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Seeing is believing: Realizing the Education Dream with Augmented Reality
(A Legal Perspective)

The world is experiencing an intellectual renaissance where technology, for better or worse, has penetrated the remote(est) aspects of everyone's life. While the "smart" phone generation is accessing education on the go, courtesy platforms offering courses online, the toddlers are not behind either. This nextgen learns to use touch screens much before scribbling with pen and paper. Hence, traditional methods of learning may not be sufficient for them. Learning methods should be smarter to make them future ready.

One such intriguing and innovative way which has recently emerged is the use of Augmented Reality ("**AR**") in teaching discourse. AR refers to a form of technology which integrates user's environment with digital environment. It allows users to actually see and experience a particular action rather than merely visualizing it. Essentially, AR blurs the lines between the digital and real world, in terms of experience. Several industries such as the gaming sector, films and architecture have already incorporated AR in their business models. In education, it can potentially replace text books with smart-phones and tablets, as the primary mode of dispersing knowledge. For instance, Google's AR app "SkyMap" has put a personal planetarium literally in our pockets; the app overlays the information about stars and constellations as users browse the night sky with the see-through view from the smart phone's camera, making the entire night sky an actual auditorium. [1] Other initiatives include "AR Books" which offer students 3-D presentations, "SMART (**System of Augmented Reality for Teaching**)" which superimposes models and prototypes of vehicles and animals to teach concepts such as transportation, animals to primary school students. [2]

Beyond the K-12 segment, AR can also contribute significantly in specialized fields such as engineering and medical sciences. In case of medical sciences, it can address the concern of limited resources by providing AR specimens to conduct experiments/ training surgeries etc. Hence, one can also afford to make mistakes and learn by actually seeing and doing things in real time. AR, thus has the potential to revolutionize the education sector.

Albeit, AR is a very powerful teaching and learning aid, with every new digital evolution, comes a new challenge as well. Privacy and security are key challenges facing the digital economy today where data has been described as the new oil. Given that education shapes the life of a person from an early stage, it is essential to be aware of how these concerns pan out in the learning discourse.

Unknowingly, apps collect sensitive and personal data beyond what is necessary on regular basis. The wide collection of data runs into zetabytes, allowing companies to conduct analytics to predict

[1] https://quality4digitallearning.org/wp-content/uploads/2016/03/Augmented-Reality-in-Education-and-Training.pdf
[2] http://www.hongkiat.com/blog/augmented-reality-apps-for-education/

students' behavior. Storage of such data with third parties or in clouds, in the absence of adequate safeguards, makes it prone to data breaches. This could compromise the safety and security of students. Furthermore, the information collected can potentially be used for targeted advertising purposes, which may not be healthy for children at an early age. One can say that expectation of privacy may not be the same in this technology era, particularly when AR is adopted under the supervision of the guardians and schools. However, distancing students from concepts such as privacy and anonymity without adequate consent will set a dangerous precedent where the generation Y will barter its personal information thoughtlessly for availing education.

Further, in the digital age, contracts are in the nature of e-contracts. The nuances of forming such contracts need to be considered, particularly as under Indian laws under which minors cannot enter into a legal contract. It is their parents or guardians who can execute contracts for their benefit. If there is a legal concern resulting from the use of AR, then the validity of the contract would become a fundamental point of dispute in itself. Thus, validity of a contract is pivotal from both the developers' and the school or parents' perspective.

There are a few other ancillary yet significantly impactful considerations as well. The curriculum followed in the schools are approved after thorough examination by the applicable examining boards (such as the Central Board of Secondary Education). While AR should be allowed to experiment with the teaching methodologies, it is necessary that such lessons are framed within the broad framework of approved curriculum, to be used as an effective teaching aid. Moreover, the learning outcomes from AR based learning could differ for every student depending on her/ his nature to imbibe education, thus, it is necessary that teaching need not be generalized. Moreover, an adequate monitoring mechanism needs to be implemented to ensure a proper balance of use of AR along with traditional methods of education.

These are some aspects which need to be thought of as the use of progressive technology increases in the education space. The answer to the question – whether any policy or regulation is required at this stage, would be a big no! Rather, a "wait and watch" approach is preferred, to permit innovation in AR technology in education. The legal framework lays down regulations to adequately address several such concerns and can be accordingly modified in the future to address the challenges arising out of technological advancements. Any further regulation would only hamper progress, overburden the regulator and not provide any realistic solutions. Any concerns relating to AR technology in education can be addressed by a collective working of all the stake holders. The developers should be required to take due care with respect to the safety and accuracy of information collected and the content hosted on their applications. They could provide adequate instructions, guidelines and warnings for school, teachers and parents to consider. At the same time, it will be the responsibility of the teachers and parents to monitor the content and ensure that the children appreciate the difference between the real world and AR (which could become addictive), for overall development. It is only when we as a society, adopt technology with due responsibility, will we be able to develop a holistic, balanced and progressive educational environment.

– Kabir Choudhary, Aarushi Jain & Vivek Kathpalia
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