Qualifications systems and related concepts –

a QQI background paper

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1 Introduction

This perspective on the qualifications system (QS or 'system') includes perspectives on interacting (and overlapping) systems including: the education and training system, the economic system, and civil society. QQI's two concerns—quality and qualifications—are central the qualifications system. The qualifications system, according to the OECD (OECD, 2007), includes

> "*all aspects of a country's activity that result in the recognition of learning. These systems include the means of developing and operationalising national or regional policy on qualifications, institutional arrangements, quality assurance processes, assessment and awarding processes, skills recognition and other mechanisms that link education and training to the labour market and civil society…*"

This implies a broad set of purposes. Qualifications systems are designed not only to make learning visible but also to provide the tools necessary to facilitate the expression of learning goals, waypoints and pathways and the documentation of a person's learning paths. CEDEFOP (CEDEFOP, 2010) elaborates on the purposes of qualifications systems:

> *"According to Allen (2007) qualifications (systems) have three broad purposes:*
>
> > *(a) social reproduction, supporting demarcations in knowledge and skills, promoting particular explicit/implicit values;*
> >
> > *(b) structuring pathways to employment and further learning, formalising progression routes and thus providing patterns of incentives for participation in education and training;*
> >
> > *(c) shaping learning through affecting the nature, structure and content of learning programmes."*

CEDEFOP elaborates further (*op. cit.*).

The qualifications system depends on trust. It is concerned with the mediation and management of trust. Significantly, the meanings attached to qualifications depend on the social groups and systems that use them. The value of a qualification (as distinct from the corresponding learning) depends on the level of its recognition by its users (i.e. credibility with the people who use it).

> *'Qualifications are social constructs more than they are technical constructs; they are based on deeply rooted social relations and practices and political interests (Raffe 2009a). They are also complex entities, with multiple and changing functions (CEDEFOP, Coles et al. 2010). Their effectiveness depends on familiarity, reciprocity and, above all, trust (Young 2002, Young and Allais 2009) – all of which tend to develop in the context of practice, in relatively stable institutional contexts, over a period of time. The appropriate metaphor for the reform of qualifications is therefore organic, based on horticulture rather than engineering.'* (Raffe, 2013)

The qualifications system is less tangible than the education and training system. The two systems are mutually dependent. Qualifications depend on the underpinning education and

training. Quality and Qualifications Ireland (QQI) is involved in both systems. It is an intrinsic part of the qualifications system.

The qualifications system is diverse, heterogeneous and evolving. It has many aspects including legal, political, social, regulatory, methodological, pedagogical, philosophical, scientific, industrial, historical, environmental, geographical, and economic.

Those with roles in the qualifications system include learners, educators (including trainers, teachers, counsellors, guides, mentors, instructional designers, assessors and such like), researchers, providers of programmes of education, employers, occupational associations, statutory regulators, voluntary regulators, learned societies, professional associations, employee associations, government, analysts, policy makers, quality assurance agencies, awarding bodies, examining bodies; and other diverse individuals, organisations, associations and social groups.

This perspective outlines an understanding of the qualifications system and roles and relationships with the system's various agents and subsystems. It is a snapshot of thinking within the QQI Executive. The thinking will develop as the system evolves and our understanding grows.

This paper is nonlinear because its subject is nonlinear. The qualifications system does not proceed exclusively from principles and rules. It is not amenable to being contemplated as an axiomatic system. It depends on agents who influence each other, adapt and make decisions. Understanding the qualifications system involves a network of interdependent concepts.

To avoid clutter, this outline asserts more than it argues. Rationales can be presented separately where required. Some of the paper's concepts might seem unduly abstract or too far removed from practical application but these concepts are not superfluous. They are necessary to resolve questions that arise in the regulation of qualifications and quality assurance.

2 Terminology

There is little precise standard terminology in this field. This underlines the importance of semantics. Similar or even the same terms can mean different things. In this paper, for example, an occupational standard means the learning (knowledge, skill and competence) expected of a practitioner. This contrasts with an alternative interpretation of an occupational standard to mean a statement specifying a list of discrete tasks that a practitioner is expected to be able to perform.

3 The Purposes of Outlining a Perspective

The qualifications system is much greater than QQI. Much of its work will be done by communicating, catalysing, co-ordinating, brokering, reflecting, and helping to identify and engage capacity that is distributed throughout the qualifications system. The perspective will help build a coherent approach to QQI's functioning and relationships.

Outlining a perspective is important for QQI's self-understanding. Its board is new. Its executive has been assembled from four different organisations with different cultures, histories and understandings. Being 'divided by a common language' is no small risk.

Accurate communication of information between persons is more challenging than many appreciate. People can misunderstand each other when drawing on different tacit knowledge, using different terminology or using the same terms with different meanings. The qualifications system would benefit from having a shared language, exemplars, core values[1] and conceptual framework for thinking about and discussing qualifications systems and their elements and relations and corresponding structures.

The NFQ (National Framework of Qualifications) has begun to provide something like a common language for the qualifications system. It would be useful were this language to develop further and grow in sophistication with the support of the framework's communities of practice.

A body that would purport to regulate the qualifications system can reasonably be expected to present its credentials for doing so. QQI's statutory credentials are established but its relationship with the qualifications system is incipient. Its reputation and credibility will be influenced by this relationship.

A natural place for QQI to begin this relationship is to present its perspective in an open-minded and enquiring way outlining the basis for its current understanding of the roles and responsibilities of the qualifications system's agents and the interactions with and between them and with the wider environment and for speculating about possible futures.

[1] Values here means any kind of value that a person might in respect of the system hold including those associated with their professional heritage and how it shapes their perception of the qualifications system. For example an engineer might take it for granted that any conceptual framework would be self-consistent.

4 Qualifications Systems and Related Concepts

4.1 A Complex Adaptive System

The qualifications system is a “complex adaptive system” (Miller & Page, 2007). There is no theory for complex adaptive systems. However, studies of such systems offer potential insights about the qualifications system.

Complex adaptive systems are “systems that involve many components that adapt or learn as they interact” (Holland, 2006). “*The traditional technique of reduction – study the parts, then add up the parts’ behaviours to get the behaviour of the whole – does not work. The interactions as well as the parts must be studied.*” (Holland, 2006)

Examples of other complex adaptive systems include economies, ecosystems and organisations. None is completely predictable. Neither is any completely unpredictable. They display regularities that can be inductively inferred. Generally, they cannot be understood by a single formalism. They self-organise. They evolve. They are path dependent (decisions constrain future options). Their dynamics are nonlinear implying that the effect of a change is not necessarily proportional to its magnitude. They are typically studied with the aid of computer models.

