

Blockchain Educational Passport

FROM CONCEPT TO PRACTICE

UN UNITE Global Challenge

#BlockchainEducationalPassport

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Building the case

MAKING THE INVISIBLE VISIBLE

The greatest challenge as we move steadily into a knowledge economy is to make visible, to make tangible, the knowledge that each one of us has acquired through a lifetime of learning and experience.

For many this is an impossible task. Even more challenging is to keep a permanent record and own such record as our intellectual property, our true capital and investment.

Why a Blockchain Educational Passport?

CREATING A FUTURE FOR THE DIGITALLY POOR

Having, being and doing

More than 10 years ago, I had the pleasure of contributing to a report for LSDA on learning theories for people with disabilities (Dee, Devecchi and Florian, 2006, p.2) in which we argued that there are 3 key purposes of education. They are:

- **'being** (developing a sense of and belief in one's own identity and who we want to become)
- **having** (acquiring new skills, knowledge and understanding and accessing new opportunities)
- **doing** (becoming empowered to participate, and being enabled to participate).

**"You left with no papers;
you left with your mind
only"**

**"What we need is to give
them a certificate"**

Many children around the world are denied achieving one or more of the purposes. For children who are refugees or displaced, none of the purposes above are easily achievable. Their identity has been shattered and they are aliens in the hosting country, if they have managed to find one who welcomes them. Their primary need is to be safe and

education can help them to stay safe and rebuild a sense of self and forge new hopes and aspirations.

Many times what they know already is difficult to assess because of language barriers, trauma or because they never had the opportunity to go to school and learn. In the case of those older children who might be working, we fail to

acknowledge the skills and competences they have. In almost all cases, refugee children are not responsible for what papers and certifications their parents managed to take with them. Disempowered, dispossessed, displaced, and misinformed, many refugee children are denied their entitlement to education and through education to do, that is to become empowered and enabled to participate as learners and as future adults.

The **Blockchain Educational Passport (BEP)** and the **Decentralised Learning Ledger (DLL)** onto which it is built will provide proof of learning achievements and a secure and permanent place for certificates and diplomas.

