Comprehensive learning incorporating Ako – a tertiary education approach at Wintec

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ABSTRACT

This article outlines the design and implementation of a scenario-based approach to teaching and learning in tertiary education, inspired from Ako, adopted at the Waikato Institute of Technology (Wintec). This learning approach, titled 'Comprehensive Learning (CL)', aligns with the holistic objective of enabling students with an active, flexible, personalised, authentic and practical approach to learning that builds upon students' interests and experiences. The article explains the motivation and the process used in creating and applying this approach to teach some of the IT and Business modules. The main reason to implement this approach is to encourage/enable critical thinking while learning in a continuous and personalised manner. CL allows students to specialize in a context of their choice, which in turn induces learning. In addition, students are less motivated to plagiarize due to the unique nature of their scenarios, and inherent safeguards present within the approach.

Keywords: Scenario based learning, Teaching and Learning approach, Ako, Work-ready, Active learning

1. INTRODUCTION

The field of education, especially adult teaching and learning, has had radical changes in the 21st century. These changes have contributed to shape the teaching and learning environment. Tertiary education providers are currently defining their own teaching and learning directions, as Waikato Institute of Technology (Wintec) recently did. Based on these directions, tutors are implementing their teaching approaches for post-graduate students (level 7 and above).

The reason for writing this research article is the recent drive by tertiary education providers in *Aotearoa*, including Wintec, to incorporate teaching and learning approaches that engage students and enhance their learning experience. The objective is to provide 'authentic learning', i.e. "*a wide variety of educational techniques that enable students to relate to, and probably solve real life problems"*, as defined in the Glossary of Education Reform (Great Schools Partnership, 2013).

The purpose of this article is to present the design, development and application of a so-called "Comprehensive Learning" (CL) approach. The approach aims to promote active, authentic, flexible and scenario-based learning, also incorporating the principles of Waikato Institute of Technology's Ako: Teaching and Learning Directions 2017-2020 (Wintec, 2017).

The remaining part of the article proceeds as follows: Section 2 presents a brief literature review of the current developments in the field of scenario-based learning and *Ako*, practiced at Wintec. Section 3 presents the design and development of the proposed learning approach. Section 4 presents the details of implementation of the approach. Section 5 discusses the expected results to be obtained with the approach. Section 6 concludes the article and recommends improvements to our work in developing the concept further.

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2. APPROACH BACKGROUND: SCENARIO BASED LEARNING AND AKO

Teaching and learning occurs in many ways and forms and as a system incorporating the teachers, learners, systems and emotions (Biggs, 2002). Learner centred approaches to education and discourses found favour with educationists many decades before the current hype and usage of Information Technology (IT) tools. As per Starkey (2017), student centred learning lies at the confluence of three approaches to learning: humanist, agentic and cognitive. Starkey's research, leading to a proposed framework, was conducted via a series of interviews with educationalists with rich experience of leading schools, followed by an analysis of data pertaining to the term "student centred learning." The agentic dimensions focused on empowering the students in the learning environment, the humanist one focused on knowing students as individual human beings, while the cognitive one was based on the learning process and how students learned in a shared environment.

Neumann (2013) offered a picture of learner centered educational approach by highlighting three dimensions, or contours as he states, of the approach: *"learning contexts that center in students, that center on students, and that center with students"* (p. 161). He also cites that educators need to be aware of these contours and optimize their teaching based on a precise connotation of these contours. In this research, we have taken the learner centred approach that enables students to reflect on their learning while also giving them control over what they learn. It also encourages collaboration and group learning, preparing them to be work-ready. These principles echo with Wintec's Ako: Teaching and Learning Directions 2017-2020.

As per Aotearoa National Centre for Tertiary Teaching Excellence, Ako is an educational framework of learner centred approach hinging on inquiry based learning and collaborative, reciprocal education and is deeply rooted in the Maori culture (Smith, et al., 2008). Our approach has adopted Ako as an adjunct model for scenario based learning because it affords flexibility and customization to preparation of courseware, while ensuring higher retention and engagement levels of the

students. Wintec has adopted this as the primary vehicle, and guiding principle, that will drive its learning directives. While being seamlessly interwoven in sound education principles, this is also a cornerstone of teaching and learning approaches. The learners are experiencing a student centred paradigm to education, which enables authentic and inquiry based learning.