Note that complex and complicated mean different things in this context. A complicated system (e.g. a computer’s CPU or a jet aeroplane) is different from a complex adaptive system.

The literature on complex adaptive systems contains useful insights that might help understand the qualifications system. One such insight is that forcing change on a complex adaptive system is expensive if it opposes the system’s natural tendencies. One can work with natural tendencies by guiding self-organisation within the system and facilitating coordination (e.g. by influencing interactions or information flows within the system). These kinds of approaches are more likely to be effective and efficient (in terms of the cost to the system overall) than exclusive reliance on the imposition of boundary conditions (a typical regulatory approach). For a discussion of some relevant issues, see (Helbing & Balietti, 2011). Most complex adaptive systems have lever points that allow small actions to have big influences—finding them involves trial and error (J. H. Holland).

The concept of ‘evidence-based policy making’ is worth reflecting upon in light of this. The concept is fine assuming there is evidence that a prospective policy will have the intended effect. However, it is an over simplification because complete evidence virtually never exists. In reality there are intuitions, indications, suggestions, associations and at best probable (contributing) cause. One must observe the effects of ones actions, learn and adapt. Policy making always involves a degree of trial and error.

How much more one can learn from this perspective remains to be seen. One thing seems certain though, the qualifications system will always be capable of surprising the regulator. Figure 1 helps illustrate some of the qualifications systems elements (agents).

4.2 Communities of Practice

The concept of a community of practice (COP) helps in understanding the qualifications system. The term COP was popularised by Etienne Wenger whose website[2] contains the following

> *"A community of practice is a group of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly."*

The essence of the idea is similar to Kuhn's (Kuhn, 1962) idea of a 'scientific community' in "The Structure of Scientific Revolutions". His work recognises the importance of considering the social dimension "*As in political revolutions, so in paradigm choice - there is no standard higher than the assent of the relevant community.*"

None of this implies that truth is socially constructed. Communities can be wrong, they can be corrupt and they can be pernicious.

The qualifications system includes a multitude of communities of practice. Some are geographically local others global. They support disciplines that range from the elementary to the esoteric. They may be transient or permanent. They may be conservative or disruptive. They may be formal or informal. They range from naïve to mature.The important point here is to take account of the social dimension to the support of the qualifications system at each and every level and resolution.

Communities of practice (COPs) are agents within the qualifications system that support other agents and instruments including disciplines (subjects, professions), policies, educational and occupational standards, and institutions. The role of COPs in the authentication of knowledge is particularly significant in this context. Different COPs have different ways of doing this. COPs like the disciplines/practices they support can emerge, evolve, combine with other communities, and die.

In QQI's work policies, procedures, occupational standards, intended/expected learning outcomes, regulations and such like are generally expressed as statements. They are interpreted and implemented by communities of practice. This introduces another dimension and its presence means that none of these can necessarily be understood by studying the statements exclusively from their implementation.

QQI needs to be able to depend on competent communities of practice when working with disciplines (to support standards determination activity), or organisations.

4.3 Trust

Trust is central to all qualifications systems. Trust in an agent involves:

- confidence in the agent fulfilling its expected roles and responsibilities; and
- reliance upon the agent's functioning as it professes to function.

An agent is an autonomous entity that can adapt and make choices: it might for example be a person, a body, an institution, a community or an association.

[2] http://wenger-trayner.com/resources/what-is-a-community-of-practice/ (Retrieved 30/01/2013)

Trust in a qualification (unless scrutinised from first principles) derives from trust in the agents that support it.

Trust in an agent represents or measures the likelihood of an agent functioning as agents of its type are expected to function. Trust is concerned with belief, consistency and predictability. There are degrees of trust. Trust can be thought of as a probability or a measure of uncertainty. Absolute trust corresponds to complete certainty. Trust is never absolute. It has to do with reputation. Trust between two agents varies as they observe each other—it can increase or decrease. Deceit or misleading information can perversely increase trust. Trust between agents is established by relationships built from decisions informed by exchange of information between them and with other agents and the wider environment. The qualification system is concerned with managing trust. There are degrees and zones of trust. Quality assurance has to do with establishing degrees and zones of trust.

Untrustworthy agents cannot be permitted to thrive in the qualifications system. The QS will always have 'pathogens' and 'predators'. The system and its agents require healthy 'immune systems' and good defence and survival skills. The 'quality assurance system' is like an immune system and likewise needs to be distributed and adaptive. It needs to suppress untrustworthy agents without harming trustworthy ones. There is a trade-off, for example, quality assurance that only permits proven practices would dampen innovation.

The concept of a zone of trust is related to the concept of a community of practice. The concept of a zone of mutual trust is discussed in (Coles & Oates, CEDEFOP Panorama Series 109 European reference levels for education and training promoting credit transfer and mutual trust, 2005).

4.3.1 Conflict of Interests

Qualifications are valuable to graduates. Recognition of qualifications is valuable to awarding bodies. Accreditation is valuable to providers. Occasions for conflicts of interest abound. If this is recognised it can be managed.

Consider awarding bodies. It may be in an awarding body's interest to have its qualifications recognised within the framework. In an ideal situation if a qualification were aligned at a higher level than warranted this would be evident to the organisations that would employ or enrol the award holders. The anomaly would damage the awarding body's reputation. Therefore it would not be in the interest of even an unscrupulous body to have its qualifications misaligned. However, for example, in situations where a qualification's NFQ level is used by organisations as a selection device for positions that don't require the selected level of learning then there is a risk of awarding body conflict of interest because the misalignment might go unnoticed.

Another perspective is that alignment of a qualification offers a competitive advantage in Ireland and sometimes internationally. Consider the case of agents who offer competing qualifications. Decisions that one makes affect the others. This can drive quality up or down depending on the dynamics of the situation.

Consider for-profit providers of education and training. They have to strike a balance between the quality of programmes, income, expenditure and profit. Assuming quality is maintained above the threshold for acceptability, there is still a trade-off to be made between profit and quality. Public providers face similar choices in different guises. When facing

questions of survival institutions tolerance for low quality increases. Conflicting interests can then tempt providers to push quality down to unacceptable levels.

4.4 Diversity and flexibility

Ecological systems require diversity to adapt and survive. Similarly, the qualifications system needs diversity. Diversity is also essential for any adaptive and innovative organisation such as QQI aims to become.

Diversity and flexibility facilitate innovation for example by providing opportunities for new combinations of approaches to be explored. Many combinations will fail but some will succeed and through them the system will evolve and learn. In all this, learners and the credibility of qualifications must be protected. However, such protection does not require risk aversion, nor invasive bureaucracy, nor rigid standards and quality criteria. It does warrant regulation and factors of safety for affected learners. In this context the external regulator needs to be alert and discerning—its judgements will frequently reduce to ones concerning trustworthiness.

