FUTURE PROOFING TEACHING IN TEACHER EDUCATION: THREE-PHASED APPROACH TO FUTURE PROOF STUDENT TEACHERS

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Abstract

This paper explores the significance of future-proofing teaching in 21st century teacher education and ways on how teacher education might adapt for the future. Drawing on a teacher educator's inner awareness on the importance of student-centredness and learning process, this paper presents three phased approach to future-proof student teachers toward equipping them as 21st century teachers for a fast changing world, particularly in light of the technological development and digital transformation as well as education in times of uncertainty. Findings indicate that the approach has impacted student teachers in three main areas which are (1) knowledge management, (2) personalised student engagement and (3) personal and professional betterment/improvement. This paper also reiterates the importance of integrating technology and teacher educator's attributes in future proofing student teachers.

Key words: future-proofing teaching approach, 21st century teacher education, learning experiences, content curation for learning

1. INTRODUCTION

As teacher educators, we are responsible to empower our student teachers to be better learners and better future educators. Moreover, this has become more pertinent after the unprecedented Covid-19 pandemic which shook up our regular ways of imparting education. As aptly stated by ABP News Bureau (2022), though this challenging pandemic era has indeed opened up new possibilities, but at the same time revealed deep inequities in the current education landscape. The Higher Education Minister of Malaysia, Datuk Seri Mohamed Khaled Nordin, in his opening speech at the 8th.Global Higher Education Forum 2023 said that it is crucial to address emerging challenges and opportunities faced by higher education in the post-pandemic era. This means, we must not only identify possible solutions and avenues for growth, but more importantly, we must critically explore fresh ideas and new approaches (Bernama, 2023, November 16). Panthalookaran (2022) emphasises that rendering learner future-ready has always been one of the primary purposes of education in order to equip them to conduct their lives and careers in a volatile, uncertain, complex, and ambiguous (VUCA)-driven world. He advocates sketching a blueprint for a pedagogy of the digital natives founded on their very intrinsic motivations for learning. Additionally, he proposed an entrepreneurial pedagogy to help new generation learners develop an entrepreneurial mindset in them, making them future-ready.

Highlighting the importance in future-proofing student teachers, this paper aims specifically at sharing a practice in engaging the students deeply and empowering the students in their own learning meaningfully using a three-phased approach in instructional design and practice.

2. LITERATURE REVIEW

Future-Proofing Learning

The term "future-proofing" was coined by leading cognitive science expert Paul A. Kirschner. It aims to provide a practical and much-needed alternative to pursuing holistic, ill-defined 21st century skills or embracing competency-based student graduation standards. In a nutshell, it advocates the best way forward in pandemic times is deceptively simple: set aside the "21st century skills" panaceas in favour of the acquisition of knowledge, skills, and attitudes necessary to continue to learn in a stable and enduring way in a rapidly changing world (Chauhan, 2022).

Why do we need future-proof learners? According to Milligan et al. (2022), it simply means we need to ensure that the learners learn a wide range of skills, or capabilities, which will allow them to negotiate and thrive in increasingly complex global workplaces. These crucial skills are often referred to as 21st-century skills, general capabilities, graduate attributes or transversal skills. According to Teachthought staff (2019), Tony Wagner of Harvard University worked to uncover the 7 survival skills required for the 21st century as illustrated in Figure 1.

Figure 1. *7 Survival Skills of the 21st century (Teachthought Staff, 2019)*

Notably, the development of deep learning, or deep expertise in any domain or discipline and the development of these learning capabilities or skills occur simultaneously. One is not attained without the other. According to Milligan et al. (2022), these interrelated skills or capabilities, include (1) the basics of literacy, numeracy and use of ICT, (2) analytical skills such as problem-solving, creativity and criticality, (3) application skills such as persistence and using feedback, (4) social skills for effective communication, (5) collaboration, (6) intercultural capability, (7) ethical behaviour, (8) citizenship and (9) community service. Alternatively, Heick (2021) advocates 8 ways to future-proof teaching. They are (1) be honest and be credible, (2) think function over apps and brands, (3) think outcome over trend, (4) always consider the 'macro', (5) listen to students, (6) emphasise people, thinking, and literacy, (7) see all the 'sides' of teaching and learning and (8) focus on how students live–today. In a

