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THOUGHT PAPER

# BEYOND WHAT WE KNOW

# WHAT ARE WE BECOMING CAPABLE OF?

Human Capability Development and the Changing Purpose of Learning




Expanding Human **Capabilities** for a More Insightful, Creative and Responsible Future

LEARNERS AND INSTITUTIONS

EDUCATORS AND FACILITATORS

A MORE CAPABLE SOCIETY


**AJAII MAHAJAN**

Author & Architect – Human Capability Development


**HCD** | HUMAN CAPABILITY DEVELOPMENT

For Individuals, Learning Environments and a Changing World

# Beyond What We Know: What Are We Becoming Capable Of?

**A Thought Paper on Human Capability Development**

## The Question Beyond Learning

We spend considerable time asking students what they are learning, how well they are performing, and what they intend to become. We assess their knowledge, recognise their achievements, and prepare them for opportunities that lie ahead. These are important concerns, yet they leave another question relatively unexplored. Beyond what students know, and what they can demonstrate today, what are they progressively becoming capable of doing?

The distinction matters because acquiring knowledge, demonstrating competence, and developing capability are related but different aspects of human development. Each contributes to learning, yet none can entirely substitute for another. Understanding these differences may help us reconsider not only how learning takes place, but also what we expect it to accomplish over the course of a person's life.

We cannot predict every challenge today's learners will encounter, the technologies they will use, or the circumstances in which they must exercise judgement. Learning must therefore do more than prepare individuals to reproduce established knowledge or perform familiar tasks. It must also help them develop the capacity to respond meaningfully when familiar answers are insufficient, and to recognise possibilities that were not apparent when their learning began.

This broader concern lies at the heart of Human Capability Development (HCD). It invites us to examine how individuals progressively expand their ability to understand, choose, create, contribute, and adapt. Rather than treating learning as an accumulation of achievements, HCD considers how those achievements contribute to the continuing development of the person who learns.

## Knowledge, Competence and Capability

Consider two students who have studied the same subject, attended similar classes, and performed equally well in their examinations. Both understand the concepts they have been taught and can apply established methods to familiar problems. Yet, when confronted with an unfamiliar situation, their responses may differ considerably. One may search for the correct procedure, while the other begins questioning assumptions, exploring possibilities, and experimenting with alternative approaches.

The difference does not necessarily reflect intelligence, diligence, or the quality of their instruction. It may reflect the extent to which each student has developed the capacity to work independently with what they know. This is where the distinction between knowledge, competence, and capability becomes useful, particularly when learning is expected to prepare individuals for circumstances that cannot be fully anticipated.

Knowledge represents what we understand or have learnt about a subject. Competence, as used in this paper, refers to demonstrated proficiency in performing particular tasks to an expected standard. Capability concerns the broader capacity to draw upon knowledge, skills, experience, judgement, and available resources to respond effectively to circumstances, including those for which established procedures provide insufficient guidance.

These distinctions are analytical rather than absolute. Competence is defined more broadly in several established educational frameworks, sometimes encompassing judgement, attitudes, values, and the application of learning in unfamiliar situations. Our purpose is therefore not to establish a universal hierarchy, but to distinguish successful performance under identifiable conditions from the wider developmental possibilities that such performance may or may not reveal.

A student who can write a computer programme according to given specifications demonstrates valuable competence. When that student can independently identify a problem, evaluate whether technology offers an appropriate solution, consider competing approaches, and recognise the consequences of a particular choice, a broader range of capacities becomes visible. Technical proficiency remains essential, but it now contributes to decisions extending beyond the immediate programming task.

Competence and capability develop through continuing interaction. Increasing competence can provide the understanding required for more complex judgement, while broader capability can help individuals recognise when their existing competence is insufficient and further learning becomes necessary. This relationship becomes consequential when problems emerge without complete instructions, decisions must be made with imperfect information, and circumstances change before established solutions can be applied.

## Human Capability Development: An Integrative Perspective

The development of human capability is not a newly discovered educational concern. Experiential learning, reflective practice, competency-based education, developmental psychology, and research on deeper learning have all examined aspects of how individuals develop their capacities. Contemporary educational frameworks also recognise agency, creativity, collaboration, responsibility, and the ability to navigate unfamiliar circumstances as important dimensions of learning.