Failure is an acceptable innovation cost as long as there is a fall-back for affected learners. Repeated failure in the same way, however, is a sign of incompetence or worse and is unacceptable.

4.5 Change

Everything changes. Agents (including QQI, providers and awarding bodies) in adapting to change or in attempting to improve their situation will introduce changes. A reflective approach to the decision to change is likely to be more reliable than an intuitive one. A reflective approach might consider:

- The purpose of the change.
- Similar initiatives that have been attempted.
- Anticipated method for evaluating the impact of the change.
- Estimated costs and benefits to Irish society of making the change.
- Estimated costs and benefits to Irish society of making no change.

When looking at the costs and benefits it is important to take a broad perspective—costs and benefits to society. For example, education and training programmes and qualifications rely heavily on trust. Change affects trust (positively or negatively). Change that increases uncertainty reduces trust. This is true even if that uncertainty is due solely to failure to communicate available information effectively.

Deliberation about change must account for the cost of explaining and implementing the change. Discontinuous change may be worth the higher cost. Much can be achieved by gradual or evolutionary change and this can be more efficient than abrupt change in some cases because stakeholders will be better able to track, and adapt to, the changes without the aid of expensive support.

4.6 Quality

Quality in the context of the qualifications system has to do with matters such as the:

- trust in the qualifications awarded or recognised;
- net contribution of education and training programmes to the common good;

- openness and clarity; and
- things being what they profess to being (i.e. fitness for purpose).

Quality's traits have to do with reputation, credibility, and meeting expectations. Quality in qualifications is synonymous with truth. It indicates the correspondence between what a qualification actually signifies and what it claims to signify. It measures the extent to which a programme provides the learner with the service it promises to provide. It has to do with correspondence with reasonable expectations. All this has consequences for the kind of information that should be presented by a provider (or awarding body) to a prospective learner when offering a programme of education leading to a given qualification.

Quality as a concept can be applied to the qualifications system's infrastructure. One can contemplate the quality of 'framework standards' or of Quality Assurance (QA) policies.

Quality is linked with 'performance' and 'accountability'. Institutional performance related targets, for example, are manifold and multi-layered. Some examples are: graduate achievement against international benchmarks; magnitude of the transformation of learners (or more crudely value-added); responsiveness to workforce needs; economic return on investment; efficiency in the use of public funding; reputation; profit; and social inclusion. Both public and private education and training programme providers are accountable for the 'quality' of their activities.

Quality is not amenable to closed definition. Criteria can help focus on its aspects. Ultimately its recognition is informed by inference-based recommendations from trusted groups.

Quality will look different in different contexts. It will look different in a university than in a VEC/ETB institution.

Quality does not necessarily require excellence; if it were to do, then quality would be the exception because excellence is exceptional. However, a country may choose to invest in order to position its educational system above a given percentile (if it has this potential) within its competing group.

The quality of education and training programmes, the awards they lead to and the systems infrastructure is a concern of each of the qualifications system's (and the education and training system's) agents. Each has some responsibility for quality.

The quality assurance of educational programmes differs from the quality assurance of manufacturing processes assuming the latter emphasises procedural repeatability and the former emphasises expected outcomes. There is a risk in applying the manufacturing paradigm to education. Quality in education and training has little in common with the quality of a product coming off a factory production line. Contemplating it in those terms is misleading.

Quality in education and training is comprehensive. For an education and training provider quality has to do with virtually everything it does including: finance; pedagogy; facilities and resources; recruitment; health and pastoral care; teaching; learning opportunities and environment; assessment; staff; organisation; planning; communications; and management. This is why quality is by necessity, principally, the provider's responsibility. An organisation that cannot bear this responsibility cannot be an independent provider—this has implications

for the minimum size for an independent provider. QQI has a responsibility for quality assurance but this cannot extend into those areas for which the provider is necessarily responsible.

4.6.1 Quality assurance

The concern here is with the quality assurance of planned purposeful education and training activity. Quality assurance of an activity is concerned with maintaining the activity's quality so that it meets expectations. Quality assurance has both summative and formative roles.

Quality assurance; quality control; and quality improvement of educational programmes and awards are all loosely analogous to a closed loop control system involving:

- Continual assessment of performance against targets;
- Continual action to move performance towards targets.

Much complexity lies beneath this simple abstraction. QA in education is distributed, complex and reliant on tacit, as well as explicit, targets. Conflicting targets exist and this can be disruptive and beneficial or detrimental. Quality assurance involves:

- an organised and purposeful activity;
- quality expectation;
- quality estimation;
- activity modification to improve quality; and
- reporting (rendering an account);

where activity analysis and hypothesis generation are implied.

QA activity is distributed and layered. The term quality assurance (QA) has to do with confidence and trust rather than absolute certainty. This is because education and training is too complex for certainty. In education and training QA has to do with the provision, organisation, management and regulation of education and training. It has to do with establishing and maintaining zones of trust. It has to do with public accountability and quality improvement.

Provider-owned quality assurance extends to areas including teaching, assessment, curriculum, learning environment, human resources (including academic staff), health and safety, accessibility, learner support services, finance, planning, partnerships, governance, and management.

A provider's quality assurance procedures help it manage the quality of its programmes. Procedures are an instrument to help maintain and improve quality and not an end in themselves.

The suitability of quality assurance procedures can never be judged in isolation from the organisation to which the procedures apply. The effectiveness of QA procedures is situational—what works well in one situation may fail in another. The *a priori* suitability of quality procedures can only be inferred from their consideration in the context of their application environment or platform.

The evaluation of quality trends is necessary before one can evaluate the *a posteriori* effectiveness of quality procedures.

The rationales for QA methods need to be valid and transparent to prevent methods waxing into ineffectual rituals. Changing QA methods from time to time can be beneficial.

Quality assurance is sometimes associated with procedural compliance checking without concerning itself with assessing the quality itself—this is not quality assurance. Quality assurance must make inferences about the qualities of programmes and awards: indicators, procedures, audits, reviews, research, agreements, reporting, peer review, ranking are all just tools that may or may not be useful in a given situation. The effectiveness of quality assurance depends on the validity and reliability of its inference of qualities of interest and its contribution to understanding their causes. The rest is situational.

Standard quality expectations are more onerous for smaller organisations working independently. There is an economy of scale. External quality assurance by an organisation such as QQI can complement provider-owned quality assurance. It cannot supplement it. If an organisation is too small to meet quality expectations its only survival option is to formally collaborate with an organisation that can supplement for its deficiencies.