Building an inclusive education for all

3 FUNDAMENTAL RIGHTS

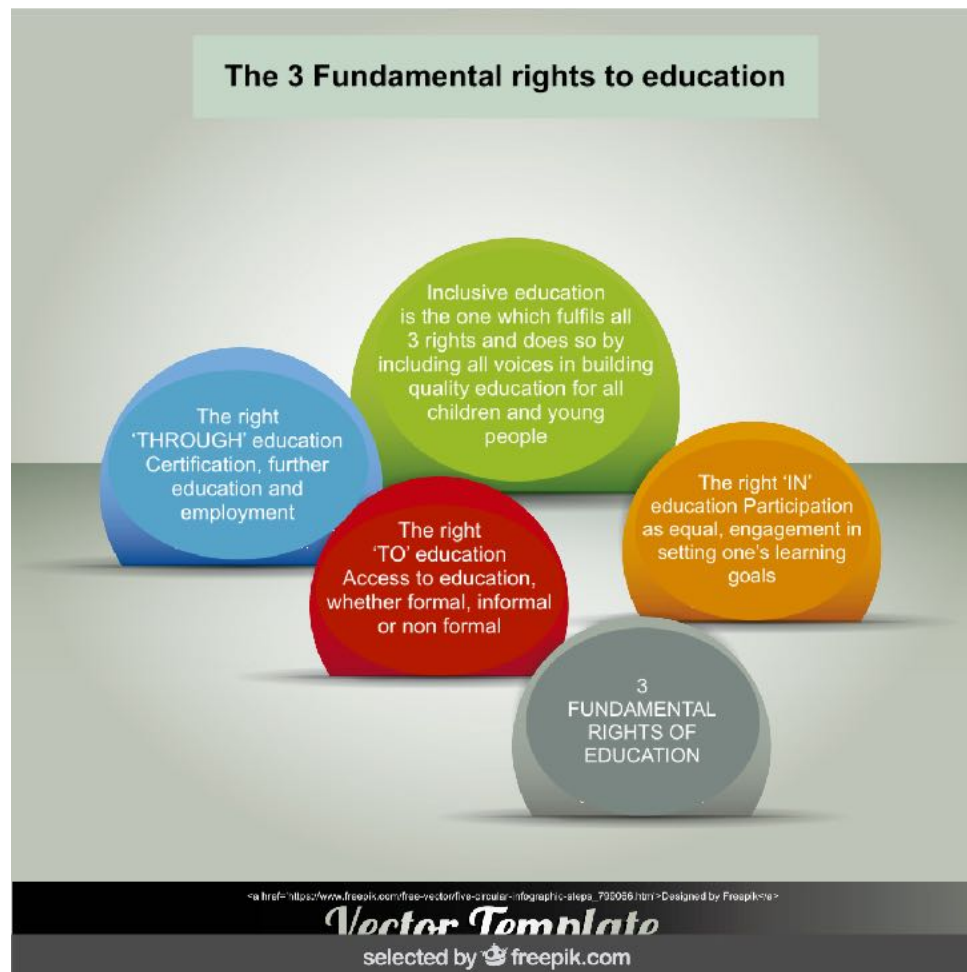


Fig.1 The 3 fundamental right of education

Going 'to' school and being 'in' school are necessary but not sufficient.

It is what we achieve 'through' education that sets the foundations for life.

Beyond just 'access'

While ensuring that all children are in school and attend regularly is a key step in achieving education for all, being in school neither does ensures that children do learn, nor that the place is a safe one or that it empowers and enables children to achieve beyond the formal stage of schooling.

Thus, while the **Right 'TO' education** is necessary, it is not sufficient to ensure education. Another two fundamental rights need to be pursued, enabled and documented.

The second right is the **Right 'IN' education**. Closely aligned with the purpose of 'being', this right focuses on supporting the development of a sense of identity, wellbeing and sense of self through active participation in one's learning and the life of the school and the community.

However, access, wellbeing and participation are foundation rights which refer to the quality of education while the child is 'at' school. The **Right 'THROUGH' education**, on the other hand, stresses the need to empower and enable the child to achieve while in school what he or she needs to develop into adulthood. It refers to the ability of decision making, but it also puts the onus on the education system to assess, document, and safely keep the learning achievements and gains of the child.

Education and the rights of Syrian refugee children

Legal rights and protection

A number of UN documents protect the right of children and refugees to education. The 1951 Convention relating to the status of refugees defines who is a refugee and the rights that refugees should enjoy. Article 22 (p. 24), comma 1 and comma 2 ensure both the right to primary and secondary education:

1. The Contracting States shall accord to refugees the same treatment as is accorded to nationals with respect to elementary education.

2. The Contracting States shall accord to refugees' treatment as favourable as possible, and, in any event, not less favourable than that accorded to aliens generally in the same circumstances, with respect to education other than elementary education and, in particular, as regards access to studies, the recognition of foreign school certificates, diplomas and degrees, the remission of fees and charges and the award of scholarships.

Likewise Article 28 and Article 29 of the UN Convention on the Rights of the Child (UNCRC, 1981) restate the right of all children to free primary education without discrimination. currently these

rights are part of the Transforming Our World: the 2030 Agenda for Sustainable Development (UN, 2015) and specifically of the SDG4 whose aim is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Rights are not enough: some challenges

A number of points need to be made:

"Every day, every day in Lebanon there is a family coming from Syria" (Teacher and Field Officer, Ana-Aqra)

1. Lebanon is not a signatory to the 1951 Convention. However, the political, economic and cultural ties between Lebanon and Syria have enabled access to education;

