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Towards an Innovative Approach for Teacher Education: Training Teacher to Train (TTT) Model

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Abstract:

The world is now connected virtual and mobile, it is currently going through a fundamental transformation in the way we humans work, perform tasks and activities. Automation and 'thinking machines' are replacing basic human tasks and jobs, and changing the skills that organizations are looking for in their people. In this paper, the authors discuss current technological innovations and how our world is changing rapidly in all aspects. New set of skills is needed; hence the authors focus on crucial practices and skills that are needed to be taught to harness our children for the future. The authors emphasis on teachers and proposed an innovative model the TTT (Training Teachers to Train) model that could be used to train teachers on how to teach these skills to their students and how to embrace and connect effectively with the world. Innovations are discussed, crucial skills are identified and an innovative model is proposed.

Introduction

Technologies and applications are changing at a rapid speed, from IoT (Internet of Things) mobile applications, digital citizenship, global collaboration, virtual reality, (AI) artificial Intelligence, cloud computing gamification etc. These are all challenging topics on the forefront of education today, and they are causing a paradigm evolution. Teacher education programs and approaches has been the same for over a decade and change is needed, the evolution is here and we must act now. According to the Global Human Capital Report (2017), many of today's education systems are disconnected from the important skills that are needed for the future. It highlights that our schooling system tends to focus primarily on developing children's cognitive skills – or skills within more traditional subjects – rather than fostering skills like problem solving, creativity or collaboration. While on the other hand and as reported in the Future of Jobs Report (2016), complex problem solving skills, creativity, curiosity critical thinking are considered the most important a child needs to excel in this digital age.

The Digital Epoch

The creation of the Gutenburg Printing Press in the 15th Century started the widespread access to knowledge to the general public and a new era in education (Smith, 2017`). Today's digital epoch has been recognized as the second major event in history that has extended and enhanced access to information and learning (Brynjolfsson, 2014; Topol, 2015). The Internet has opened access again to a wide variety of multi-media artefacts that can be used by learners. However, school culture is a blend of traditions, values, beliefs, and rituals developed over time and new ideas and tools are often challenged rather than embraced (Crompton & Burke, 2015). Unfortunately, education has long been conceived as classroom-based and predominantly sedentary (Merchant, 2012). Although mobile devices have offered new portable ways to access information at any-time and anywhere during the school day, schools are relatively slow at adopting these new technologies (Cuban, 2001; Harrison, Lunzer, Tymms, Fitz-Gibbon, & Restorick, 2004; Johnson, Cox, & Watson, 1994).

Digital Age Skills

With the Internet and tools, such as mobile devices, students can access multi-media tools, representational tools, analytical tools, connectivity tools, and capture tools (Churchill and Churchill, 2008). The tools allow for learning and communication beyond written and spoken word. Students can now show their understanding of concepts through making movies, podcasts, animations, comic books and many other creative products. These creative reflections of knowledge take the students from being passive receivers of knowledge to curators and

creators (Kukulska-Hulme, 2010). While learning, students can redefine how knowledge is owned, shared, produced, valued, and consumed (Royle, et. al., 2014).

Digital tools enable students to develop skills that are necessary for effectively enhancing and extending knowledge in this digital age. The Partnership for 21st Century Skills (2009), developed the Framework for 21st Century Learning. This framework delineates the skills; students need to master to be successful in future college and careers. The authors highlight two important skills for 21st Century learners as Learning and innovation: creativity, critical thinking, problem-solving, communication and collaboration and Life and Career: flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility. Other similar frameworks are developing across the world in highlighting new skills in learning. The Singapore Ministry of Education announced a need for change in schools as they recognized that direct-instruction with a focus on memorization produced good test-takers but not entrepreneurial and innovative thinkers that are skills required for Singapore's continued growth (Norris & Soloway, 2013) (Khaddage et. al. 2015). Khaddage and Knezek (2012) discussed how the use of already-existing educational mobile apps is important and can be used by teachers to empower learning. Many authors have described and discussed methods of mobile technology integration (Boden, 2001; Candy and Edmonds, 2002), and how it improves creativity, collaboration and engagement amongst teachers as well as students.

Training Teachers to Train

For students to learn effectively, teachers should teach effectively and passionately, therefore educational institutions should focus on teachers' skills and motivations first and then consider the technology second. Currently many educational institutions put in classrooms teachers who have little mastery of the subjects they are to teach. The professional development they offer their teachers is inconsistent and overly theoretical. According to the World Development Report (2018) educational institutions often lack effective mechanisms to mentor and motivate teachers. A list of important elements or specifications that should be implemented and should be the main focus in achieving learning success via teachers is listed below:

First training needs to be individually targeted and repeated, with follow-up coaching, often around a specific pedagogical technique. Second teaching needs to be pitched to the level of the student, in an attempt to personalise learning. Third allowing student to explore beyond their abilities and follow their intuition and encouraged to be curios.