External quality assurance necessarily evaluates the outcomes of education and training. Such outcomes are of interest to funding agencies because they would naturally wish to associate funding with outcomes. Funding decisions involve high stakes.

Ideally, the activities of state funding agencies and the external quality assurance agency would be consistent and mutually supportive. Achieving the necessary shared understandings is possible but will nonetheless likely be challenging.

4.7 Causality

This is related to the foregoing. Even experienced observers confuse association with causality. Qualifications and quality assurance need to be grounded as much as possible in understandings of the causes of things. Associations may suggest causes but they can mislead. This is also known as the *post hoc ergo propter hoc* fallacy.

Changing things that are associated with quality but do not cause quality might affect trust but will not affect quality. It is always important to understand the causes of things. Intuition is aided by associations and is valuable but it can mislead.

It would be unwise to underestimate how widespread this kind of fallacy can be particularly in the context of people being afraid not to see “The Emperor’s New Clothes”.

4.7.1 Goodhart’s Law

This is sometimes expressed as[3] "When a measure becomes a target, it ceases to be a good measure". While this formulation is not beyond criticism, all incomplete indicators risk being manipulated. There are few, if any, complete indicators for education and training.

In pedagogical terms this is related to teaching to the test. It is only acceptable if the test is complete and it rarely will be in non-trivial situations.

Setting performance targets for funding is problematic if those targets are only associated with effective practice and can be achieved in alternative ways. Completion rates, for

[3] This quotation (attributed to Marilyn Strathern) is from an entertaining and thought provoking essay by Michael McIntyre available online at http://www.atm.damtp.cam.ac.uk/mcintyre/papers/LHCE/dilnot-analysis.html (retrieved 31/01/2013).

example, might by increased by providing an effective learning environment and opportunities or by being more selective at admission or otherwise.

4.8 Epistemology

Epistemology is fundamental to thinking consistently and rigorously about the qualifications system.

Epistemologies (or more generally knowledge systems) depend upon discipline. The NFQ assumes that the indicators apply universally, and they do, but they may not be interpreted in the same way by all disciplines.

A key stage in the development of a discipline is reached when its community (of practice) has established reliable infrastructure for validating contributions to new knowledge in the discipline. However, validating a contribution to human knowledge is not complicated particularly when there is novelty—communities of practice can hold back innovation in some circumstances.

4.8.1 Tacit Knowledge

Knowledge (in the sense of a person knowing something) can be explicit or tacit[4]. Explicit knowledge can be expressed efficiently in word or text. Tacit knowledge is difficult or impossible to express in these ways.

This has implications for educational standards. Generally it is not possible to completely specify educational standards using text alone, without also referring to communities of practice that will use them. Accordingly qualifications frameworks, awards standards and such like require interaction of communities of practice to complete them and therefore they are not static.

4.9 Education and Training

The terms education and training don't have fundamentally different interpretations. However, they tend to connote different things to different groups. Training might connote teaching (or learning) a craft that emphasises the replication of an artisan's skills in a workplace under supervision of a practitioner. QQI, like the legislation that established it, will frequently link the terms 'education and training' for the avoidance of any doubt.

4.10 Learning

Learning is the object of education and training. Learning is not like downloading a file; nor climbing a ladder; nor filling a pail; nor building a tower by laying blocks one on top of another; nor is it linear and in this sense perhaps it echoes the non-linearity of discovery (a kind of learning): '*by successive indirections directions grow*'[5].

> "*Learning refers to the processes by which a sustainable change in someone's knowledge, skill or competence occurs as a result of experience (of phenomena). Experience includes everything that affects the learner.*
>
> *Knowledge that is neither innate nor inferred from existing knowledge derives from phenomena. Phenomena are the objects of observation — for example, a lecture, images on the pages of a book etc. A learner constructs a 'cognitive representation'*

[4] This term was coined by Michael Polanyi.
[5] Isaac Newton

from phenomena by a process which involves, links and modifies existing knowledge, skills and competences, each of which influences the interpretation of phenomena. Mere observation of phenomena will not necessarily result in learning.

Learning is an activity that involves not only the brain but also the rest of the body; it changes one or both. The physical characteristics of the learning environment are instrumental.

Learning actively involves the learner: 'we learn in and through our interactions with others and the world [6]'.

A 'learner has to be seen as an active processor and modifier of information, from which follows that personal motivations and attributions, beliefs and expectations, perceptions of efficacy and effect as person-related control processes will play a crucial mediating or monitoring role in learning '[7]." (HETAC, 2009)

Learning outcomes are the fruits of education. A theoretically neutral position is untenable when working with them. The following principles indicate the theoretical perspective:

- An **actual learning outcome** is the *result* of a stable (not necessarily permanent) increase in a person's learning (meaning potential or capability including knowledge, skill, and competence). Through learning a person *becomes*.
- **Actual learning outcomes** are rarely observable.
- Learning is a complex process. It draws upon and links with what has already been learned. Many kinds of learning actively involve the learner. Learning takes place in a learning environment. The learning environment comprises self, the physical world including other learners and the cultural milieu). The learning environment actively moderates learning. Learners interact with the learning environment.
- There are limits to a person's capacities to make deductible connections and therefore to construct meaning.
- A person's learning potential is related to her or his learning history (path).
- A person's capacity for learning is finite and depends on their cognitive resources.
- The atomistic model of building competence holds that if component skills are learned in an arbitrary order then the learner can be assumed to have integrated these skills. This model is untenable because it relies on linearity—the human brain is non-linear. Learning is path dependent.

These principles are closest to (moderate) cognitive constructivism.

Qualifications frameworks and their associated standards express (a representation of) **Expected Learning Outcomes** (ELOs).

- ELOs are normally taken to be statements of knowledge, skill and competence expected to have taken place at the end of a learning process.

[6] Brown, J. S. (2006), Relearning Learning-Applying the Long Tail to Learning [Internet]. Available from: http://mitworld.mit.edu/video/419/ [Accessed: 15th March 2008].
[7] Note: the quotations are examples rather than definitions. Their use here should not be taken as indicating any special endorsement of the text from which they have been copied. Steiner, G. (1997), Educational Learning Theory in Tennyson, R.D., Schott, N.M., Seel, N. and Dijkstra, S. (eds.), "Instructional Design International Perspective" (Chapter 6), Vol 1, pp. 89, 90. Theory, Research and Models. Lawrence Erlbaum Associates, Mahwah.

- Statements of learning outcomes are different from actual learning outcomes. One is text and the other is a stable change in a person. The former is an estimated (in the probabilistic sense) abstraction of the latter (over some ensemble).
- The same ELO might be interpreted differently by (i.e. mean different things to) different groups of people.