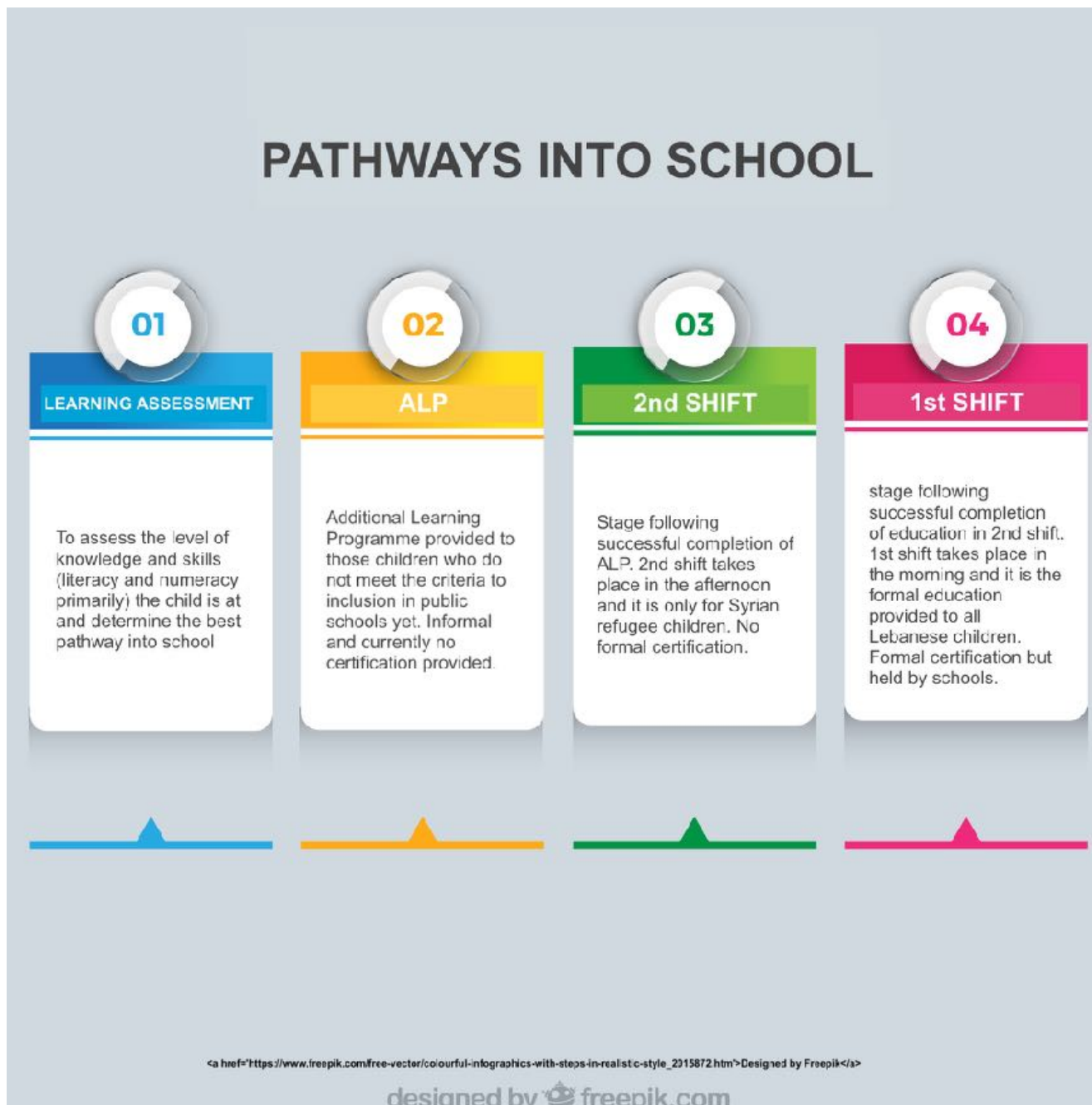
2. None of the documents reviewed, even the most recent such as the SDGs Agenda make mention of;

- the importance of proof of certification of learning for life;
- the right to ownership of personal data, including data referring to one's educational and professional qualification or data which proves one's skills, competences and capabilities.

