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Design of Techno-Fun Week as a Course Learning Activity

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Abstract

Designing assessments to meet the learning objectives is an ever-evolving challenge. The assessments also have to be a process of learning for the students. Designing effective assessments for Generation-Z also needs out-of-box thinking. To cater to the needs of Gen-Z, a weeklong technical fun week was designed. Techno-Fun week was a proper mixture of technical details of the course along with the fun elements. The activities ranged from coding contests, puzzles, treasure hunt, assignments, meme creation contest, etc. The fun week had several elements to put together as a week-long activity. The activities were on the level of Advanced and Hard aiming the higher order level of thinking. The week activities were relatively graded and were scaled down to three marks as a part of their course assessments. This paper deliberates on the need of such activities, potential ways and challenges to incorporate in the semester tenure. For the Techno-Fun week conducted, descriptive statistics and student feedback is presented. This method proves to be effective in engaging students and also aiding in the process of learning.

Keywords—assessments; higher-order; learning; techno-fun.

Introduction

To comprehend on students' understanding of the course concepts and their ability to apply theoretical knowledge to real-world problems, which is the state-of-art need for the professional life, it is essential to design meaningful assessments. Assessments act as a feedback loop of improvement for both teacher and student. Assessments are decisive for ensuring that students achieve the desired learning outcomes as premeditated by the facilitator. Through timely feedback from assessments, class design and delivery can be polished to better meet the evolving needs of both students and the professional life activities (Gijbels et al., 2005). Assessments also provide valuable data on cognitive development and problem-solving skills, which can inform curriculum design and teaching methodologies. They help students to reflect on their mistakes, analyze and improve on their learning approaches. They can also help students give deeper understanding of the course material and help in knowledge (Shepard, 1989).

Assessments, as they intend to measure different aspects of student learning's, they come in various forms. Tests and quizzes are most commonly employed methods that assess students' understanding of course concepts. Theses assessments take the forms of short answers, long answers, multiple-choice questions, problem-solving exercises etc. To enhance real-world problem-solving skills, critical thinking, team collaboration, etc., projects are usually used as

assessments. Presentations and oral exams test the communication skills and subject understanding. Homework assignments strengthen classroom learning, reiterate and revise them. Labs and practical assessments are used for hands-on skills. Each type of assessment serves its purpose (Newton, 2007).

Generation Z values a learning experience that blends fun, challenge, and knowledge for deeper engagement. They view learning as most effective when it's interactive and enjoyable. Gamified assessments resonate with them, as they thrive on learning tasks that include elements of competition, rewards, or challenges, enhancing the experience (Iftode, 2019). Tools such as interactive quizzes, simulations, and digital platforms with storytelling or virtual environments keep them motivated. Hands-on projects and collaborative group work that simulate real-world situations make learning more relevant and exciting. They prefer dynamic, tech-driven, and creative assessments that move beyond traditional methods, offering a more immersive experience (Manzoni et al., 2021). They expect assessments to be flexible, offering options that cater to different learning styles and appreciate assessments that provide instant feedback, allowing them to learn and adapt in real-time.

It is hence expected that faculty must be aware of classroom dynamics for the course delivery and as well as for the assessments. This practice paper proposes a techno-fun week that integrates these experiences into classroom structure. The paper is further divided into following sections: The next section presents the background study on assessments. Followed by that is a section on methodology adapted. The further section presents the data analysis trailed by discussion and conclusion.

Background Study

Effective assessments do more than just measuring knowledge. They help in knowledge construction and help in personal growth. When designed creatively, they challenge students to think judgmentally, style real-world influences, and discover novel ideas. Gen Z expects these assessments to be fun and interactive, with elements like games, competition, and creativity making assignments more engaging and enjoyable (Ding et al., 2017). The assessments in engineering education along with evolution, approaches and future collaborations have been discussed (Olds et al., 2005).