It might be tempting to suppose that expected learning outcomes can be made more accurate by adding more text to the 'statement'. In practice, increased detail is expensive and time consuming to determine and makes ELOs more rigid and less general. More important, by specifying additional detail, the room for interpretation and linkage with tacit understandings is reduced and therefore information may be reduced. It is important to leave sufficient latitude to the discretion of the professionals who will work with the standards including the teacher, programme designer and provider.

Learning outcomes can take an integral form or differential form. The term learning outcome might suggest a focus on the expectation (over some ensemble) of the difference between a person before and after the learning process—differential form. In practice it can sometimes be simpler to describe learning outcome at a given level in integral (or cumulative) form with respect to the discipline concerned but without being explicit about required learning at lower levels (provided they are implied). It is important to be clear about which form is intended.

Expected learning outcomes may be 'typical' (this term is not well defined but is taken to mean the centre of some expected distribution of achievements) or 'threshold' (the least that any is expected to achieve). QQI standards for its awards will guide at the 'threshold'.

Intended Learning Outcomes (ILOs) describe an abstraction of the intended change in a person brought about by learning. They are normally specified for programmes.

In addition to minimum intended programme learning outcomes, the programme provider may aspire to describing other 'intended programme learning outcomes' beyond the minimum (HETAC, 2009). For example, teachers will typically add opportunistic intended learning outcomes based on the interests and needs of a specific cohort of learners or even individual needs. These do not require certification but they are no less important for that.

Taxonomies, for example, Bloom's revised taxonomy and the Structured Observed Learning Outcomes (SOLO) taxonomy can help to express intended learning outcomes. However, when such tools are inappropriately used or slavishly applied they can do more harm than good. While taxonomies might help in finding the words to express outcomes that a person already has in mind, they do not help in determining what those outcomes should be. The designer's professional knowledge, the NFQ, framework standards and occupational standards provide this help.

Programme providers will find it useful to keep the intended learning outcomes under review, not only to keep the programme up-to-date but also to obtain greater clarity.

Learning outcomes are not the same as assessment criteria. Non-trivial learning outcomes are not necessarily directly assessable but might be inferred by assessment procedures.

The notion that teaching and learning can be considered with reference to actual, expected and intended learning outcomes is useful and somewhat beguiling. The intuitive

attractiveness of this notion can result in simplistic erroneous applications. It is not straightforward to understand how people learn nor actual, expected and intended learning outcomes and their representations and support.

4.10.1 Learning Outcomes and the Learning Process and Environment

Learning outcomes are caused by the learning process. The learning environment is intrinsic to the learning process. Interactions between the learner and his or her environment are also intrinsic to the learning process.

Some educational goals are easier to capture by specifying how they are acquired rather in pure knowledge, skill and competence terms.

The management of education and training cannot be exclusively concerned with learning outcomes it is essential to manage the causes of learning including the learning environment (which has physical, social and cultural dimensions).

Similarly, education and training cannot be regulated exclusively *via* qualifications policy (i.e. by manipulating boundaries).

4.10.2 Limitations of Learning Outcomes

The Platonic ideal of a learning outcome statement i.e. one that perfectly captures and perfectly communicates knowledge, skill and competence, is an unfit basis for the thinking about the application of learning outcomes in education and training because it is virtually never realised.

Statements of expected learning outcomes are unlikely to be literally complete. Communities of practice can complement the statements using, for example, shared understandings, exemplars and tacit knowledge.

An honours bachelor's degree awarded following completion of one programme will not necessarily be regarded as being equivalent to one from a different programme even where the same framework standard applies to both. Institutional reputation, programme characteristics, and such like are important determinants of the value and trust that agents associate with particular qualifications.

Frameworks link with intended programme learning outcomes via a cascade of intermediate standards. It is interesting to ponder how information accumulates (and dissipates/disperses) in the sequence of elaborations that cascade from a qualifications framework to an intended programme learning outcome. Again the support of intelligent agents and communities of practice is required to complement the texts.

Textual analysis is not a sound basis for comparing standards.

4.10.3 A Learning Outcomes Referenced Approach

QQI's approach to qualifications and quality assurance will be *learning outcomes referenced* rather than *learning outcomes based*. Not everything that matters can be expressed using learning outcomes. However, they are and will always be a critically important reference in all of QQI's work.

4.11 Qualification

A qualification or credential is a public testament by a recognised authority that a person has attained the learning prescribed for the qualification.

The Qualifications and Quality Assurance (Education and Training) Act 2012 defines an award (i.e. qualification) to mean

> *'an award, including a joint award, for education or training, or both, made by an awarding body or in the case of a joint award, by two or more awarding bodies, to a learner to record or certify that the learner has acquired a particular standard of knowledge, skill or competence and includes— (a) a certificate, (b) a diploma, (c) a degree; [where an] "awarding body" means a body which makes an award;'*

OECD (OECD, 2007) *has:*

> *"A qualification is achieved when a competent body determines that an individual has learned knowledge, skills and/or wider competences to specified standards. The standard of learning is confirmed by means of an assessment process or the successful completion of a course of study. Learning and assessment for a qualification can take place during a programme of study and/or workplace experience. A qualification confers official recognition of value in the labour market and in further education and training. A qualification can be a legal entitlement to practise a trade."*

EFQ defines a qualification as

> *'a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards'.*

Educational qualifications record learning achievements to enable their recognition. It is important to appreciate that possession of an educational qualification does not imply that the learning is permanently retained. Educational qualifications are a snapshot of learning achievement. This is why the possession of a particular educational qualification might be necessary for qualifying a person as fit to practise in a particular occupation while not being sufficient for that purpose. Other requirements are necessary.

Certification of fitness to practise may be expressed by an occupational qualification or licence. Normally such qualifications must be renewed periodically on the foot of assessment against an occupational standard.

Occupational qualifications are a kind of educational qualification in so far as that they record a learning achievement but they may also record entitlement or authorisation and generally indicate fitness to practise. Learning requirements for occupational qualifications can change rapidly in some fields. Fitness to practise may depend on more than skills—a person may need to satisfy other kinds of requirements to be qualified as fit to practise.

It is useful to distinguish between occupational qualifications and educational qualifications.

4.11.1 Credit, RPL and Limitations of qualifications

It would be absurd to attempt to capture all learning through qualifications.

Learning that is unique to an individual and that is part of their identity does not need to be captured by qualification.

Qualifications are somewhat like educational milestones. They record that a quantum of learning has been achieved and that a stage of development has been reached. Intermediate volumes of learning may not warrant qualification. The NFQ recognises this and has introduced the concept of a minor award. A minor award is technically a qualification but is more akin to credit than typical qualifications indeed it may be worth considering relabeling minor awards as certified credit towards a major.