Lifelong learning requires to be able to prove one's learning achievements through life. The next challenge is to enable the 'digitally poor' to do so.

Pathways into school

A LONG AND WINDING ROAD



Access and progression

Data gathered through interviews with teachers highlights the challenges of providing education to Syrian refugee children in a manner which is not just fulfilling the spirit of the law, but which is beneficial to the children. Although more evidence is required to have a full picture of the situation across Lebanon, Fig. 2 shows the journey children, their families and those providing education have to go through to comply to the 1st right of ensuring access to education.

Children in the area I visited in the Bekaa Valley would require a pre-entry assessment of their learning, primary literacy and numeracy but, given their circumstances, assessment by social workers and child nurses might also be required. The baseline assessment will determine whether the child can move to:

- 1st shift, that is regular state or private schools;
- 2nd shift, that is schooling provided to Syrian refugee children;
- ALP, that is an accelerated learning programme prior to entering 2nd shift

Fig. 2 Pathways into education

No proof of learning and achievements in the forms of certification is provided on a systematic, validated manner which is owned by the child and is a permanent proof of their education

BEP specifications

BUILDING THE FUTURE, INVESTING IN THE PRESENT

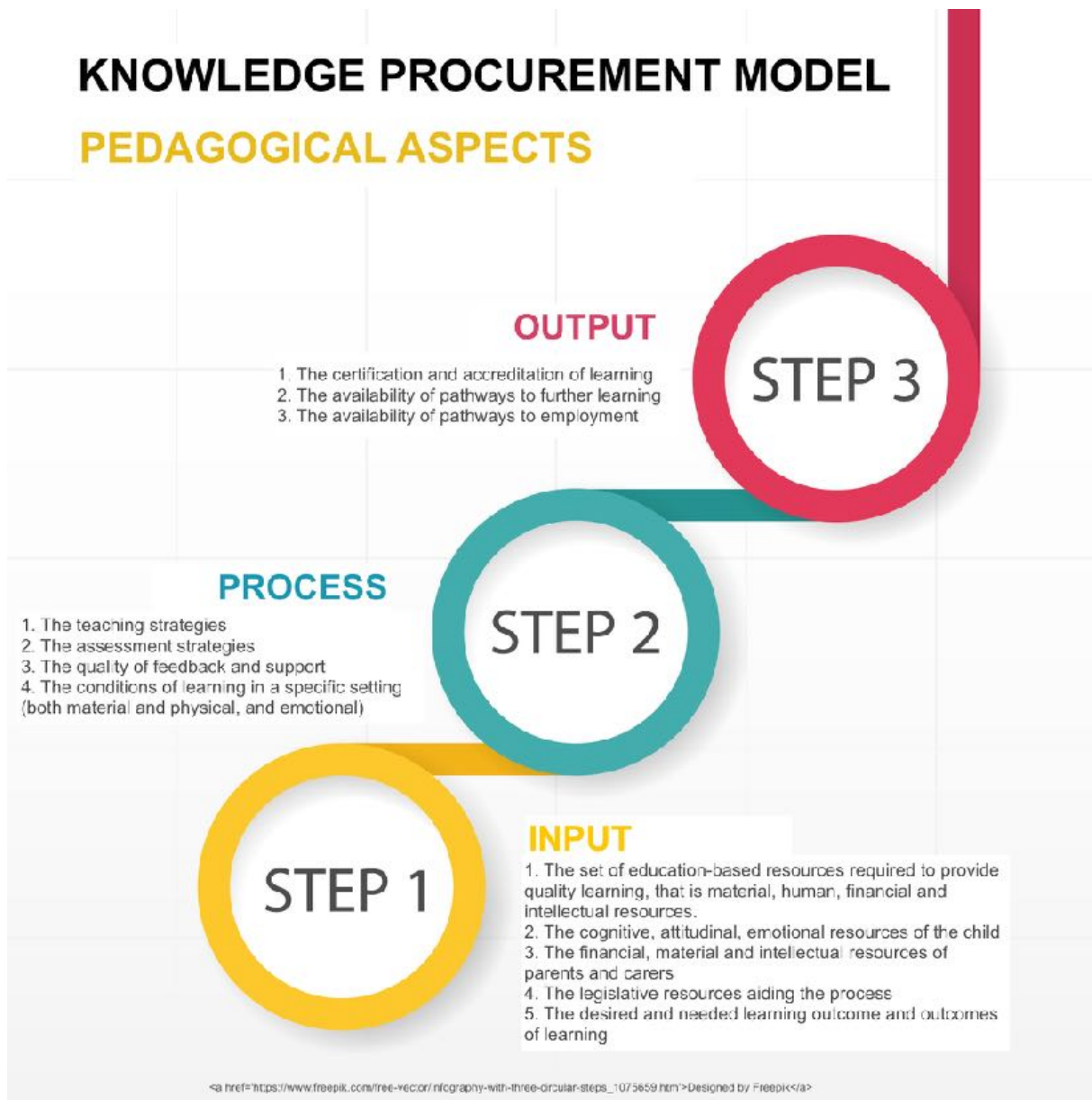
Despite much emphasis on education being the engine of innovation and the fundamental pillar to building a better future, the schooling system we rely upon was created for an Industrial Age which is no more.