The OECD Learning Compass 2030 brings together knowledge, skills, attitudes, values, student agency, and individual and collective well-being (OECD, 2019). Similarly, the National Research Council's work on deeper learning examines how individuals develop knowledge and competencies that can be applied in new situations (National Research Council, 2012). These contributions provide substantial foundations for understanding learning as something more consequential than the acquisition of information.

The perspective proposed here does not seek to replace these traditions or claim originality for their established insights. Instead, HCD is approached as an integrative developmental enquiry, concerned with how different human capacities interact, evolve, and become available for meaningful action across changing circumstances. Its central interest is the developing person, rather than any particular curriculum, activity, qualification, or institutional setting.

Within this perspective, Human Capability Development may be understood as the deliberate expansion of an individual's capacity to exercise informed agency through the interaction of knowledge, competence, judgement, experience, and opportunity. The emphasis on agency is important because possessing a capacity and being able to exercise it are not necessarily equivalent. Individuals require both developed abilities and circumstances that permit those abilities to be expressed.

A student may possess the understanding and judgement required to address a problem, yet lack access to appropriate resources, opportunities, or encouragement. Another may demonstrate considerable initiative in a supportive environment but find that the same behaviour is discouraged elsewhere. Capability development must therefore consider the

relationship between individual development and the conditions within which individuals are expected to act.

This also invites a distinction between becoming more capable and becoming more productive. Improved performance, greater efficiency, and stronger measurable outcomes may accompany capability development, but they do not exhaust its meaning. The development of judgement, independence, responsibility, and the capacity to make meaningful choices may matter even when these changes do not produce immediate economic or institutional benefits.

The broader human-development tradition associated with Amartya Sen and Martha Nussbaum offers a relevant, although distinct, perspective. Their capability approach concerns people's substantive freedoms and opportunities to pursue lives they have reason to value (Sen, 1999; Nussbaum, 2011). The present paper uses capability primarily in a developmental and educational sense, while recognising that personal capacities cannot be understood independently of the opportunities available for exercising them.

## How Human Capabilities Develop

We often assume that capabilities develop naturally through education, experience, and participation in different activities. To some extent, they do, because every unfamiliar situation creates an opportunity to learn. Yet experience alone does not guarantee development. Someone may repeatedly perform a task without questioning its purpose, understanding its wider implications, or becoming better equipped to approach a different problem.

A student may complete numerous projects while remaining dependent upon instructions to identify the problem being addressed. Another may participate in group activities without developing meaningful collaboration or shared responsibility. Both may acquire useful knowledge and demonstrate competence, yet the broader capacities associated with independent thinking, judgement, and constructive engagement may remain relatively underdeveloped.

What matters is not simply the activity undertaken, but how individuals engage with the experience and what they learn from it. Opportunities to question assumptions, consider alternatives, make decisions, receive feedback, and reflect upon consequences can contribute to development. Equally important is the opportunity to revisit earlier understanding and apply learning under circumstances that differ from those originally encountered.

This understanding has substantial roots in established educational thought. John Dewey examined the relationship between experience and education, while David Kolb subsequently articulated a model of experiential learning involving experience, reflection, conceptualisation, and experimentation (Dewey, 1938; Kolb, 1984). Donald Schön's work on reflective practice further explored how professionals develop understanding through engagement with complex situations that cannot always be resolved through prescribed techniques (Schön, 1983).

These traditions suggest that developmental experiences require more than exposure to activities. They benefit from opportunities to examine what occurred, understand why particular approaches succeeded or failed, and reconsider future action. Feedback becomes valuable not merely because it identifies errors, but because it helps individuals develop a more informed understanding of their own decisions and their consequences.

Human capabilities also develop through interaction rather than isolation. Effective problem-solving may involve recognising the underlying problem, evaluating competing priorities, anticipating consequences, and reconsidering an initial approach. Creative thinking becomes more useful when accompanied by judgement, while adaptability depends partly

upon the willingness to question established assumptions. Collaboration and leadership influence how these capacities are exercised in situations involving other people.