Uncertified learning can be acknowledged through RPL.

4.11.2 Use and Misuse of Qualifications

Qualifications may be awarded to certify non-trivial volumes of knowledge, skill and competence. Their function is to mediate trust and to communicate. They have no other valid functions. They signify achievement but neither entitlement, inclusion nor potential, except in a consequential way. Misuse of qualifications may contribute to destabilising the qualifications system.

An education and training qualification signifies a learning achievement. This makes it useful for all kinds of purposes. Qualifications are often used as proxies for other qualities and this can lead to misuse. The entitlement to qualification can only be based on assessed learning achievement. Qualifications must be evaluated and compared by what learning they signify. Other matters such as the concept of 'parity of esteem' ought not to enter into the evaluation. (Oates, 2010)

4.12 A Selection of Agent-types, Building Blocks[8] and Interactions

Figure 1 at the end of this sub-section illustrates some of the qualifications system's interactions. This is preceded by a brief commentary on some of the system's elements.

4.12.1 Learners

There are three phases in a learner's relationship with a particular programme and the corresponding qualification:

- Prospective enrolled learner (pertains to access)
- Enrolled learner (including those who are 'off-books' but not excluded or transferred)
- Progressed/Transferred/Excluded

4.12.2 Communities of practice

The general concept was introduced in section 4.2. COPs are necessary and they are diverse.

4.12.3 Provider of an Education and Training Programme

Providers of education and training programmes are essential agents. They enable learners to acquire qualifications.. All the current types are accidents of history, meaning that their structures and forms are contingent. Changing needs and technologies will see the emergence of new kinds of provider types and challenge current ones who will either adapt or cease to provide.

[8] The use of the term 'building block' is influenced by J.H. Holland e.g. (Holland, 2006).

Providers of programmes leading to NFQ awards include both public providers and 'independent' providers. Many independent providers and some public providers rely on external awarding bodies to validate their programmes and make awards.

The education and training system depends on providers. The system needs to be robust against assaults and dynamic in responding to transients and satisfy a multiplicity of needs. This implies a diversity of providers and mechanisms that enable new providers to be established and redundant, ineffective or rogue providers to be dissolved.

The education and training system can rely to a considerable extent on providers to spontaneously self-organise and adapt. However, there is a need for agents who can stimulate providers' self-organisation. QQI is such an agent. There are others. Such stimulation is more effective when it is based on an understanding of the education and training and qualification's systems.

4.12.4 Programme of Education and Training

The 2012 Act interprets a "programme of education and training" to mean 'any process by which learners may acquire knowledge, skill or competence and includes courses of study or instruction, apprenticeships, training and employment.' Current programme forms like current provider types are accidents of history i.e. contingent. A programme always involves learning opportunities and assessment.

The teaching/assessment staff; the learning environment (including opportunities and materials); the learners' profile; the arrangements for assessment of learning; and the programme's institutional and professional interfaces and contexts are all intrinsic to the programme. This is why validation of a programme does not imply validation of other versions of the programme with, for example, different teaching staff.

4.12.5 Awarding Body

An awarding body makes education and training awards. The 2012 Act refers to some types specifically:

- Designated awarding body "means a previously established university, the National University of Ireland, an educational institution established as a university under section 9 of the Act of 1997, the Dublin Institute of Technology and the Royal College of Surgeons in Ireland;"
- A provider to whom authority to make an award has been delegated by QQI;
- A body authorised by law to make awards in the State (e.g. State Examinations Commission);
- Professional Recognition Bodies
- QQI

Other categories that may be useful include:

- Foreign organisations and
- Multinational vendors.

Trustworthy awarding bodies will maintain explicit standards for their awards and will validate[9] programmes that provide access to their awards. Validation of programmes can normally be expected to include estimation of the reliability and validity of the arrangements for the assessment of learning against the programme's intended learning outcomes (ILOs) and the consistency of the ILOs with the awarding body's standards for the award. Some awarding bodies reserve the final summative assessment function to themselves. Some awarding bodies are also providers and self-validate.

4.12.6 Assessors and the assessment function

Assessment may be formative and diagnostic. Feedback to learners following assessment is formative. Assessment is a necessary skill for any teacher. Those who cannot assess cannot educate. Rather they can inform the way a video informs; they can supervise attendance and discipline but they cannot connect with learners and adapt their instruction to learning needs.

Trust in the integrity of the qualifications system is subject to abuse. Credible assessment mechanisms require transparency and broad support. Assessment by one unsupervised individual acting independently and subject to a conflict of interest is likely to be corrupted.

Assessment against standards involves interpretation of standards. Considering this it must involve the community of practice upon which the standard is supported. The community must have sufficient scale and maturity so that the interest of any individual within it is subject to the interest of the community as a whole.

Assessment needs to be approached scientifically and calibrated. Generally at every framework level the education and training systems' arrangements for assessment can be improved significantly.

The validity and reliability of assessment is an essential object of quality assurance in education and training.

4.12.7 The NFQ

The NFQ is a theoretically heterogeneous (eclectic) system of 10 levels that categorises qualifications with reference to the 'level' of knowledge, skill and competence they signify. Its structure and content is largely a reflection of the qualifications in use in Ireland when it was being developed. It promotes the use of learning outcomes and the opening up of diverse pathways through the education and training system to improve access to learning opportunities.

4.12.8 Awards Standards

Awards standards are understood as being the knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made[10]. Awards standards are threshold standards.

4.12.9 Credit

Credit is a programme related construct and not a qualification (*qua* learning outcome) related one.

[9] Defined in section 8.
[10] Based on the 2012 Act.

Credit is widely used in education and therefore important. The concept refers to expected (in a statistical sense) learner effort. The most recent ECTS User's guide is clear. Nevertheless, there is no reliable method for the consistent allocation of credit across all programmes. In practice, people calculate credit with reference to 'an academic year' or some other familiar structure. Application of credit to uncommon types of programmes is particularly difficult.