More importantly, the current education system is still built on settled learners.

In a globalised, interconnected, mobile and fast changing world which relies on the use of knowledge, we are all 'intellectual migrants'.

A knowledge procurement model

IPO TO START WITH



Into the future: building the knowledge economy

The economy of the future will depend more and more on each person's ability to acquire, use and, above all, prove one's skills, competences and intellectual capabilities.

To do this will require to change the way in which we assess learning, validate and certify achievements. prove skills and competences.

It will require also to create a portable, validated and permanent proof of one's learning equal to and protected by the right to ownership.

The BEP and the DLL are ways in which we can start investing in the present so as to build a different future.

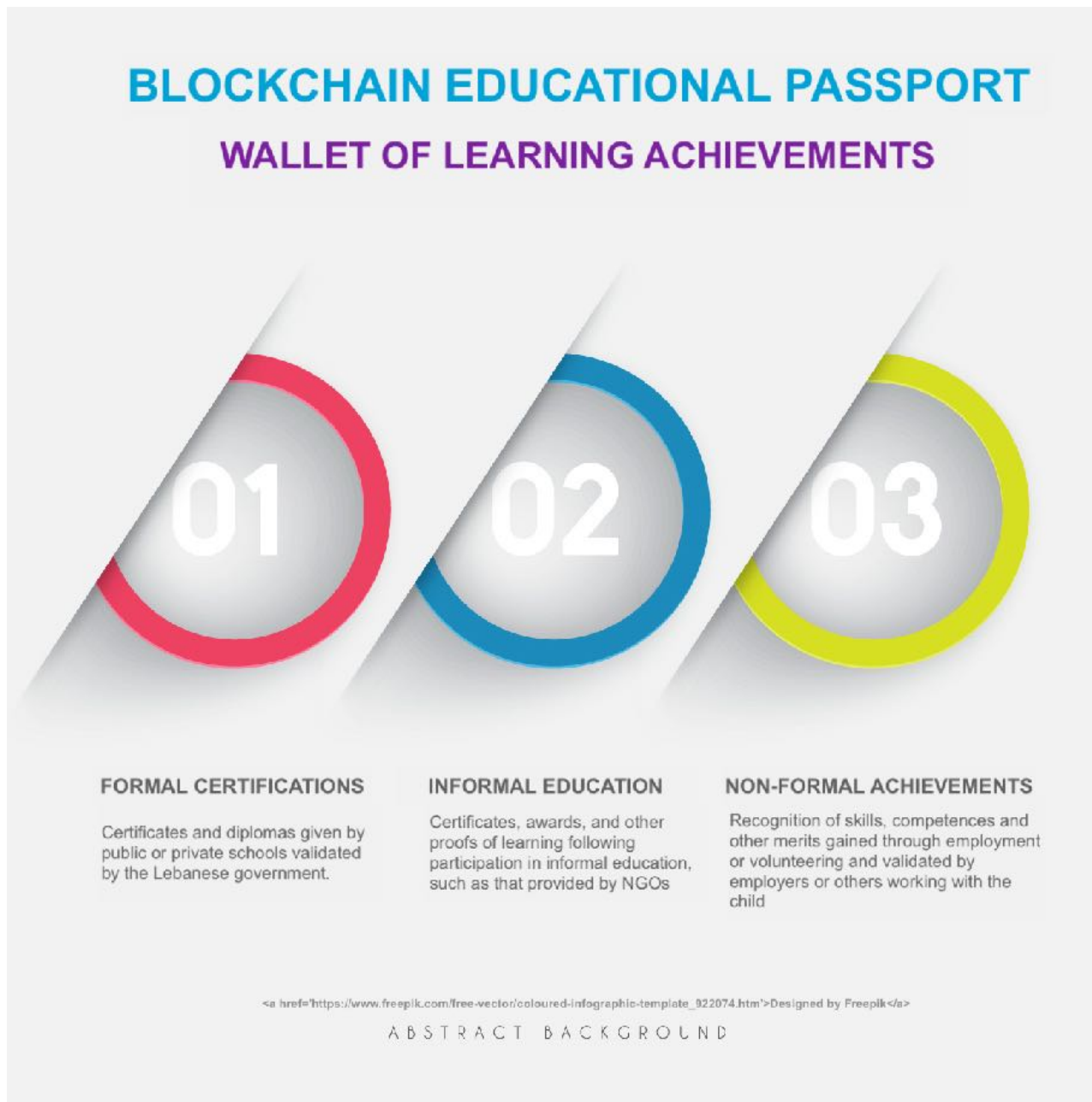
Fig. 3 makes use of a linear IPO model to details the flow of knowledge and required resources to ensure the quality of the final validation of learning achievements to be included in the BEP and DLL.

Educating a child rests on the efforts of many, all pursuing the single purpose of building a future

Fig. 3 a knowledge procurement model for education

Blockchain Educational Passport

A DISTRIBUTED LEDGER OF LEARNING ACHIEVEMENTS



Personal learning data

Passport are documents which certify one's identity. The BEP is a document which certifies the acquisition of learning achievements in the form of permanent 'personal learning data'.

Blockchain technology will be used to create a Distributed Learning Ledger onto which through smart-contracts and pre-defined algorithms the following information will be available:

- **Formal certification** (diplomas, degrees, etc)
- Learning achieved through **informal education** such as that provided by NGOs
- **Non-formal learning achievements** such as those gained through employment or volunteering activities

What we know is who we are. Owning a proof of our knowledge is our right to identity and dignity

Fig. 4 Content of BEP

Challenges

DEALING WITH UNCERTAINTY



Fig. 5 Challenges in building a BEP

facing reality

Fieldwork visits to schools in Lebanon have highlighted a number of challenges as listed in Fig. 5. There are and there would be more as we move from a proof of concept into the practical realisation of of a Decentralised Learning Ledger, an individual Blockchain Educational Passport and a secure wallet.

