

GROW OUT CULTURE I-CARD

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Abstract: Grow Out Culture I-Card is a teaching aid tool created for Politeknik Sandakan Sabah's third semester student Diploma in Aquaculture. This innovation aimed to assist students in understanding the theory that involves scientific aquaculture terms and calculations. A study was carried out to determine the effectiveness of the Grow Out Culture I-Card in the classroom. A survey using Google Forms was conducted for 28 students who attended DYQ30073 Grow Out Culture in February 2024. The results revealed that 75% of students agree with these five elements: card size, card content, card design, calculation video, and calculation application. 46% of students encountered problems solving calculations in subjects before. After using the Grow Out Culture I-card, up to 65% of students understood the theory aquaculture and calculated terms better than before. Further recommendations suggest transforming the Grow Out Culture I-Card into a mobile application.

Key words: *Grow out culture, interactive card, teaching aid tool, aquaculture.*

1.0 Introduction

DYQ30073 Grow Out Culture is one of the subjects taught in the third semester Diploma in Aquaculture at Politeknik Sandakan Sabah. This subject focuses on fish farming for fish growth and there are several calculations that students need to learn. These calculations are important for students who can determine the profit or loss in fish farming. In this regard, there are students who are less proficient in the calculation chapter due to a lack of focus during the learning session in the class due to the class not being conducive and the student's discipline problems. This is supported by the study of Kamarudin et al. (2022), where students have less understanding and less focus when it comes to calculations. Some of them do not understand the question well which causes them to not answer the question correctly in addition to using the wrong calculation formula. Incorrect calculations usually occur due to carelessness and mistakes in understanding the requirements of the question (Fauzi et al., 2021). Every time a calculation question is asked, it will make students feel restless and nervous because they are not able to solve it well. This causes students to become stressed and depressed in subjects involving numbers and calculations (Ali et al., 2023).

Grow Out Culture I-card (interactive card) is an innovation that uses a QR code application to allow students to access a website developed for the subject and YouTube. On the website, students can access lecture notes, assignment lists and calculation practice questions meanwhile on YouTube, students can see recorded lectures and tutorial videos answering calculation questions. This I-card aims as a teaching aid kit so that it can give students more understanding in theory, especially those involving calculation terms. The

objective of this study is to produce an i-card and survey the students who take this subject about the effectiveness of innovation in class. This research is crucial since it will assist students to grasp the calculation as well as earn a decent mark in the Grow Out Culture course. Figure 1 shows the Grow Out Culture i-card consisted of eight cards.