Ako, as defined by Pere (1982) in her seminal book, allows for work integration, learning, and flipped classroom approach, besides scenario based approach to learning. This allows the tutor and the student to collectively select a scenario from their combined experience, experiment with it and then be responsible for the results. While this is enacted, the tutor acts as an elder, a guide and a friend, who also learns from the process. This method emulates the traditional practice of allowing a student to blossom in the care of an elder, while still retaining the independence of selecting what, when and how to learn a critical life lesson. This research uses Ako approach for enabling students studying IT and Business related courses. Towards the end of the semester the students are asked to reflect upon individual experiences and share the results.

3. DESIGN AND DEVELOPMENT

This section presents the process of arriving at the requirements for the recommended approach and reasoning for some of the assumptions made. We also briefly illustrate how the requirements were identified and developed to make the approach more holistic.

3.1 Motivation for Design

The motivation behind creation and adoption of the CL approach was to actively engage students and to comply with Wintec's teaching and learning directions.

A research was conducted on teaching, learning and assessment strategies. One of theories that came up during this research was Andragogy, defined by Knowles (1985) as the art and science of helping adults learn and has its basis on an assumption that an adult learner is someone:

- who can direct his/her own learning,
- who has life experiences,
- who has learning needs,
- who is motived to learn (by internal rather than external factors),
- who will be interested in immediate application of knowledge, in particular, for problem-solving.

The success of any tertiary teaching and learning approach lies in enabling the learners with practical and work-ready skills that apply to a real life scenario. The challenge lies in providing *every* student, irrespective of their background, a seamless and relatable learning experience that builds upon past experiences and learning. Creating suitable courseware and teaching resources that appeals to all students, while providing holistic and quantifiable learning to make them work-ready, and perhaps industry-wanted is an overarching need of the day.

It was apparent that sound educational practices and the use of inquiry based learning enable work ready and industry-sought tertiary students. The revised education directives of Wintec evolved around the following principles:

- Learner-centred teaching to promote authentic learning.
- Inquiry-based learning and teaching which ensures learner engagement.
- Flexible learning which provides learners with choices regarding their learning experiences in terms of when, where and how learning occurs and the types of assessments and pathways used.

Another important factor that was considered while creating this approach was as a means to reduce, if not eliminate, the motivation of students to have opportunities to plagiarize.

3.2 Design Tenets

In order to address all the requirements mentioned in the education directives as well those illustrated by Knowles, four teaching and learning concepts were determined as the design tenets of the CL approach. These are indicated in Table 1.

Table 1: Description of teaching and learning concepts that forms the design tenets

Concept	Concept Description	Rationale
Learning by doing it yourself	Relevant learning content/material in the form of activities that students perform on their own, in order to achieve specific outcomes while also learning through this experience. It relates to the actual execution of real life activities that achieve their outcomes.	We combined the "Learning by doing" and "Doing it yourself" concepts to create the "Learning by doing it yourself" paradigm. There is sufficient research which states that the retention is better when the learning is by doing rather than just watching or just listening to someone.
Work-ready	Prepare the learners to understand and demonstrate the values that the employers are looking for in a work environment. Empower learners with skills that are work-ready by providing/using relevant and up-to-date material. The content should be based on best practice from specific industries. These practices are reflected in globally recognized reference models and meet professional standards such as CMMI-Capability Maturity Model Integration, COBIT-Control Objectives for Information and Related technologies, PMBOK-Project Management Body of Knowledge and ITIL-Information Technology Infrastructure Library.	Employers today seek potential employees to have more than just a qualification – they want them to have a sense of work-readiness in terms of having the skills, integrity and behaviour. This principle aligns with one of the five Wintec's strategic goals which states "Our graduates are highly sought after by employers". It is also reflected as the "authentic learning" principle and as the "Work-Integrated Learning" approach present in the Wintec's Ako: Teaching and Learning Directions.

Flexibility	To involve the learner in deciding what they would like to develop, conforming to the context and applicability. The use of a customizable courseware adds value to a student's past experience and learning, while enhancing his current knowledge level.	A flexible approach helps the learner achieve success by giving a good prospective to the content and a safe environment for challenging and stimulation situations. The origin for this concept is derived from "giving them control over their learning" from the Wintec's Ako: Teaching and Learning Directions.
Scenario based learning	To encourage learners to use their prior subject knowledge, experience and critical thinking, in a risk free and a close to real world environment. Assessed and provide feedback on a continuous basis. A mix of the "inquiry-based learning" and "problem (or project) based learning".	This essentially strengthens the current skills and improves the areas that need development. Learners will have the opportunity to make corrections, if any, in a safe environment further enhancing their learning experience. Project based learning is also an approach adopted in the Wintec's Ako: Teaching and Learning Directions. This concept was selected because problem-based or inquiry-based approach may not be applicable in all situations.