nutshell, as aptly observed by Heick (2021), in our history to improve schools, we have seemingly drawn too close to the machine of public education to see anything other than the individual moving parts rather than the machine -its tone, patterns and direction. The trees rather than the forest itself. In short, we simply need to focus on the big picture, which is 21st century skills, particularly life-long learning skills and student-centredness. Additionally, Clohesy (2023) points out that having the right virtual learning environment is critical to future proof the students of today due to the rapidly evolving learning landscape. She further advocates 5 must-haves to future proof students, which are (1) engage student voice, (2) enable collaboration, (3) see what is happening in one place, (4) integration of learning tools and (5) anytime access from anywhere.

Significance of Future Proofing in Teacher Education

It deepens the discourse on teacher education and specifically considers teacher education in light of the technological advancements of the Fourth Industrial Revolution (IR4.0) as well as education in times of uncertainty. In addition, it explores the tension between the perennial in education and the unpredictability of the future and asks the question of how teacher education can contend with these tensions and how teachers can prepare for unexpected circumstances. Hence, it paths the ways of how teacher education might or rather has to adapt for the future.

Moreover, in post-pandemic era, it is pertinent to prepare student teachers for the current context, including the adverse circumstances in schools, as well as for an increasingly complex and rapidly changing world which requires agility which enables teachers to adapt to the fast-changing and technology-led nature of the 21st century, referred to, by some, as the IR4, and to changing societal expectations so that they can, in turn, prepare learners for life and work in a VUCA world.

The Three-phased Approach

Upon reflection by the researcher on her instructional design in future proofing student teachers, she found that her three-phased approach correlated with teaching model Engage-Study-Activate (ESA) and content curation for learning framework which focussed more on the learning process and not just solely the content. According to Sprout Labs (n.d.), in learning, process is king as learning is not remembering knowledge but a behaviour change. Therefore, the process of practising, getting feedback and reflection is key to learning.

ESA was first coined by Jeremy Harmer in his book "How to teach English". It is a method of structuring lessons in three elements. The different stages of ESA can be flexible and used to keep students engaged at all times. However, this section does not explore the ESA approach per se but details the common main flow and key points of consideration in planning and implementation of instructions by the instructor cum researcher. Content curation for learning is defined as a process of selecting resources, designing learning experiences using those resources and then sharing the experiences (Sprout Labs, n.d.). In this instructional approach, the researcher/instructor used content curation as a learning strategy in order to get the student teachers to curate their own learning themselves, seeking and sensing and becoming strong self-guided learners while doing it. As aptly advocated by Sprout Labs (n.d.), content curation for learning is important to the future of learning and development, especially when quite often the content that we need already exists on the Internet.

Phase 1: Engage

Basically, at the beginning of the classes, the researcher would aim at engaging the students wholly by posing provoking questions pertaining to their main purpose of being in the class or institution of teacher education. Examples of the usual questions posed are "Why are you here?", "Why do you want to be a teacher?", "What kind of teacher do you want to be?",

"How does this course relate/help you to become a good/effective teacher?" and "What does it mean/take to be a 21st Century teacher?" Alternatively, other similar questions which serve as reminders of the purpose. After ensuring student engagement, next was to ensure continuing reflection upon course content and learning process. In other words, the researcher emphasised and facilitated the student teachers' reflection based on the key flow of the learning process which is "From where" –"Where are you/we now?" - "To where". In a nutshell, the first phase focused on "Engaging the students" with these three key points: (1) highlight the goal(s) or objective(s) of learning or being "there", (2) emphasise on student reflection upon previous learning to "connect the dots" to the present learning and (3) empower the students to take charge of their learning process or journey in becoming a teacher.