Development is therefore neither uniform nor necessarily linear. Individuals begin with different strengths, circumstances, experiences, and aspirations. Progress may be uneven, with substantial development in one area accompanied by limited change in another. The objective is not to produce identical learners, but to expand each person's capacity to engage meaningfully with increasingly complex and unfamiliar circumstances.

## Recognising Capability Development

If capability development extends beyond knowledge acquisition and successful task performance, an important question follows. How can we recognise that a learner has genuinely developed a capability, rather than simply become more proficient at completing a particular activity? The distinction matters because educational interventions frequently report participation, project completion, or demonstrated competence as evidence of developmental impact.

These indicators are valuable, but they do not necessarily establish whether the learner has become more capable of responding independently to unfamiliar circumstances. A successfully completed project demonstrates an achievement within a particular context. Understanding how the learner approached the problem, exercised judgement, responded to setbacks, and subsequently applied that learning elsewhere provides a richer picture of development.

Increasing independence is one possible indicator. A learner who initially depends upon detailed instructions may gradually become capable of defining problems, identifying relevant information, and selecting appropriate approaches without constant guidance. This does not imply that capable individuals must always work alone. Independence also involves recognising when assistance is needed, seeking it appropriately, and retaining responsibility for one's decisions.

The quality of judgement offers another dimension. A learner may become increasingly capable of explaining why an approach was chosen, considering alternatives, recognising uncertainty, and anticipating possible consequences. Adaptability becomes visible when individuals reconsider assumptions or modify their reasoning in response to unexpected difficulties. These changes can provide useful evidence of development beyond the immediate success or failure of a task.

Recognising development requires attention to progression over time. Repeated observations, varied tasks, appropriate feedback, and comparisons with earlier performance can provide a more convincing account of change. Even then, interpretation must consider differences in task difficulty, opportunity, familiarity, motivation, and the assistance available to the learner.

There is also a distinction between observing change and establishing its cause. A learner may develop greater independence during a programme, but that improvement cannot automatically be attributed to the programme itself. Other experiences, prior learning, and environmental influences may have contributed. Stronger claims of educational impact require appropriately designed evaluations capable of examining these alternative explanations.

The challenge is therefore not simply to measure more attributes. It is to distinguish evidence of performance from evidence of development, and evidence of development from evidence that a particular intervention produced it. These are related but different questions, and each requires an appropriate standard of evidence.

## The Challenge of Transferability

The possibility of applying learning beyond its original context is central to the promise of capability development. If a student becomes more effective at solving a particular type of problem, we might reasonably hope that the experience contributes to their ability to address other problems. Yet research on learning transfer suggests that such generalisation is neither automatic nor unlimited.

The National Research Council's synthesis emphasises the importance of deeper learning in enabling individuals to apply knowledge in new situations (National Research Council, 2012). It also recognises the importance of domain knowledge in developing transferable competencies. Transfer depends substantially upon what has been learnt, how that learning is organised, and the relationship between the original and new situations.

This creates an important challenge for programmes that promise broad improvements in critical thinking, creativity, or problem-solving through particular activities. Participation in robotics, coding, entrepreneurship, or any other experiential discipline may create valuable developmental opportunities. However, improvement within that discipline does not, by itself, establish that the learner has developed a general capability applicable across unrelated situations.

Consider a student who becomes skilled at troubleshooting a robotics project. The experience may develop technical understanding, persistence, experimentation, and an appreciation of cause and effect. Yet it does not automatically follow that the student will demonstrate comparable judgement when confronting an interpersonal conflict, evaluating a financial decision, or addressing a social problem.

Some underlying habits may prove useful across these situations, but their effective application depends upon relevant knowledge, contextual understanding, and the ability to recognise meaningful similarities and differences. Transfer is therefore better understood as a developmental possibility that requires support and evidence, rather than an inevitable consequence of participation in challenging activities.

Learning environments can encourage transfer by helping individuals identify underlying principles, compare different situations, reflect upon the conditions under which an approach is appropriate, and encounter opportunities for varied application. Such experiences may help learners develop more flexible understanding, although the extent of transfer remains an empirical question.

The value of capability development should not depend upon promising universal transfer. Becoming more capable within a meaningful domain is itself a legitimate achievement. The broader aspiration is to understand how such development may progressively expand the range of circumstances in which individuals can exercise informed judgement and effective agency.

