issue by stressing the link between motivation and the pursuit of social acceptance. Motivation remains, however, a difficult area for training practitioners. Many factors that influence motivation lie outside of the trainer's control. For example, if motivation is an outcome of achievement, organisations will need to do more to create a positive environment where all employees can expect to succeed. This again suggests making a shift from the instructor to the facilitator mode of training, supporting the person in all stages of their learning, while allowing them to take more and more responsibility for the process.

The learner's physical environment

Training done away from the office obviously has cost implications, and in the current context of e-learning and virtual collaboration, how important is it to undertake training away from the desk? Quite important, as it turns out. The Masie Center found in a recent survey that the majority of e-learners would prefer not to undertake courses at their desks and that half of them found the environment around their desks distracting. So even where e-learning is concerned, it is crucial for organisations to allocate time and amenable spaces for learning. This can mean quiet areas for study, headsets for blocking out office noise and learning formats and timings that can be controlled by the learner.

Informal learning – learning which takes place through work or informal interactions with colleagues – requires a very different treatment. Here, the distractions and interruptions that typically slow down desk-based training are part and parcel of the learning process and may often be beneficial.

Learning styles

There are many systems that classify learning styles, but five are most commonly used. These systems can be grouped as follows:

Table 5 Learning style classification systems

Classification	Description
Myers–Briggs Type Indicator	This model classifies learners according to their preferences on scales derived from psychologist Carl Jung's theory of psychological types – extraverts or introverts; sensors or intuitors; thinkers or feelers; judgers or perceivers.
Felder–Silverman Learning Model	This classification has five categories – sensing or intuitive learners; visual or verbal learners; inductive or deductive learners; active or reflective learners; sequential or global learners.
Herrmann Brain-Dominance Instrument	This method classifies learners in terms of their relative preferences for thinking in four different modes – left-brain cerebral (logical thinkers); left-brain limbic (sequential thinkers); right-brain limbic (emotional thinkers); right-brain cerebral (holistic thinkers).
Kolb's Learning-Style Inventory	This classifies learners as having a preference for (a) concrete experience or abstract conceptualisation or (b) active experimentation or reflective observation.
Honey and Mumford's Classification	Developed from Kolb's inventory and learning cycle, this model has four components – activists; reflectors; pragmatists; theorists.

The consensus among researchers is that people have different preferred styles of learning, but that their styles are not fixed over a lifetime. Additionally, learning styles are influenced by the context in which the learning takes place and by the topic and the structure of the content. Training and development practitioners must acknowledge the importance of encouraging people to learn in several different modes. This can improve learning outcomes while preparing people to tackle new problems and situations with more confidence.

CAN LEARNING
THEORIES HELP US
BETTER UNDERSTAND
THE POTENTIAL OF
E-LEARNING?

Theories of learning should not be used in a prescriptive way when designing training interventions. Instead, they can help to develop a range of approaches that take into account the unique context and environment that employees work in. New ways of working, a more diverse workforce, and new technologies – especially learning technologies – have made practitioners question conventional approaches to training. But as recent CIPD training surveys show, more conventional, classroom-based learning events still predominate in most organisations. Clearly, we are in a time of flux for training and development practitioners – between the familiarity of conventional instruction-based approaches and the enormous potential of constructive, or communicative, techniques.

The CIPD defines e-learning as ‘learning that is delivered, enabled or mediated by electronic technology, for the explicit purpose of training in organisations’, and emphasises the importance of connectivity in distinguishing e-learning from stand-alone delivery modes such as the use of CD-Roms. So, how much is known about e-learning from a research standpoint? How can we use what we know to better understand its possibilities? In short, how different is e-learning?

Certainly, e-learning differs from other forms of distance learning. As yet, however, there is only a limited research base on how it differs and how to make it most effective. What information does exist comes primarily from questionnaire-type surveys and general inferences from prior research into distance learning. One major study has examined all the research available on the potential differences in learning effectiveness that follow the use of different modes of delivery. Their conclusion is that the delivery mode (ie distance, online, conventional) has little or no impact on effectiveness, but that the learning strategy (ie pedagogical approach) is significant. Equally, in spite of claims that rapid communications and information delivery will speed up learning, there is no evidence that this has actually taken place.

It is important to distinguish e-learning as a delivery mode from the idea of e-learning as a pedagogical approach. In fact, e-learning applications span the range of theoretical learning models reviewed in this document. We can see this at work in the table that follows, which is split into three examples of current e-learning practice.

Table 6 Applications of e-learning

WEB-BASED TRAINING: Technology used to deliver content to the end user without significant interaction or support from training professionals, peers or managers.	SUPPORTED ONLINE LEARNING: Majority of content of course may be delivered through lectures or distance-education textual material, but interaction with instructor, other students, resources and course materials is online.	INFORMAL E-LEARNING: Use of information retrieval or knowledge-construction technology to support informal learning.
Content-centred	Learner-centred	Community-centred
Delivery-focused	Activity-focused	Practice-focused
Individual learning	Small-group learning	Organisational learning
Minimal interaction with tutor	Significant interaction with tutor	Participants act as learners and tutors
No collaboration with other learners	Considerable interaction with other learners	Multiway interactions among participants

It is important to bear in mind the variety of pedagogical approaches – as opposed to modes of delivery – possible within e-learning when reviewing survey findings or other reports dealing with the subject. Pedagogical approaches can vary enormously within e-learning – from instruction-based computer-based training (CBT) to online communities of practice in organisations. Much of the current literature on e-learning fails to make this distinction. The result is that very different learning experiences are being treated as a single category, making it difficult to draw any substantive conclusions.

Benefits and limitations of e-learning

E-learning has without doubt inspired a new paradigm for learning. The new paradigm reflects the growing recognition of the value of interaction between people during their work, study, problem-solving and learning. Like nothing before it, e-learning can combine:

- multiway communication between peers, facilitators and experts
- hyperlinked as opposed to linear presentation of information
- access to learning materials inside and outside of the specific topic domain
- multimedia forms of presentation.

It is this combination of factors that makes e-learning so exciting. Alongside the obvious flexibility that e-learning brings, connectivity is emerging as the major benefit over conventional methods. However, greater interaction between learners is not necessarily better in all cases. Overload of information and communication can easily occur in this mode of delivery. Similarly, it is all too easy to present the learner with a sea of information in which all meaning is lost. Other problems that studies have highlighted include usability issues such as counter-intuitive or poorly designed screen organisation, few if any real-life examples that relate to the learner's own experience of work, and barriers created by technical problems.

NEW APPROACHES TO LEARNING

E-learning, then, is not without its problems. It does, however, open new doors for learning that we are still discovering as the technology improves. Perhaps for this reason, the concept of blended learning has become so popular. This often refers to blends of e-learning with more conventional modes of training delivery. However, the notion of blended learning could be taken a step further to mean the combination of different modes of delivery (that take into account the learner's environment, motivation and learning styles) with different theoretical approaches. This creates a multi-layered and richer palette of learning methods. It is an incredibly complex vision and an enormous challenge for training and development professionals and the professional bodies that support them.

We can learn more about how people learn within our own organisations by:

- introducing richer mixes of learning processes – conventional instruction, self-directed learning, experiential and socially mediated learning
- balancing face-to-face and electronic learning
- encouraging new forms of informal and collaborative working through communities of practice and teams.

We can also continue to explore how to build learning into everyday working life; using theoretical models of learning helps to widen our perceptions of how this can be done. Now is a good time to experiment with new approaches to learning.

REFERENCES

See CIPD, *How Do People Learn?* London, Chartered Institute of Personnel and Development, 2002, for a full set of references.

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