Keeping these tenets in mind, the design for the educational approach was created.

3.3 Description of CL

The CL approach is enacted/conceptually described in the following three steps:

Step 1. In the introductory session (generally the first session of the semester) for every module that this approach is adapted in, explain the approach to the learners (covering why, how and what). Discuss the structure of in-class activities and using CL in assignments.

Step 2. Encourage and if necessary assist students to find or choose a scenario that is relevant to them and which they would like to work on. This is to be collaborated with the tutor who will check and approve it, ensuring that it aligns with the overall module learning objectives. Thus ensuring that the scenario chosen is relevant and appropriate.

Step 3. Students work on developing the scenarios during in-class activities, home tasks, assignments that will be assessed/marked by the tutor. The students will also present their findings and feedback towards the end of the semester.

These steps, although sequential in nature, are to be appreciated in a continuum where the tutor and the students collaborate and combine their efforts to arrive at solutions that leads to learning and coming up with an appropriate solution for the scenario that the student has adopted. The tutor acts as a guide, an elder and a friend of the learner, who acts as the apprentice.

The summative assessment towards the end of the semester finds the student describing the learnings in a reflective manner. This results in critical appreciation and thinking by the tutor and the students in the class.

4. IMPLEMENTATION AND VERIFICATION

For the implementation of this learning approach, we are applying it to five IT/Business modules in the first semester of 2018 (aka 1801).

Following the CL approach steps, students reflect on their previous learning and life experiences and select a suitable scenario that they could use in future. The students are then allowed to explore it in a summative scenario, collaborate with others exploring their own scenarios and finally arrive at a possible solution to problems they envisaged during the process.

In terms of verification, and as part of our reflective practice as tutors at Wintec, the CL approach was outlined and explained for peers. We explained to our peers the context of our students (i.e. most of them being internationals with the aim of finding a job in this country) and the steps of CL. There was consensus among the peers that students would remain engaged if they could relate to scenarios that can assist them in making a difference to their lives.

As part of the discussions conducted with our peers while developing this approach, the concepts (listed in 3.2 Design Tenets section) were presented and some of the encouraging feedback is as follows:

- *Sounds fantastic! A group activity at the start (promoting social learning) followed by individual activity.*
- *You are following project-based learning.*
- *Great building of content and making it relevant to the students by linking directly to the assessments.*
- *An excellent way to use formative feedback and break down the assessments into manageable tasks.*
- *It is a holistic learning approach that involves students individually and as a group.*
- *It is very student centric approach as even when working in groups, students can internalize their learning.*
- *Created projects that learning outcomes can be mapped to. This way the project also becomes an evidence for assessment.*

From the same discussion, some of the suggestions for improvements and optimization of the approach are listed below:

- *It may be good to map the developed scenarios back to learning outcomes and graduate profile.*
- *Have students to reflect on the journey – compare the initial expectations and knowledge level obtained in the beginning of the semester to that at the end of the semester.*
- *To apply project management principles to mark the scenarios.*
- *In the beginning of the term, perform a skill diagnostics and ask students to state what success looks like and check all achievements by the (middle and) end.*

- *In order to increase response rate from students to the activities, use an approach where content is only open when a previous activity has been completed.*

5. EXPECTED RESULTS

As stated earlier, the proposed intention of the approach is to be able to provide a learner-centered, authentic, flexible and scenario-based learning, and aligned with the Wintec's teaching and learning directions. Specifically, they recommend that our learners are:

- Flexible and adaptable.
- Resilient in facing the challenges of industry.
- Autonomous and self-directed.
- Critical thinkers, with strong communication, problem-solving and entrepreneurial skills.
- Industry-ready and employable.
- Problem/project-based learners.

The results of the approach implementations will be collected via feedback from students in the end-of-semester surveys. The quantitative results will use a scale from 0 to 100, depicting the level of satisfaction with the module and the approach, as well as engagement of the student. The key aspects that we will measure will be:

- *Satisfaction with the module*
- *Satisfaction with the approach*
- *Frequency of completion of hands-on activities*
- *Comparison of average expertise level (as self-evaluated by students from 0 to 100) in the beginning and end of the module.*

Another quantitative result to be collected is the agreement level from students, using a scale of 0 to 100, to the following statements:

- *The hands-on activities **that I completed** using my own scenario have improved my continuous, incremental, independent and flexible learning!* – The intention is to check the extent to which the completion of activities helped/impacted the students' learning.
- *The hands-on activities **that I completed** using my own scenario have improved my grades!* – The intention is to check the extent to which the completion of activities helped/impacted the students' performance and grades.
- *The hands-on activities **that I completed** using my own scenario have provided me flexibility on the directions of my learning!* – The intention is to check the extent to which the completion of activities helped/impacted the flexibility of students' learning.
- *The hands-on activities **that I completed** using my own scenario have reduced load, stress and pressure to complete assignments!* – The intention is to check the extent to which the completion of activities helped/impacted ease of completion of assessments.