## Capability in the Age of Artificial Intelligence

For much of human history, access to knowledge depended heavily upon the availability of teachers, books, institutions, and other sources of expertise. Digital technologies transformed that relationship by making information increasingly accessible. Artificial intelligence is now extending these possibilities, providing explanations, generating examples, supporting experimentation, and assisting with tasks that previously required considerable time or specialised knowledge.

These developments create extraordinary opportunities for learning, but they also make an important distinction more visible. Obtaining a satisfactory answer is not necessarily equivalent to understanding how that answer was reached or developing the judgement required to

evaluate it. A task may be completed successfully with technological assistance, while the individual's underlying capability remains largely unchanged.

Consider a student using AI to explore a complex problem. The technology may help clarify unfamiliar concepts, suggest alternative approaches, and provide feedback that encourages further investigation. Used in this manner, it can support the development of understanding and independent judgement. Alternatively, the same technology may provide a ready-made solution that allows the student to complete the assignment without meaningfully engaging with the problem.

The visible outcome may appear similar, but the learning experience can be fundamentally different. This does not diminish the value of artificial intelligence or suggest that students should avoid using it. Rather, it highlights the importance of creating learning experiences in which technological assistance strengthens human understanding and agency instead of merely substituting for cognitive engagement.

The distinction also complicates the interpretation of educational performance. When learners use increasingly capable technological tools, the quality of a completed task may reflect a combination of human and machine contributions. Evaluating human development therefore requires attention to what the learner understands, how they direct the technology, and whether they can exercise informed judgement about its outputs.

UNESCO's AI Competency Framework for Students addresses human-centred thinking, ethics, technical understanding, and AI system design (UNESCO, 2024). The contribution of an HCD perspective is not to claim that these concerns are new, but to examine their developmental implications. Does repeated interaction with AI strengthen the learner's capacity to formulate problems, evaluate evidence, and make independent decisions?

These questions cannot be resolved by observing the quality of AI-assisted work alone. They require investigation into what individuals retain, understand, and can apply when tools, circumstances, or requirements change. In some situations, capability may include knowing how to collaborate effectively with intelligent systems, rather than performing every cognitive operation independently.

The objective should therefore not be technological independence at any cost. It should be informed human agency, including the capacity to decide when technology is useful, recognise its limitations, evaluate its contributions, and remain accountable for consequential choices. As technological assistance becomes more powerful, understanding the development of these capacities becomes an increasingly important educational concern.

## From Educational Outcomes to Human Development

Educational outcomes are commonly expressed through knowledge acquired, skills demonstrated, competencies achieved, and qualifications earned. These measures serve important purposes by establishing expectations, recognising achievement, and providing evidence of progress. Yet they may not fully capture changes in an individual's capacity to understand situations, exercise judgement, engage with others, or approach unfamiliar challenges with growing independence.

Consider a student who initially hesitates to express an opinion, avoids uncertain situations, and depends upon others for direction. Through successive experiences, the student begins questioning assumptions, articulating independent perspectives, making considered decisions, and accepting responsibility for their consequences. Some of these changes may be reflected in conventional assessments, while others become visible only through observation across different situations and over time.

Something significant has occurred beyond the acquisition of additional knowledge or improvement in a particular skill. The student's capacity to engage with the world has expanded, creating possibilities that may not previously have seemed attainable. This broader developmental perspective concerns not merely what an individual can accomplish today, but how learning changes the range of choices and actions available tomorrow.

This understanding has implications for how educational impact is interpreted. Participation numbers, institutional reach, completed projects, and assessment scores provide useful information about programme delivery and immediate outcomes. They are less conclusive as evidence of lasting human development unless accompanied by observations of progression, independence, transferability, and the learner's ability to respond to new circumstances.

There is also a danger in treating capability development exclusively as preparation for future economic usefulness. Individuals are more than prospective employees, entrepreneurs, or contributors to institutional performance. Their capacity to make meaningful choices, understand themselves, engage responsibly with others, and pursue lives they value deserves attention independently of immediate productivity.