Phase 2: Study

This phase is all about facilitating first and foremost the students' comprehension and subsequently internalisation of the learning content. In order to do so, there are 3 main key points of consideration. Firstly, avoid the traditional instructor-centred approach as in teaching or lecturing but instead emphasise learner-centred or learning centredness in planning and implementing learning activities and tasks. Learner or student-centred is more focused on the relevance and appropriateness of learning to and for the individual learner or student whereas learning centredness is more focused on the learning of skills and content. Secondly, in line with the demands of the 21st century, it is utmost important to incorporate 21st century learning skills, namely the 6Cs (communication, collaboration, critical thinking, creativity, character building and citizenship) in the learning activities and tasks and thirdly, integrate technology in the learning activities and tasks. Another key point of consideration is to always allocate 5-10 minutes of short break including toilet break and sufficient time for the activities and tasks.

Phase 3: Activate

This last phase is the most crucial phase of this future-proofing instructional approach to ensure meaningful and deep learning takes place among the students. It comprises three key points. Firstly, after the activities and task completion, it is advisable for the students to revisit learning goals or objective(s) via co-development of assessment criteria with them, particularly the students who are teachers to be. Secondly, it is utmost important to incorporate and emphasise on sharing of learning products and concurrently or consecutively where applicable self and peer review or evaluation based on the co-developed assessment criteria. Lastly but not the least, as reflection is the key to deep learning, in order to reinforce learning, this approach utilises a two-folded reflection which is often referred to as "take-aways of the day/lesson". The two-folded reflection covers student reflection based on cognitive and affective domains of learning and learning experiences as a learner and teacher-to-be. An important point to emphasise particularly at this phase, is the inculcation of moral values pertaining to the aspects of "kemenjadian guru" (as in becoming "a wholesome teacher with the heart" in this approach).

METHODOLOGY

The two questions posed for this research are (1) to what extent has the instructional design succeeded in future proofing the students specifically with 21st century skills and (2) what are the significant impacts on the students particularly pertaining to the aspects of "kemenjadian guru" (as in becoming a wholesome teacher with the heart)? Given the exploratory nature of this research, a qualitative approach is chosen. Data were collected and triangulated through two instruments: online questionnaire and the institutional student evaluation instrument on curriculum implementation (Instrumen Penilaian Pelaksanaan

Kurikulum, IPPK, LAM-PT-03-03a) across two semesters for two different courses taught by the instructor/researcher. The IPPK was administered right after the course completion and then an online questionnaire to all 76 students in both courses. Data was collected from all students (100%) via the IPPK instrument for both courses. 42 students (55.3%) responded (100% in the first course and 37.04% in the second course) to the online questionnaire at this point of write-up.

2. FINDINGS AND DISCUSSION

Overall findings from IPPK indicate an average mean score for both courses at 4.98 out of 5. Main impacts of the instructional approach can be summed up as (1) knowledge management, (2) personalised student engagement and (3) personal and professional betterment/improvement. The students described their learning experiences as (1) fun learning (2) very informative (3) interactive (4) stimulating/captivating (5) very effective particularly with the integration of ICT tools, (6) practically useful/applicable to personal and professional life context and (7) motivational/inspirational to be a better person, teacher-to-be and citizen. Specifically, main impacts comprise the 21st Century's 6Cs skills, namely communication, collaboration, critical and creative thinking skills among the students and particularly moral/ethical values such as integrity, dedication, humility, respect, tolerance and character building towards becoming 21st century educators. Concrete evidences which support these impacts are encapsulated in these exemplary responses:

> *A fun learning experience in every lesson. Emphasises reflection and inner work while learning the material so that it can be applied in all life scenarios. Valuable lessons learnt in this class for my future career as a teacher. (SC1_9)*
>
> *[The lecturer] was able to bring out the best of me in the shortest time period through this course. I enjoyed the meaningful learning that took place during lectures. Using methods beyond the slides made this course impactful and memorable. (SC1_18)*
>
> *Such an inspiring and motivating lecturer, with the uses of various learning platforms to create deep and better learning. (SC1_22)*
>
> *Thank you…for teaching us the importance of having the heart of a teacher, persevering in tough times, good time management skills, being humble in our lives, dedicating our lives towards life-long learning as educators as well as being the perfect example for all of the above. (SC2_4)*

In a nutshell, the findings clearly indicate some key elements of future proofing learners particularly interrelated skills as advocated by Milligan et al. (2022) such as the use of ICT, problem-solving, creativity and criticality, application skills, intercultural capability, ethical behaviour and citizenship. Interestingly, this excerpt of a response encapsulated the importance of giving short breaks in between the activities/tasks: "I really like it when she gives us breaks in between her classes so that we can absorb and fully digest the lesson".