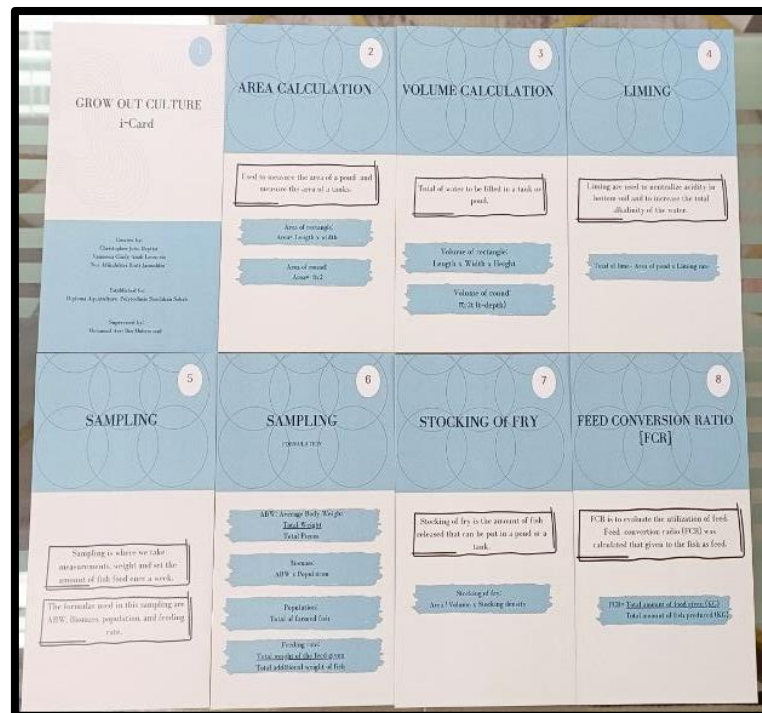


Figure 1 : Grow Out Culture i-card

2.0 Literature Reviews

Education in the field of agrotechnology is now one of the main focuses of the government in the face of food security issues. This is evidenced by the agricultural curriculum included in TVET institutions such as Agricultural Institutes, Agricultural Colleges, Vocational Colleges, Community Colleges, and Polytechnics (Mohamad & Abdullah, 2018). The TVET institutions produce certificate and diploma graduates who can produce semi-skilled workers to boost the country's agricultural industry. Aquaculture, raising fish or aquatic life in captivity is important in supplying protein sources to the world community. Recent studies in Malaysia show that over 80% of respondents choose farmed fish over fishery products (Amin et al., 2023). JPPKK or Department of Polytechnic Education and Community College through Community College and Polytechnic offers certificate and diploma-level aquaculture studies. The curriculum and training for lecturers are constantly updated and meet the needs of the industry (Ealangov, 2023).

In curriculum development, elements of mathematics or calculations need to be applied and included in subjects or subjects. However, subjects involving calculations have own challenges (Husin & Atan, 2020; Nagaretnam & Mahmud 2022). This is also included in the subject DYQ30073 Grow Out Culture also has the importance of mastering certain calculations. As an aquaculture farmer, it is a duty to calculate the ability of the livestock system to reduce the risk of damage to the ecosystem (Yucel-Gier et al., 2019). In addition, the challenge that must be faced is that students become less focused when it comes to calculations (Amaruddin & Abdul Rahman 2019). This happens because students understand the calculation and affects concentration in class. Basiren et al. (2023) in a study on school students stated that when in mathematics class, students become less interested due to failure to understand the questions. This often happens in the Grow Out Culture subject because the calculation questions are at a high level in addition to involving the exchange of calculation units. In the end, students become disinterested in learning and pressure on students to master calculations (Abd Ghani, 2018).

Now the world is rapidly developing towards globalization, all information is only at the fingertips including teaching and learning through online classes or interactive learning to make it easier for teachers to teach and help make it easier for students to learn more easily and more fun. Some students think that this interactive lecture can be used as a more in-depth continuous module (Eiman & Matthew 2022). Not only that, but online learning also sometimes leads to lecture comprehension (Malik & Javed 2021). Furthermore, some instructors and students believe that this interactive lecture can be used effectively with both visual and auditory learning methods because different students learn and understand things differently. For example, some students learn best when given visual aids, while others can better understand and retain information when given auditory instructions. (Rehan Asad et. al, 2017).

3.0 Methodology

The survey was administered in two languages, Malay and English, and divided into five sections: personal information, grow out culture class assessment, Grow Out Culture I-card, and after utilizing the grow out culture i-card innovation and recommendation. This study's research instrument is a questionnaire administered using Google Forms. The sample size for this study was 28 students from semester 3 of the Diploma in Aquaculture Politeknik

Sandakan Sabah. Data was gathered using random sampling and descriptive analysis. Figure 2 shows the QR code applied to the Grow Out Culture i-card.