Authenticity of assessments and their examples have been discussed (Ullah, 2020). The processes by which the assessments improve the classroom learning have been debated with the need that they are supposed to be designed with specific purposes (Guskey, 2003). The reliability of the assessments has been deliberated (Black & William, 2006). Various assessment methods, such as quizzes, projects, and simulations, help in reinforcing theoretical concepts and applying them to real-world problems. Formative assessments, in particular, are effective for continuous learning improvement, while summative assessments measure cumulative knowledge (Beneroso & Robinson, 2021). Assessments help in improving both teaching and learning (Guskey, 2007).

Generation Z, the first generation to grow up as digital natives (Dingli & Seychell, 2015), requires assessment methods that align with their distinctive learning styles and preferences. Research has investigated various approaches to effectively evaluate this group. Traditional methods, such as multiple-choice and essay tests, are now complemented by more engaging and technology-driven techniques. For example, project-based learning (Kokotsaki et al., 2016), which enables students to showcase their skills through real-world applications, has become increasingly popular (Fleming, 2000). Gamification, which integrates game elements into the learning process, has also been used to boost motivation and engagement (Hitchens & Tulloch, 2018). Technology-driven tools such as online quizzes, simulations, and digital portfolios are now widely used to

assess the knowledge and skills of Generation Z (Kaur et al., 2023). These varied approaches aim to offer a more authentic and meaningful assessment experience that aligns with the unique characteristics and preferences of this generation.

Assessments face several challenges, including alignment with diverse learning styles and preferences. Traditional methods like multiple-choice and essays often fail to capture the complexity of student understanding (Mislevy et al., 2002). Issues involved in ICT involvement in global context has been discussed (Spector, 2016). Ensuring authenticity in assessments can be difficult, as conventional techniques may not accurately reflect real-world skills (Biggs et al., 2022). Addressing these challenges requires innovative approaches that align assessment with both learning objectives and the evolving educational landscape. We hence propose the techno fun week.

Methodology

The context of the study was II-year students of computer science and engineering from [university name removed]. All the students from two divisions were part of the study. Consent was taken from the students that the data would be used for paper and study purpose. The study population was 139. Techno-fun week was a week-long activity ending with an event that brings everyone together. The model is presented in Figure 1 below.

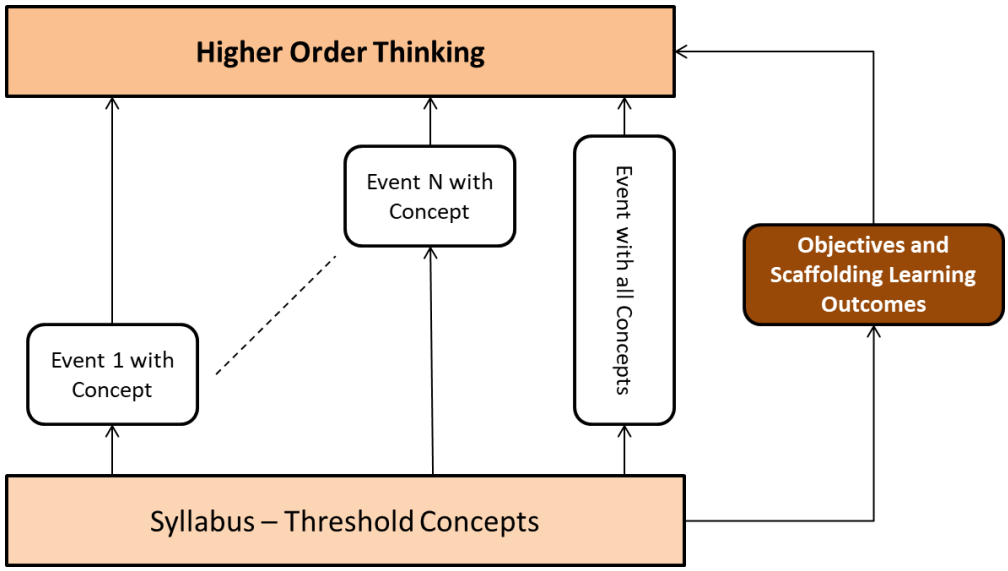

Figure 1: Design of a Techno fun week

Threshold concepts are identified from the course for formulation of event questions (Cousin, 2006). The learning outcomes with higher order thinking are selected and scaffolding learning outcomes are written. The activities are designed to meet these scaffolding learning outcomes. Based on identified top concepts that students have difficulty in, individual events are designed. One final event covers everything from the course.

