Abstract

Engaging stakeholders particularly student in iCGPA adoption through conventional physical seminar or face to face meeting may not an effective approach to reach total inclusive engagement within short time. Furthermore, it is costly to perform impact assessment on such approach timely and almost impossible to be implemented for real time monitoring and decision making. This paper discusses an alternative approach to engage students on iCGPA adoption by using digital simulation approach. We used a common spreadsheet application (Microsoft Excel 2016) as a tool to develop the simulation. The rationale is, all Universiti Malaysia Pahang (UMP) students have access to download a free original Office 365 suite through Malaysia Ministry of Higher Education subscription. The result is, we manage to automate the calculation of iCGPA values based on the calculation model adopted by UMP and visualize the performance on each program learning outcomes with spider web or radar chart. The tools also capable to visualize interactively the area of improvement based on the minimum score weight set by the use. At this stage, we have not yet test the tool in campus wide implementation but rather than tested in small scale class level. We received positive feedbacks from student where the tool seems can be used as an effective application to simulate and engage students in iCGPA adoption at UMP. We are in planning to further develop the tool to be implemented in online environment with analytics mechanism.

Keywords: Stakeholder Engagement; Digital Simulator; Visualization;

1. Introduction

Integrated Cumulative Grade Point Average or iCGPA is a new system for reporting student learning performance and outcomes. It is claimed to be the first in the world by Ministry of Higher Education (MOHE) in Malaysia. Technically, iCGPA is a reporting of academic data which been modeled in an Outcomes Based Education (OBE) design of curriculum. It is expected to offer much better insight for various stakeholders as been mentioned by MOHE particularly to address the issue on graduate employability (GE). With the dynamic and rapid transformation of economy model globally due to the Fourth Industrial Revolution (Schwab, 2016; World Economic Forum, 2016), it seems iCGPA implementation is the right remedy to embrace such transformation. The fundamental of such transformation can be simply viewed as a tasks replacement that prior operated by human with more efficient digital technology. Even there are critics on the negative impact of such transformation such as disruptive of business model, but there are great opportunities which have not yet been explored such as emerging of new kind of jobs and industries. In our context, we attempt to use digital technology for stakeholder engagement in iCGPA implementation.
2. Literature Review

Stakeholder engagement is very critical in change management especially when introducing innovation which challenging the status quo of existing culture or practice in institution. The main factors on how innovation can be successfully take place in institutions commonly influenced by the triple constraint of time, cost and scope/quality, in addition to the impact of innovation or expected user value proposition (Baugh, 2015). Previous study (Moraru, 2012) reviews that there is close relationship between internal stakeholders, management and institution performance. The finding indicates there is a strong correlation between a number of internal stakeholder attributes and long-term performance objectives such as innovation and customer retention (Ahmad, O'Regan, & Ghobadian, 2005).

Based on our search in SCOPUS database, study in application of stakeholder engagement model in higher education still in infancy stage with only 80 documents retrieved globally although there is an incremental pattern over the time (Figure 1). Based on this initial findings, our motivation is to conduct pre-evaluation of digital simulator for stakeholder’s engagement in iCGPA implementation.

3. Methodology

This pre-liminary study is only been conducted in qualitative approach by performing comparison analysis of innovation success factors between conventional and our proposed approach. Our analysis identified innovation success factors elements to engage primary stakeholder (student) in iCGPA implementation through digital simulation tool. We used a common spreadsheet application (Microsoft Excel 2016) as a tool to develop the simulation of iCGPA mechanism.
4. Results and Discussion

Figure 2 shows the visual model for student to enter their performance or score in each course or subject they took according to program learning outcomes (PLO). The core of iCGPA implementation is depend on this first and foremost step.

![Figure 2: Screenshot of Mark Entry (input)](image)

Figure 3 shows the calculation of grade points for each PLO by compute the relative index with range from 0 to 4 based on student achievement (acquired mark against total mark) of each course. The cell or box with blue colour indicate the iScore is a value for student to find interactively which courses and PLO that achieved below the entered value. In this case, the value of iScore is 50% which mean student is targeting to achieve at least 50% for each PLO in each course. The red coloured values will indicate automatically for student to easily noticed and look for plan readjustment or strategy realignment. Based on the index computed for each PLO, the spider web or radar chart is plotted automatically for student to see overall performance for each PLO. With different values or score entered by student, the visualization will change automatically which we expected promote student awareness or conciousness of their plan through informed decision making (Evans, 2013; Marsh, Pane, & Hamilton, 2006; Moogan, Baron, & Harris, 1999) and self-regulation skills (Koch & Nafziger, 2011; Lunenburg, 2011).

![Figure 3. iGPA calculation](image)

Table 1 describes all of the innovation success factors and summary of discussion on each factor for both conventional and our proposed technique.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Seminar</th>
<th>Digital Simulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Static</td>
<td>Dynamic</td>
</tr>
<tr>
<td>-</td>
<td>Student can access information on specific time scheduled by respective officer for the seminar.</td>
<td>Student can access the simulator anytime using their computer.</td>
</tr>
<tr>
<td>-</td>
<td>Must be scheduled/serial approach for large number of student/participant which causing additional cost.</td>
<td>Simulator can be shared easily on social networking sites or internal Learning Management System (LMS).</td>
</tr>
<tr>
<td>-</td>
<td>Impact can be assessed only</td>
<td>Can be executed in parallel approach through Internet.</td>
</tr>
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</table>

Table 1. Qualitative Analysis of Innovation Success Factors
5. Conclusion

The proposed digital simulator to engage primary stakeholders through digital simulation provide better performance for all identified innovation success factors. It should be noted that this study is still in pre-liminary level which indicates further study is needed for designing and validating the concept of digital simulator. Strategic co-creation or stakeholder crowdsourcing approach will be considered in future study to ensure the success of iCGPA implementation. We are in planning to further develop the tool to be implemented in online environment with analytics mechanism.

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References