According to the World Development Report (2018), increasing teacher motivation with incentives can increase learning. Creativity is another important skill that need to be taught to teachers so that they can teach it to students. Studies suggested that it is impossible for a person to teach others a skill they themselves lack, such as creativity, how to make a teacher creative? How to train her/him to be a creative teacher? Skills in general have multiple faces, its dynamic and interactive. According to the World Development Report (2018) "*There is a difference between having a skill and having knowledge, having knowledge is not the same as being able to apply it. Having a skill means having the ability to do something well. Having a skill requires knowledge, but having knowledge does not necessarily imply having skills*." Is creativity a skill that can be taught and learnt? Teachers need to apply the skill to their planning, design and teaching tasks, and this is where these practice opportunities are leading to enable teachers to create seamless content with ease. The Osborne-Parnes model on the use of creativity is widely accepted in education and in other areas such business. It has six steps:

- *Mess-finding.* Identify a goal or objective.
- *Fact-finding.* Gathering data.
- *Problem-finding.* Clarifying the problem
- *Idea-finding.* Generating ideas
- *Solution-finding.* Strengthening & evaluating ideas
- *Acceptance-finding.* Plan of action for Implementing ideas (the Osborne-Parnes Model)

The Osborne model is an excellent model if we need to look at it and apply it in general, but a new model must be adapted for teachers that focuses on their specific needs and could be implemented for teachers 'education only. In the following section the author describe the proposed TTT (Training Teacher to Train) Model.
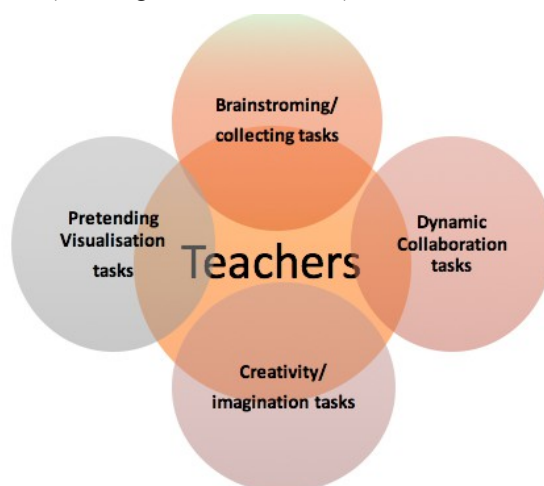
The Proposed TTT (Training Teachers to Train) Model

In the next section the author describe a unique TTT model for (training teachers to train) that if used effectively can enhance or even develop in teachers all the needed skills. The needed skills are referred to as (thinking skills implementation), they may include creativity, critical thinking, brainstorming, analysing, dynamic collaboration.

The teacher could assume and pretend that she/he has no content and they must come up with something from their mind, so the instruction for the teacher would be:

- Do your research to find your own content and material and select the most suitable.

- Adapt visualisations techniques: use your imagination to visualise your content and present it in an image.

- Group work, collaborate dynamic communicate and share with others everything and anything form content to thoughts.

- Adapt a real-world challenge together. For example, how might we improve learning and provide access to education for refugees in refugee camps? So, teachers can anticipate solutions and try ideas outside their comfort zone.

- Brainstorm and multiple solutions to popular challenges, what is the best way to come up with to solve a specific issue/problem?

Figure 1, focuses on crucial tasks that are considered important to be taught to teachers as well as students. (Brainstorming, collecting information, pretending visualisation, dynamic collaboration, creativity and imagination) these tasks have always been considered crucial for an effective and efficient learning environment, Bonk, C. (2009) Khaddage, F. & Knezek, G. (2012), Baker III, F. W. (2016) and many more. In table 1. is an illustration of the TTT model shown in Figure 1, and table1 focuses on three aspects: Model tasks, skills and technology as illustrated and explained in table1.

Figure 1. is an illustration of the TTT (Training Teachers to Train) model:

Model Task	Brainstorming collecting tasks	Dynamic Collaboration tasks	Creativity imagination Tasks	Pretending Visualisation tasks
Skills	Mind map, execution of ideas, viewing from different perspectives, personal development,	Active peer learning, interaction while doing, clarity misconception	Planning and possibilities ingenuity, thinking outside the box, critical thinking	Come up/initiate new ideas/ gain insight, visualise it to enhance outcome of learning
Technology	IdeaFlip (Web) Bubbl.us (Web WiseMapping (Web)	Google Hangouts HipChat GoToMeeting Chanty MailBird	Fyuse Snapguide Duddle buddy Mindtools	Tableau Qlikview tool Smartsheet app

Table 1. Thinking Skills Implementation

In table 1 model tasks, skills and technology are listed along with the specific type of skills or activities the teacher needs to do in order to achieve/meet the specified model task, also in the technology row the author listed the specific freely available technologies and apps that could be integrated and used and are helpful in performing these tasks. This is an ongoing research and this model will be trailed and tested and results will be available in future publications.

Conclusion

It is very important for educational institutions to advance in their offering especially on teacher education programs, and focus on training teachers how to train. In this paper the authors proposed an innovative model, called TTT (Training Teachers to Train) identified crucial skills and discuss challenges. Hopefully the proposed TTT model for teacher education if deployed properly, may help teachers become more creative in their teaching abilities and empower them to use technology effectively. Hence helping schools to find unique approaches to make learning seamless, challenging and dynamic so that it can cater for today's digital natives and be relevant in the 21Centry.

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