For the course on Algorithms, threshold concepts were identified and learning outcomes which for which students had difficulty in was selected. For the learning outcome: Apply algorithmic problem-solving techniques by understanding the theoretical foundations in solving a problem, was break down into three scaffolding outcomes. The three outcomes are: Firstly, Demonstrate a clear understanding of the theoretical foundations behind algorithmic problem-

solving, including key concepts and principles, Secondly, analyze a given problem to identify the most suitable algorithmic techniques that can be applied for an efficient solution and Thirdly, effectively implement these algorithmic techniques to solve problems, demonstrating the ability to translate theory into practice. Activities were designed keeping these outcomes in mind.

For example, students had difficulty in understanding spanning tree. So, they were asked to create meme on the concept. Another event made students solve a crossword puzzle etc. Students were given clues to identify a concept. Each of them was designed with an objective that they get the principles right. Not everyone could attempt all the questions. Many submitted wrong answers and many even failed to submit. The idea was to make them try and learn. On the last day of the event, there was treasure hunt. Students were provided with 30 algorithmic clues from the campus. They had to identify the place, take the photograph of it and solve as many clues as possible. This contest was between two divisions where each class played as a team and it was for two hours in the evening.

Data Collection and Analysis

A total of 139 students who participated in different activities had the scores as listed below in Table 2. The fun week has a total of 5 activities followed by a treasure hunt. Five activities scores totaled up to 35 points. B division won the treasure hunt. The activities level was complex and hard.

Table 2: Descriptive Statistics of Scores of 139 students

Measure	Value
N	139
Missing Values	0
Mean	10.5
Median	11
Standard Deviation	5.02
Variance	25.2
Minimum Value	1
Maximum Value	21
Skewness	-0.412
Std. Error Skewness	0.206
Kurtosis	-0.829
Std. Error Kurtosis	0.408
Shapiro-Wilk W	0.934
Shapiro-Wilk p	< 0.001

For total of 35, the class mean score was 10.5 marks. Median 11 marks and standard deviatiion of 5.02. The highest score for 35 was 21 and least score was 1 marks. Skewness of -0.412 means that distribution is moderately negatively skewed. Standard Error of Skewness of 0.206 means that skewness is relatively reliable, but there's still some variability due to sampling. The data has a moderate leftward skew, there are more data points on the right side of the distribution. The estimate of this skewness is fairly reliable, but there's a small chance it could vary slightly due to sampling fluctuations. Kurtosis of -0.829 which means that the distribution is platykurtic, meaning it has a flatter peak than a normal distribution. Standard Error of Kurtosis is 0.408 which estimates that the kurtosis is relatively reliable, but there's still some variability due to sampling. The Shapiro Wilk test confirms that the data is not normally distributed. W statistic of 0.934 is a test statistic that measures how closely the sample data fits a normal distribution. A value closer to 1 indicates a better fit. Since the p-value is significantly less than 0.001, we can reject the null hypothesis that the data comes from a normal distribution. This means there is strong

evidence suggesting that the data is not normally distributed. The Q-Q plot of tha data is presented in Figure 2 below.