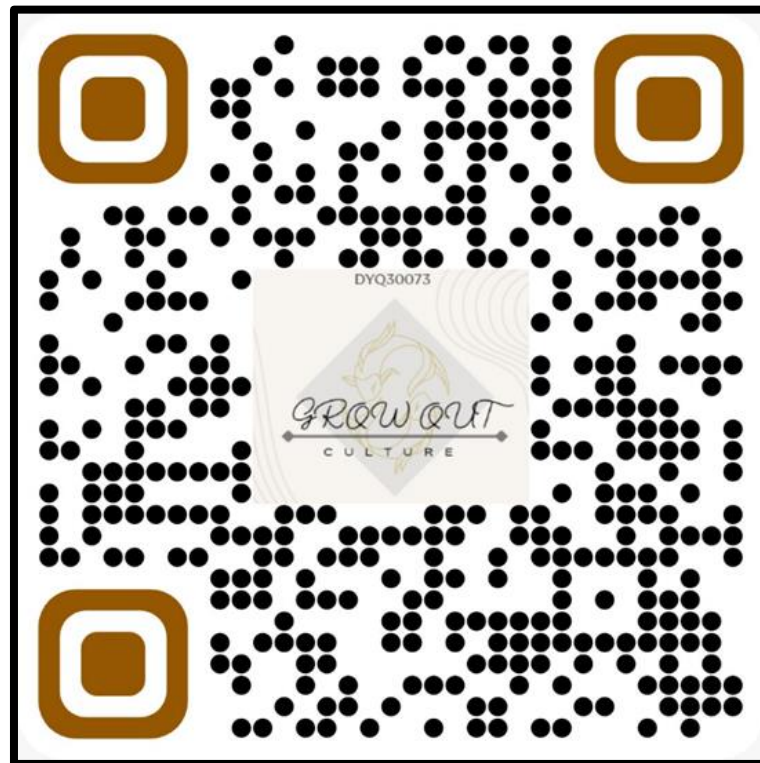


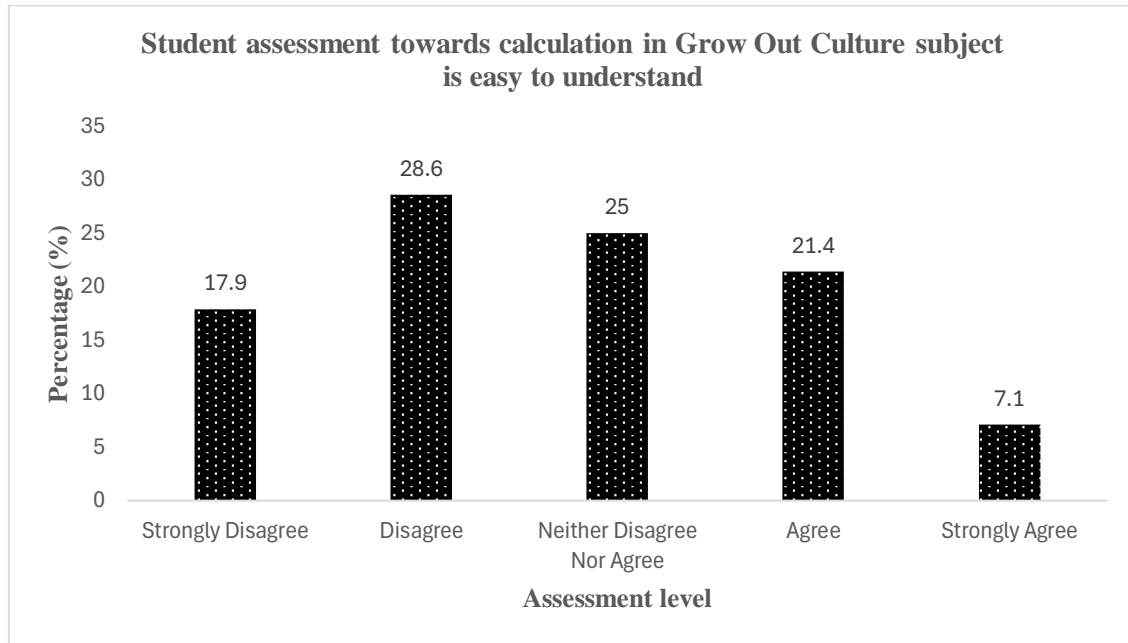
Figure 2 : QR Code for Grow Out Culture website

4.0 Data Analysis and Findings

Table 1

Student assessment towards calculation in Grow Out Culture subject is easy to understand