Human Capability Development therefore invites a broader understanding of educational purpose. It connects learning with the continuing expansion of individual agency, while recognising that the expression of agency depends upon social conditions, available opportunities, and responsibilities towards others. Becoming more capable should enlarge meaningful possibilities without prescribing a single desirable destination for every learner.

## Questions for Further Enquiry

The perspective developed in this paper is a conceptual proposition informed by established educational research. It is not presented as a validated theory or a completed assessment framework. Several questions remain open, particularly concerning how human capabilities are defined, how their development can be recognised, and how educational experiences contribute to lasting change.

One area requiring investigation concerns the relationship between domain-specific competence and broader human capability. We need to understand which developmental gains remain closely connected to particular knowledge and activities, and which may extend into other circumstances. This requires careful attention to the nature of the capability being examined and the contexts in which it is expected to operate.

A second area concerns evidence. Observing improved judgement, independence, or adaptability may suggest development, but establishing the reliability and significance of these changes requires appropriate assessment approaches. Understanding whether a particular learning intervention caused those changes presents an additional challenge, especially when development occurs through multiple interacting experiences.

A third area concerns the relationship between individual capacity and opportunity. Educational interventions may strengthen an individual's understanding and judgement without changing the circumstances that limit their ability to act. A meaningful developmental perspective must therefore consider both the growth of personal capacities and the conditions through which those capacities become available for exercise.

Artificial intelligence introduces further questions about the relationship between assisted performance and human development. As cognitive tools become increasingly capable, it becomes necessary to examine how learners retain responsibility, exercise judgement, and develop understanding through their use. The relevant question is not simply whether technology improves outcomes, but what kinds of human development accompany those improvements.

These questions suggest a continuing programme of enquiry rather than a finished educational prescription. The value of HCD as an integrative perspective will ultimately depend upon its ability to clarify meaningful developmental processes, inform better learning experiences, and support credible investigation of their outcomes.

## The Journey of Becoming

An acorn contains the potential to become an oak tree, yet that potential does not guarantee its development. The conditions it encounters influence whether and how it grows. Human development is considerably more complex because individuals can reflect upon their circumstances, make choices, change direction, discover unexpected interests, and redefine what they wish to become throughout their lives.

A student entering a learning environment is therefore more than someone waiting to acquire knowledge or demonstrate proficiency. They are an individual whose capacities, interests, perspectives, and possibilities are still evolving. The experiences they encounter may influence not only what they learn, but also how they understand themselves and what they believe they can accomplish.

This places an important responsibility upon everyone who contributes to learning. Beyond explaining concepts and developing technical competence, we can create environments that encourage curiosity, experimentation, reflection, reasoned disagreement, and independent judgement. We can allow learners to make meaningful choices, experience the consequences of those choices, and discover that uncertainty need not prevent thoughtful action.

None of this diminishes the importance of knowledge, expertise, discipline, or established educational standards. On the contrary, capability development depends upon them. What changes is the perspective through which we understand their purpose. Knowledge and competence remain valuable achievements, while also becoming resources through which individuals can develop broader capacities for engaging with an uncertain and evolving world.

We cannot predict every challenge today's students will encounter over the next forty or fifty years. Nor can we know which technologies, professions, or social circumstances will shape their lives. We can, however, help them develop the capacities to question, reason, create, adapt, collaborate, and exercise judgement when familiar answers no longer suffice.

Perhaps this invites us to reconsider a question that has long accompanied the journey of learning. Instead of asking students only what they have learnt or what they wish to become, we might also ask what they are becoming capable of that once seemed beyond their reach. Their answers may reveal dimensions of growth that examinations, qualifications, and conventional measures of achievement cannot fully capture.

The enduring promise of learning lies not only in expanding what people know or improving what they can do today. It also lies in enlarging the possibilities available to them tomorrow, including possibilities they may not yet recognise or imagine. That is ultimately what makes Human Capability Development a lifelong concern, rather than an objective confined to any particular stage of education.

**Because learning is not only about what we come to know. It is also about who we become capable of being.**

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*Ajaii Mahajan*
*Founder Capability Development Advisor | Author & Mentor*
*Parallel Ventures | Prime|XA Foundation*
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**Prime|XA Foundation**

**www.parallelventures.in**

**contact@parallelventures.in**

**+91 96548 89815**