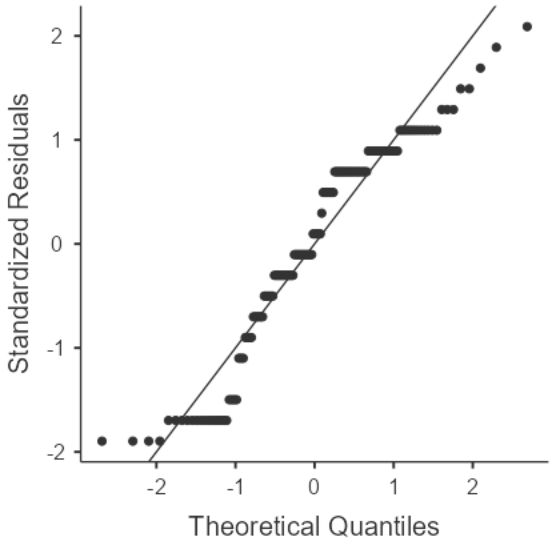

Figure 2: The Q-Q plot representing the scores of fun week activities

If the points on the Q-Q plot fall close to a straight line suggests that the data is normally distributed. If the points deviate significantly from the line, it indicates that the data is not normally distributed. As we can see in our case, it is not. Student feedback was collected on how effective the process was for learning. The data was collected on 3-point scale with 'Yes', 'No' and 'Maybe' as options. 84.2% of 139 students agreed that it was effective in terms of learning process. The feedback can be seen in Figure 3.

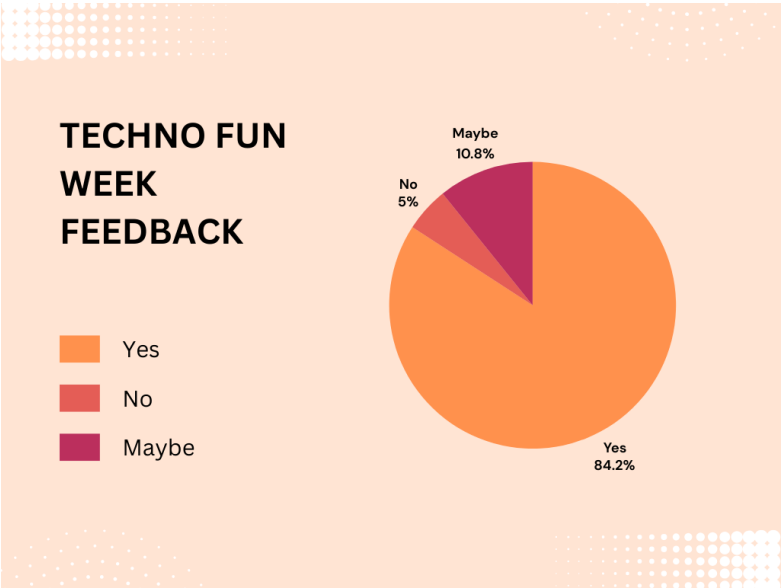

Figure 3: Student Feedback on Techno-fun week

Students gathered for the treasure hunt activity can be seen in Figure 4 below.

Figure 4: Students before the start of treasure hunt activity

Discussion

Following are the inferences and points of discussion from the conducted techno-fun activity.

Placement of Activity

It is ideally recommended to place the techno fun week after completion of at-least 70% of course syllabus. That way instructor will have enough material to set the activity on. It will also help students to revise the entire syllabus and be prepared for end semester exams. It will help instructor to frame challenging questions as most syllabus is already covered. The activity will happen along with the other regular activities. The questions can be posted in class groups and any activities will be scheduled after the regular class hours.

Type of Activities

The type of activities must be non-traditional and short. Crosswords, puzzles, clues, etc. which have the fun element. They must not be easily available on internet. Students must not feel them as yet another assessment. Events must be related to current happenings. There can be movies, news, series references that can keep the students engaged. Demography and social contexts can play a major role.

Nature of Activities

There must be at least one activity where every student scores. There must be at least one event where only 1 or 2 students in the class score. They must be on hard level so that it makes the event competitive. Small appreciations in the form of chocolates and cards can add motivation to the event and students. No student scoring any marks can make a negative impact. It has to be solvable by at least few students and encourage others to participate.

Grading

Scores must be made available on daily basis. The activities must be scaled down to minimal marks so that it encourages everyone to participate. Keeping relative grades helps most students not be worried of lost marks. In our case it was scaled down to three marks. Few students secured three and more than 90% of the class managed to score two marks.