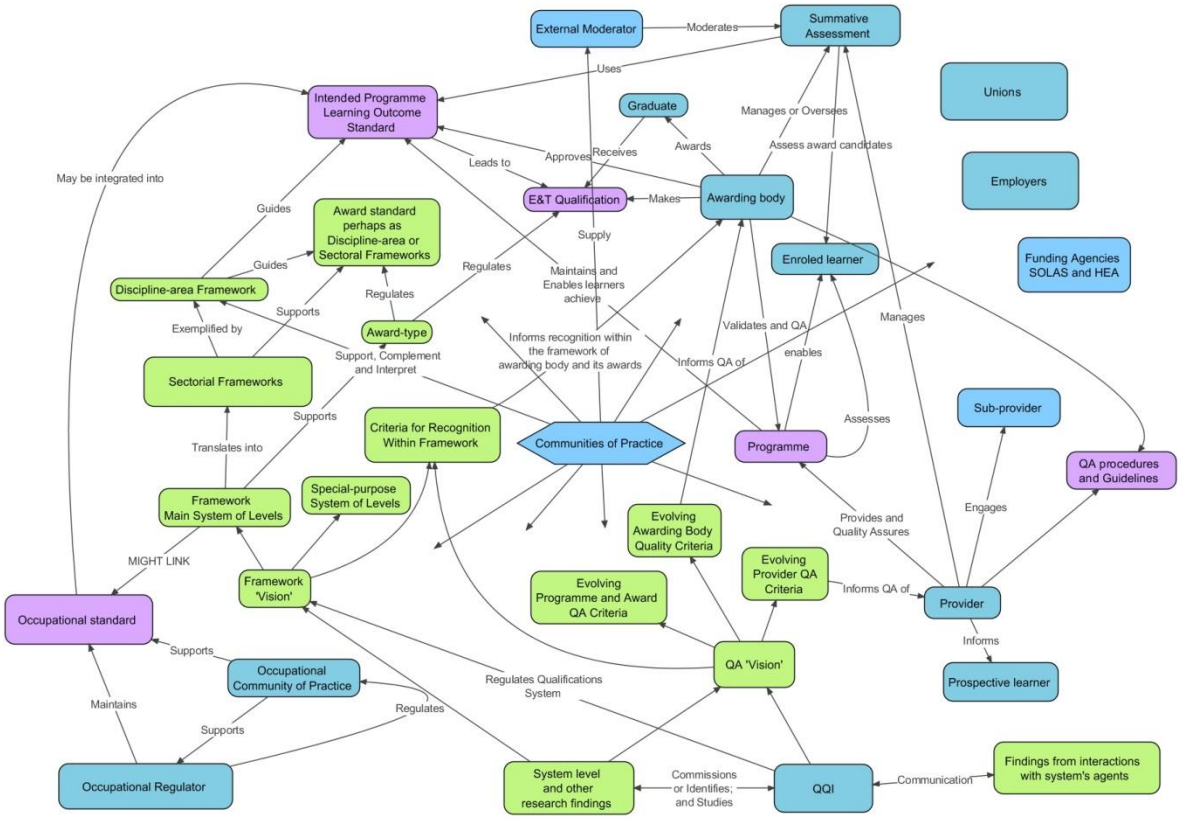

Figure 1 Illustrating some of the relationships (agents in blue)—this is incomplete and serves only to illustrate the many different kinds of interactions that arise in the system.

5 Working with the Perspective

The perspective outlined above provides a basis for thinking about the qualifications system. Detailed issues will be addressed in a range of 'Green Papers' covering QQI's functions. The following sections address some transcendent matters.

5.1 The Primary Objective

The concept of human capital development is widely used (perhaps over-used) in contemporary society. Human capital places the focus on people's economic value. It is a useful and important concept. Economic value is not a sufficiently broad concept when considering the health of a nation or a society.

The qualifications system, the education and training system and even arrangements for formation in the workplace ought to prioritise the support of human development. This is a more general objective than human capital development. It recognises that people have important functions in society beyond their economic utility. Human development has principally to do with the common good but always respecting individual autonomy.

5.2 The Employability Objective

Workforce skills requirements change quickly in many domains. The workforce needs to adapt to this. Change can be too rapid for adaptation to be accomplished solely by updating initial education and training programmes (targeted at the young). Accordingly, the initial formation of the young, whether generally or vocationally oriented, must without exception, develop their learning-to-learn competence. This initial formation occurs within the education and training system but also within early employment. Employers who recruit the young need to accept that the working environment they provide is an important formational opportunity. The apprenticeship system when it functions well is one example of how employers can take on their due responsibility for formation. Embedding substantial work-placements into education programmes is another mechanism that when done well can be formational. Formation programmes for new recruits is another. Work placements are important generally and particularly important in vocational areas at all levels (e.g. medicine, engineering, accountancy and crafts). The workplace is the 'laboratory' for many vocational disciplines and cannot be easily replicated (if at all) in an educational institution.

5.3 Distributed Responsibility

The qualifications and education and training systems must be able to adapt while maintaining credibility. Providers, for example, must be afforded flexibility to adapt—this kind of flexibility requires systems where responsibility is distributed rather than centralised. A key issue for QQI is how to identify and enable trustworthy agents. See: (NSW Department of Education and Training, 2008).

5.4 Quality Assurance Boundaries

QQI is one of many agents with a role in quality assurance. The question of boundaries arises i.e. the division of responsibilities for quality between QQI and others. This division may vary in different situations but there is a range of quality assurance functions that are the proprium of providers of education and training programmes and that ought not to be attempted by an agency such as QQI. This has implications for the capacities required of an organisation to enable it to function as a provider of education and training programmes. That has implications for size.

It is not QQI's role to explain how to provide programmes of education and training or how to function as an awarding body rather its role is to evaluate quality and mainly through this guide its improvement by those responsible for it. Providers of education and training programmes are responsible for the quality of their programmes. Awarding bodies are responsible for the quality of the awards they issue.

Professional/occupational/trade/manufacturing/services/cultural/community associations, professional recognition bodies and regulators all have an interest in the quality of education and training qualifications directed towards their communities of practice and may accredit or endorse certain programmes as meeting their specified requirements. This kind of accreditation can make an important contribution to quality.

All awards that are recognised within the framework must be underpinned by quality assured programmes, providers and awarding bodies.

5.5 Operating the Framework of Qualifications

The framework's symbolic value is at least as significant as its literal content. Naïve and erroneous uses of the NFQ, and there are some, typically fail to appreciate the profundity of this distinction. This paper has stressed, for example, that the information contained in an expected learning outcomes statement is limited and that the meaning of such statements can be unclear unless linked with the interpretations provided by a community of practice. Textual analysis alone is insufficient. The framework is more than its representation (in documents).

5.5.1 The Framework Structure

The core of the framework is a grid of level indicators. The core supports a set of award-type descriptors. The 'fan' diagram illustrates this well[11].

The grid of indicators includes 8 rows, one for each of the framework's sub-strands, and 10 columns, one for each framework level. This 80 element matrix is over dimensioned because it is doubtful that the matrix elements are useful (for aligning qualifications with them) in isolation. It is more useful to think of the core as a 10 dimensional array of framework-level indicators where a framework-level indicator is a grid column. The framework as it stands does not explicitly provide framework-level indicators as distinct from sub-strand level indicators. For the avoidance of doubt, the framework-level indicator will be defined to be the aggregation of all the grid level indicators at the specified level.