Assessment level	No. of student	Percentage
Strongly Disagree	5	17.9
Disagree	8	28.6
Neither Disagree Nor Agree	7	25
Agree	6	21.4
Strongly Agree	2	7.1



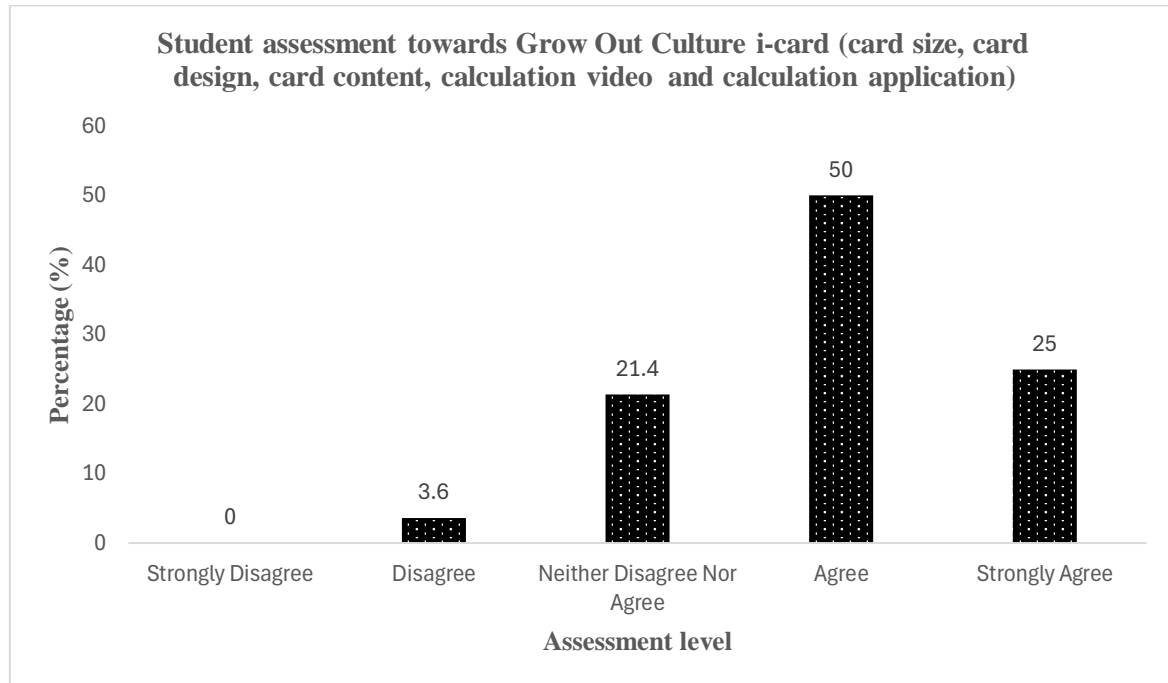
Graph 1 : Student assessment towards calculation in Grow Out Culture subject is easy to understand

Table 1 and Graph 1 demonstrated that student assessment towards calculation in Grow Out Culture subject is easy to understand. 13 students or 46% claimed calculations in Grow Out Culture are hard to understand and 8 students said the opposite. These results indicated that students have difficulties completing calculations. Lim & Rosli (2021) found that students need continuous practice in calculations to increase their understanding.

Table 2

Student assessment towards Grow Out Culture i-card (card size, card design, card content, calculation video and calculation application)

Assessment level	No. of student	Percentage
Strongly Disagree	0	0
Disagree	1	3.6
Neither Disagree Nor Agree	6	21.4
Agree	14	50
Strongly Agree	7	25



Graph 2 : Student assessment towards Grow Out Culture i-card (card size, card design, card content, calculation video and calculation application)

Table 2 and Graph 2 represent student assessment towards the Grow Out Culture I-card (card size, card design, card content, calculation video and calculation application). The majority of students consisted of 75% agree that Grow Out Culture i-card meets their preference in terms of physical and functionality. Daud et al. (2023) state in their studies that engaging design and content in teaching aids might pique students' interest in studying a subject.