Conclusion

The "Techno Fun Week" was a successful initiative that blended enjoyment with learning through a series of engaging events. Student feedback positive, expressing how much they enjoyed the activities while gaining valuable knowledge. The week served as an effective strategy to scaffold the more challenging aspects of the course, making difficult concepts more approachable. When integrating fun elements into the learning process, the events nurtured both enthusiasm and understanding. It was a productive and enjoyable week for students, with intended learning outcomes achieved by the faculty.

References

Beneroso, D., & Robinson, J. (2021). A tool for assessing and providing personalised formative feedback at scale within a second in engineering courses. *Education for Chemical Engineers*, *36*, 38-45.

Biggs, J., Tang, C., & Kennedy, G. (2022). *Teaching for quality learning at university 5e*. McGraw-hill education (UK).

Black, P., & Wiliam, D. (2006). The reliability of assessments. *Assessment and learning*, 119-131.

Cousin, G. (2006). An introduction to threshold concepts. *Planet*, *17*(1), 4-5.

Ding, D., Guan, C., & Yu, Y. (2017). Game-based learning in tertiary education: A new learning experience for the generation Z. *International Journal of Information and Education Technology*, *7*(2), 148.

Dingli, A., & Seychell, D. (2015). The new digital natives. *JB Metzler: Stuttgart, Germany*.

Fleming, D. S. (2000). *A Teacher's Guide to Project-Based Learning*. Scarecrow Education, Attn: Sales Department, 15200 NBN Way, PO Box 191, Blue Ridge Summit, PA 17214.

Gijbels, D., Van de Watering, G., Dochy, F., & Van den Bossche, P. (2005). The relationship between students' approaches to learning and the assessment of learning outcomes. *European journal of psychology of education*, *20*, 327-341.

Guskey, T. R. (2003). How classroom assessments improve learning. *On Formative Assessment: Readings from Educational Leadership (EL Essentials)*.

Guskey, T. R. (2007). Using assessments to improve teaching and learning. *Ahead of the curve: The power of assessment to transform teaching and learning*, 15-29.

Hitchens, M., & Tulloch, R. (2018). A gamification design for the classroom. *Interactive Technology and Smart Education*, *15*(1), 28-45.

Iftode, D. (2019). Generation Z and learning styles. *SEA–Practical Application of Science*, *7*(21), 255-262.

Kaur, P., Kumar, H., & Kaushal, S. (2023). Technology-assisted language learning adaptive systems: a comprehensive review. *International Journal of Cognitive Computing in Engineering*.

Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving schools*, *19*(3), 267-277.

Manzoni, B., Caporarello, L., Cirulli, F., & Magni, F. (2021). The preferred learning styles of generation Z: Do they differ from the ones of previous generations?. In *Digital Transformation and Human Behavior: Innovation for People and Organisations* (pp. 55-67). Springer International Publishing.

Mislevy, R. J., Steinberg, L. S., Breyer, F. J., Almond, R. G., & Johnson, L. (2002). Making sense of data from complex assessments. *Applied Measurement in Education*, *15*(4), 363-389.

Newton, P. E. (2007). Clarifying the purposes of educational assessment. *Assessment in education*, *14*(2), 149-170.

Olds, B. M., Moskal, B. M., & Miller, R. L. (2005). Assessment in engineering education: Evolution, approaches and future collaborations. *Journal of Engineering Education*, *94*(1), 13-25.

Shepard, Lorrie A. "Why We Need Better Assessments." *Educational leadership* 46.7 (1989): 4-9.

Spector, J. M. (2016). Instructional design methods and practice: Issues involving ICT in a global context. *ICT in Education in Global Context: Comparative Reports of Innovations in K-12 Education*, 59-73.

Ullah, S. N. (2020, April). Examples of authentic assessments in engineering education. In *2020 IEEE Global Engineering Education Conference (EDUCON)* (pp. 894-897). IEEE.