Similarly, qualitative feedback will be collected using directed questions in the end-of-semester questionnaire:

- *Did you like the teaching approach that we developed in our module? Tell me what you liked the most. .* – This query allows students to reflect on their learning experiences. Students' satisfaction level and feedback will be valuable to evaluate our approach as well as to reinforce some positive aspects.
- *Was there any aspect with this teaching approach that did not suit you, or that you would like for it to be modified?* – This query allows students to reflect on their learning experience. Students' satisfaction level and feedback will be valuable to make changes in our approach if necessary.

The secondary purpose of this approach is to eliminate/reducing the motivation for students to plagiarize. It is also addressed to a large extent as the structure of assignments are all related to a unique and customized scenario. The students write down their reflections as per their own perspective and do not have to plagiarize. The expectation here is that the approach reduces the opportunities and reasons for plagiarism since each learner develops his/her own scenario as approved by the tutor.

As with any new approach being developed and implemented, the use of this approach also led to a lot of learning for us as tutors. We reflected upon the teaching techniques and tools used to impart the scenario based learning. Some of the salient impacts are mentioned below:

- In terms of the "learning by doing it yourself" concept, the impact is the creation of relevant learning content/material i.e. activities that students perform (on their own) in order to achieve the specific outcome. We implemented such type of activities by using forms from tools embedded in Moodle and/or process templates created in the new generation of BPM-Business Process Management platforms such as Pipefy (www.pipefy.com). The use of such tools makes the learning more engaging, compared to a traditional paper-based approach.
- In terms of "work-ready" concept, the impact is the development of learning content (i.e. activities) based on actual best practices from specific industries, such as IT. Some learners need more support than others. This approach give learners a safe space to deal with disappointments, if any, and enhance their learning before going to a real work environment.
- In terms of flexibility, the impact is the conception, design, development and provision of a set of options that students choose to drive and control their learning. For instance, if students are more inclined to study about software development (rather than service management) they have the opportunity to do so. The use of self-directed scenarios for students enables a more personalised learning, compared to a single fixed case study approach.
- In terms of the "scenario-based learning" concept, the impact is the provision of autonomy for students to select and develop their own scenarios as per their interests or needs. The use of scenarios, selected by students and approved by the tutor, makes the learning exciting and relevant.

Finally, by using the CL approach, we can expect that students will be able to develop their continuous, independent and flexible learning in a very robust way. If the results are encouraging, we will be confident that further experimentation and moderations to this approach will lead to further refinements in its delivery. Some aspects that we have already identified that need further deliberation are:

- Provide orientation on how to identify and choose a good scenario so that students will not need to alter or change the scenario as the classes progress.
- Make the in-class hands-on activities mandatory and object of summative marking.
- Have long-term and short-term targets with clear criteria of success.
- Replace the single "big-shot" assignment structure by a continuous and incremental assignment framework. This tends to reduce the effort from students to develop the assignments as well the tutors to mark them.

6. CONCLUSION

This research proposes a teaching and learning approach that aligns with the holistic objective of enabling any tertiary student with an active, customized, authentic, engaging, and practical approach that builds upon the student's past experiences/learning.

Although with some (already identified) improvement opportunities, the CL approach enables students to identify, select and develop their own scenario (and related content) as per their needs and/or interests. Using the incremental/continuous learning approach, students also develop their ability to reflectively evaluate their learning and achievements. As it engages the students on a continuous basis and encourages them to work through the semester, it tends to reduce the conditions for students' overload, excessive mental stress as compared to the traditional "single-shot" effort close to assessments' deadlines.

While the feedback received from peers has been encouraging, the full implementation of the steps and the analysis of students' feedback about the approach, will assist the authors in fine tuning it and making it more comprehensive. The value in adopting the approach can be seen in the incentive it provides students to learn and reflect on their learning in a pragmatic manner as well as in the tutor's motivation to adopt a truly dynamic module content. The comprehensiveness of the approach will be strengthened through more implementations, and wider adoption of the approach, in subjects other than those in IT and Business. These will remain as the further course of our research in the future.

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