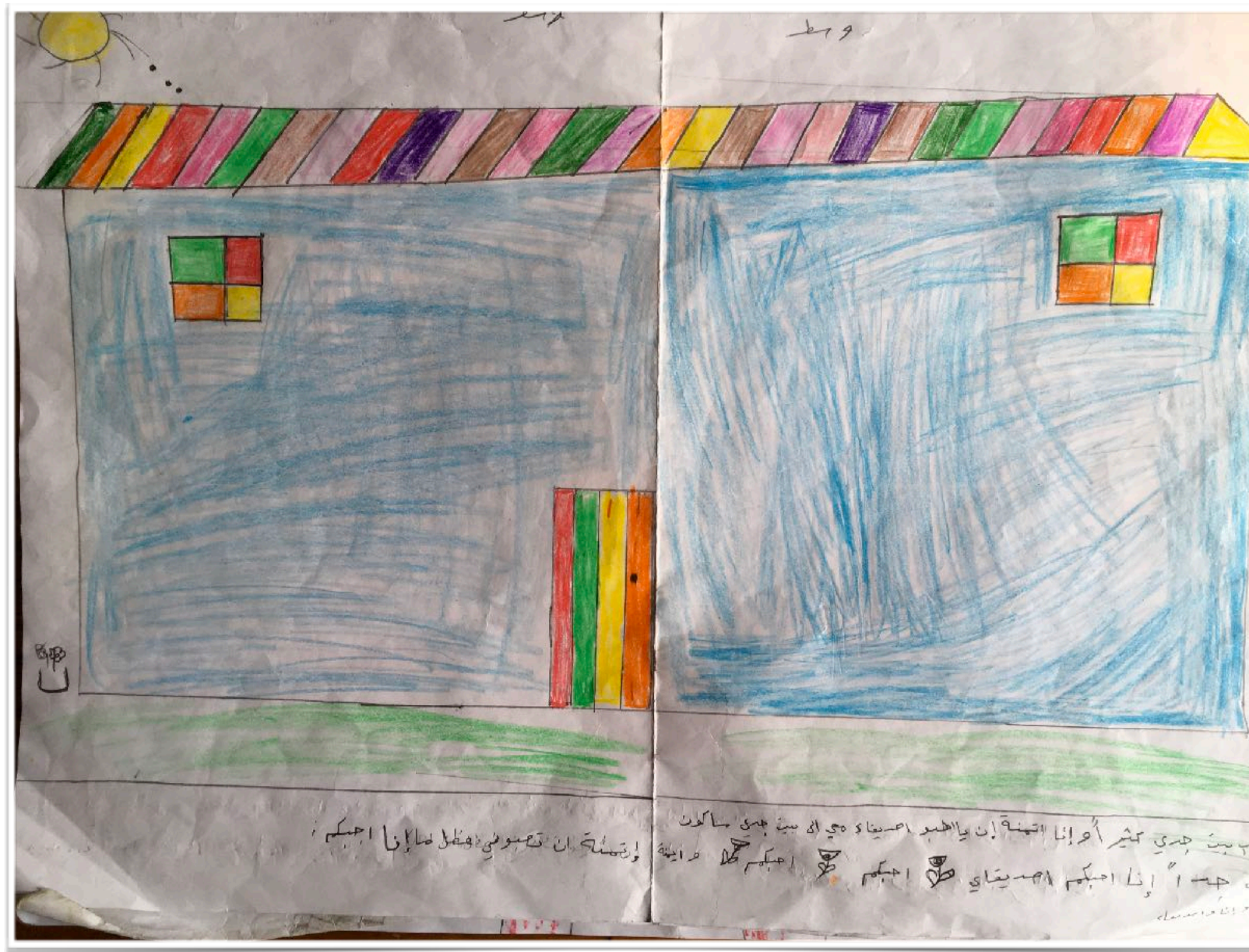
Some challenges are specific to education, such as how to assess the children's learning, provide them with quality education and design system of certification which are valid across the world.

Other challenges are technical and specific to the use of Blockchain technology.

Other challenges are legal and refer to contractual rights, ownership rights but also to ascertain the right of the child and ensuring that we work in the best interest of the child.

The key challenge, however, is to bring all who have a stake in the realisation of the BEP together. The first task is one in which we, as adults, educators or computer engineers need to learn first and foremost from each other.

Thank you



My grandfather's house

If despite all, a child can still see the world through its colours. it is our duty to make sure that it remains as such. This was one of the drawings given to me as a gift by the children at the school I visited. It depicts the child's grandfather's house, a beautiful place she longs to go back to and take her friends to see.