Additionally, the student feedback via the online questionnaire clearly indicates that this instructional approach has succeeded well in changing the mindset and attitudes of students particularly towards learning and discovering as well as managing knowledge. The following excerpts of exemplary responses according to the three phases in the instructional approach capture these impacts:

Engage Phase: *The way sensei used to handle the lesson is very meaningful and informative. Apart from that, it also helps me to be more motivated in learning and discovering new knowledge. (SC2_20)*

Study Phase: *We have our discussion of course but at the end of the class [the lecturer] would have us give our output in the form of what we learn that day, how we can utilise it and how it affects us. I think it was a very good thing for us as we can listen to each other's output as many of us understand the same thing or topic differently. (SC1_10)*

Activate Phase: *I like how we were asked to share our thoughts or take away from the lesson of the day in order to ensure we had achieved the learning objectives. Besides, the reflections we did were useful to make us more aware about the importance of learning this course so that it can be applied to our students in the future. (SC2 54)*

In a nutshell, the findings indicate effectiveness of this instructional approach, particularly in terms of future-proofing students as better individuals/learners and teachers-to-be. These following exemplary responses illustrates well this findings:

> *I believe your way of teaching is more on application rather than textbook knowledge. I believe all the questions are really relatable to us as future teachers (SC1_21)*

> *Sensei would always emphasise teamwork, willingness to learn and also all the trivial things that make us better.*
> *These are the most vital parts in learning for me, because sensei basically not only teaches me and my classmates to learn and remember the topics only, but as well as giving the deeper meaning throughout the learning process to learn better and grow as a good individual too.*

In addition, it is noteworthy that the instructor's passion and attributes are instrumental in ensuring meaningful learning, particularly in terms of inculcation of moral/ethical values and in turn, future-proofing them to be better personally and professionally. This is significantly highlighted in these exemplary responses:

> *Personally, I can see that [the lecturer] is very passionate in teaching us. That indirectly influenced me to be that kind of teacher in the future, not forgetting to always impart moral value to our students at the end of the lesson.*

> *I love the way [the lecturer] instilled moral values in our class. My favourite is about integrity. I love how she emphasises the value of integrity as teachers and how important it is to work and live with integrity.*

> *Some values that I have gained from [the lecturer] are the value of respect, being rational, avoiding discrimination, acceptance towards other cultures, and many more. Those values are very closely connected with what we have learned from the course.*

Moreover, the following excerpts exhibit the extent to which the instructor could play an influencer role and be viewed as a source of inspiration or role model.

> *Your passion for the subject shines through, and your approachability makes the learning experience enjoyable and valuable. Thank you for being an inspiring educator.*

I feel very motivated with the way she delivers the message to us. I have learned a lot of things and she is my role model.

[The lecturer] is a very kind and supportive lecturer to her students. She always motivates us to perform well in every single thing we do in our life.

CONCLUSION

This instructional approach for future proofing teacher education corresponds with ESA's teaching model as a framework in planning the learning process and utilises content curation for learning to provide not only the best possible meaningful and deep experience for the students but also to empower them with the use of technology tools. As aptly articulated by Clohesy (2023), "We don't know what the future holds. However, by investing in an evolving and contemporary virtual learning environment, your school will be able to help future proof each of your students for what may come."

As a concluding remark, it is important to note that in order to future-proof student teachers, we as teacher educators have to upgrade our knowledge and skills to integrate technology in line with the technological development and digital transformation. Ang (2023) affirms that planning classroom activities and tasks with the use of technology will successfully lead to empowering the students in their learning. This is due to the fact that students gained a sense of authority and took charge of their own learning process and outcomes. Hence, it is timely that Heick (2022) advocates that educators should stop teaching content and start teaching the students. Additionally, a famous quote of John Dewey warns us clearly that "If we teach today as we taught yesterday, we rob our children of tomorrow". In other words, it simply means what we teach, and how we teach it should change as time passes, if we are to equip our children with knowledge, skills, and experiences that suit their futures.

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