Table 3

Student assessment towards better understanding of aquaculture and calculation terms after using Grow Out Culture i-card

Assessment level	No. of student	Percentage
Strongly Disagree	0	0
Disagree	1	3.6
Neither Disagree Nor Agree	8	28.6
Agree	9	32.1
Strongly Agree	10	35.7

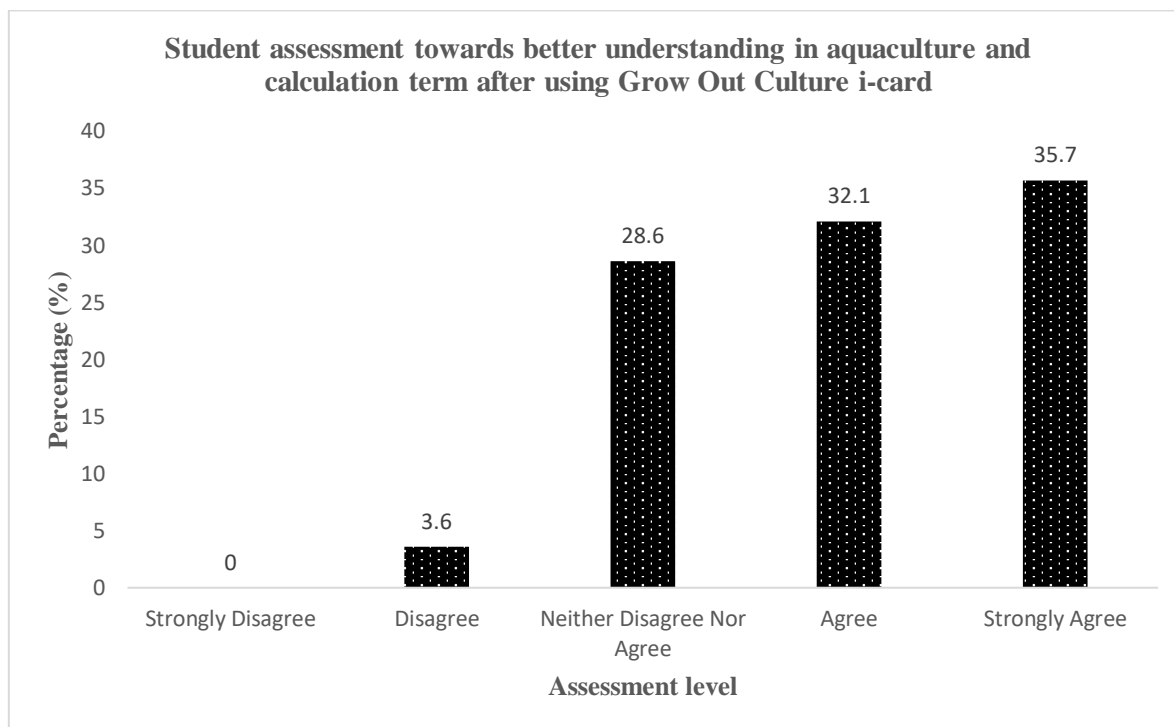


Table 3 and Graph 3 revealed student assessment towards better understanding of aquaculture and calculation terms after using Grow Out Culture i-card. 19 students or 67% of respondents agreed that after Grow Out Culture i-card was introduced during class, they had a better understanding of terms of aquaculture and the calculations involved. Students who regularly revise outside of class can boost their confidence and participation in class (Adim & Ishak, 2023). Learning videos can assist educators in improving student understanding outside of classroom time (Norma, 2021).

5.0 Discussion and Conclusions

In conclusion, respondents generally agreed with the Grow Out Culture I-card could improve their knowledge and understanding of calculations. This study advises that students practice calculations frequently, either individually or in groups, while being supervised by professors. This study also believes that lecturers teaching the subject should create more calculation questions so that students can become proficient in calculations. Second, instructors should arrange a session in the final week of classes to answer exam questions from previous semesters in to prepare students for real examinations.

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