Each framework award-type descriptor with three exceptions merely encapsulates the framework-level indicator (as defined in the preceding paragraph). The exceptions are the major awards at Level 6 and the descriptors for the alignment of professional awards. The latter set encapsulates and elaborates the NFQ for the professional qualifications' domain.

Framework standards that provide more specific indicators contextualised for discipline areas or other well defined domains are associated with framework levels and/or award-types. These may take the form or sectorial frameworks or awards standards. Sectorial frameworks are supported by the framework-level indicators. Awards standards are supported by award-type descriptors. Awards standards may be implied by sectorial frameworks when taken in conjunction with award-type descriptors. Framework standards guide intended programme learning outcomes (specified by programme developers) they also guide recognition within the framework. Framework standards are not normally expressed as assessment criteria—these along with assessment strategy, instruments, tasks and procedures are the concern of programme developers and validators.

The framework's major award-type descriptors seem fit for their purposes. The non-major award descriptors may need to be reviewed.

5.5.2 Best-fit and Judgement

The framework involves the concept of best fit when making comparisons between a given qualification and either a level or award type. It does not provide an explicit mechanism for estimating 'fit'.

Judgement is the most defensible basis for estimating fit. Fit cannot be reduced to mere textual analysis of statements about knowledge, skill and competence except in trivial cases

[11] http://www.nfq.ie/nfq/en/FanDiagram/nqai_nfq_08.html

of little practical interest. Identical texts may mean significantly different things to different communities of practice. This does not undermine the framework's intention to create common ground and a shared language for comparing qualifications.

Judgements concerning fit are informed by the indicators, the various awards and standards associated with the framework, aligned frameworks (such as EQF and FQEHEA) and by the experience of the person making the judgement. A person's knowledge and experience (particularly tacit knowledge) can compensate for the limitations of text. They can use their experience of other qualifications in conjunction with the prompts provided by the framework to make inferences and decisions. Because of this unfamiliar kinds of qualifications are much more difficult to fit than familiar kinds. Similarly qualifications in emerging disciplines are also challenging particularly when they are not linked to qualifications in established disciplines. Judgements of well-informed individuals may differ, therefore, accumulation of several individual judgements is warranted.

5.6 Assessment of Learning

Credibility of qualifications depends on credibility of summative assessment. Poor assessment undermines everything else.

Valid are reliable procedures for the assessment of learning are essential for functioning qualifications system. Formative assessment by a teacher is what differentiates teaching from presenting. Summative assessment is the gateway to qualification. If assessment is incompetent, conflicted or fraudulent the qualifications that depend on it are corrupted. Where a provider is responsible for summative assessment of their own students there is always a potential for conflict of interest. The use of external moderators (authenticators) can help but only to a limited extent. Large provider might have intrinsic capacities to militate against conflicts of interest. An alternative is to use external assessment or some other arrangement that ensures robust objectivity. Small providers should never have dominant control of the summative assessment of their enrolled learners.

6 Epilogue

QQI will have direct access to a wide range of information concerning the functioning of qualifications system. This includes (but is not limited to) quality evaluations; recognition queries; intelligence from provider and industry liaison units; Qualifax enquiries; awards data; and research. In principle these data can be used to help improve the qualifications system. However, this requires that QQI become 'conscious' as it were so that all these feeds can be integrated and interpreted.

Each of the qualification system's agents will be conscious of the qualifications system and have views on their roles within it. While QQI can be expected to have the most comprehensive overarching understanding of the system, other groups will have much deeper understandings of aspects of the system or its elements and their possibilities.

Diversity of thinking within QQI is important and healthy subject to functional coherence.

QQI's decisions ought to be made on the basis of professional judgements against well-established objective criteria grounded in the understandings of the causes of things and scrutiny of what qualifications really signify. Such judgements don't concern moral or social

issues in a direct way. Its procedures ought to be ethical i.e. not only compliant with the law but reasonable.

QQI achieves its objectives by influencing the organisation, functioning, growth and development of the qualifications system.

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8 Working definitions

Learning environment "Learning environments are diverse. Teachers and other learners are part of a learner's learning environment. Learning environments have both physical and social structures. Learners interact with the learning environment; the environment responds to the learner, and the learner to the environment." (HETAC, 2009)

Occupation *"is here understood as a job or grouping of jobs involving similar content in terms of tasks and which require similar types of skills and competences. (Source: adapted from Skillsbase - Labour market information Database).* [Definition from (CEDEFOP, 2012)]

Profession *"is here understood as a professional activity or group of professional activities, access to which, the pursuit of which, or one of the modes of pursuit of which is subject, directly or indirectly, by virtue of legislative, regulatory or administrative provisions to the possession of specific professional qualifications. (Source: Directive 2005/36 EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications). The term profession has been the starting point for important research addressing the relationship between education and training and the labour market, notably Parsons (1970), Freidson (1994), Le Grand and Robinson (1990), Terum and Molander (2008).* [Definition from (CEDEFOP, 2012)]

Qualifications systems *include all aspects of a country's activity that result in the recognition of learning. These systems include the means of developing and operationalising national or regional policy on qualifications, institutional arrangements, quality assurance processes, assessment and awarding processes, skills recognition and other mechanisms that link education and training to the labour market and civil society…* (OECD, 2007)

Qualification: EFQ defines a qualification as '*a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards*'.

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> *'an award, including a joint award, for education or training, or both, made by an awarding body or in the case of a joint award, by two or more awarding bodies, to a learner to record or certify that the learner has acquired a particular standard of knowledge, skill or competence and includes— (a) a certificate, (b) a diploma, (c) a degree; [where an] "awarding body" means a body which makes an award;'*

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> "*A qualification is achieved when a competent body determines that an individual has learned knowledge, skills and/or wider competences to specified standards. The standard of learning is confirmed by means of an assessment process or the successful completion of a course of study. Learning and assessment for a qualification can take place during a programme of study and/or workplace experience. A qualification confers official recognition of value in the labour market and in further education and training. A qualification can be a legal entitlement to practise a trade.*"

Regulation *"at its broadest means actions taken on behalf of governments in the public interest to steer"* [Definitions quoted from (CEDEFOP, 2012)]

Validation: A programme of education and training is validated where the awarding body confirms that the provider of the programme has satisfied it that an enrolled learner of that provider who completes that programme will acquire, and where appropriate, be able to demonstrate, the necessary knowledge, skill or competence to justify an award of the awarding body being offered in respect of that programme.[12]

[12] Based on the 2012 Act..