A SYSTEMATIC LITERATURE REVIEW ON THE USE OF PODCASTS IN EDUCATION AMONG UNIVERSITY STUDENTS

Amirul Zulaidil Shah Ahmad Shahrizal[1], Bahbibi Rahmatullah[1*], Mad Helmi Ab Majid[1],

Suzani Mohamad Samuri[1], Achmad Nizar Hidayanto[2], Qahtan M. Yas[3], Sigit Purnama[4]

**[1]Faculty of Art, Computing & Creative Industry, Universiti Pendidikan Sultan Idris,
Tanjung Malim, Perak, Malaysia.**
[2]Faculty of Computer Science, Universitas Indonesia, Depok, Indonesia.
[3]Department of Computer Science, University of Diyala, Iraq.
[4]Faculty Tarbiyah and Education, UIN Sunan Kaliga, Yogyakarta, Indonesia.
[*](Corresponding Author: bahbibi@fskik.upsi.edu.my)

Abstract

Technology such as multimedia, particularly podcasts, is becoming more widely used in educational settings. The podcasts have been utilized at many levels of education, including elementary, secondary, and tertiary education. Along with this, many articles were written and published about the use of podcasts in education among university students. Our main objective in this study is to examine the use of podcasts in higher education among university students by systematically searching the Scopus database for papers relevant to the study. Eighteen papers were chosen and retrieved, then meticulously studied to uncover the new themes that have been classified as the result. The review found that podcasts have a favorable impact on university students and help them better understand the learning process. It also highlights the limits in its deployment that need to be addressed in order to improve the teaching and learning process.

Keywords: Education; Learning; Podcast; Student; University

Abstrak

Teknologi seperti multimedia, khususnya audio siar, semakin digunakan secara meluas dalam bidang pendidikan. Audio siar telah digunakan pada pelbagai tahap pendidikan, termasuk pendidikan rendah, menengah dan pengajian tinggi. Seiring dengan ini, banyak artikel telah ditulis dan diterbitkan mengenai penggunaan audio siar dalam pendidikan di kalangan pelajar universiti. Objektif utama kami dalam kajian ini adalah untuk mengkaji penggunaan audio siar di peringkat pendidikan tinggi dalam kalangan pelajar universiti dengan mencari kertas yang

berkaitan dengan kajian secara sistematik dalam pangkalan data Scopus. Lapan belas kertas telah dipilih, kemudian dikaji dengan teliti untuk mendedahkan tema baharu yang telah diklasifikasikan sebagai hasilnya. Hasil semakan dari kajian mendapati bahawa audio siar mempunyai impak yang mengalakkan kepada pelajar universiti dan membantu mereka memahami proses pembelajaran dengan lebih baik. Ia juga menyerlahkan batasandalam penggunaannya yang perlu ditangani untuk menambah baik proses pengajaran dan pembelajaran.

Kata kunci: Audio siar; Pendidikan; Pembelajaran; Pelajar; Universiti.

1.0   INTRODUCTION

"A podcast is a broadcast that is published on the Internet for anyone who wishes to listen to or watch it," according to Cambridge Dictionary. Nowadays, the usage of such technology is fast spreading in educational sectors, and it may be advantageous, particularly in this epidemiological period (Hassan et al., 2014; Mohamad Samuri et al., 2016). During the recent pandemic outbreaks, many parties try to come up with various solutions to the problem in the education sector (Mohamad et al., 2022; Mohamed et al., 2022; Roslin et al., 2022). Podcasting has long been considered the media landscape's unsung hero, gradually but surely gaining devoted listeners, mainly as news organizations resort to podcasts, among other approaches, to enhance engagement levels (Newman & Gallo, 2019). It has been found that the usage of the podcast has rapidly spread out significantly in the last few years. Universities should take advantage of this hitherto underutilized pedagogical resource in our classrooms, given that so many of our students already listen to podcasts regularly.

One of the most important benefits of podcasts is their "flexible availability," which permits users to listen to classes whenever it is convenient for them, and they have the added autonomy of being able to pause and rewind for review (Grunow, 2020). This means that students can control whether they want to listen to or watch the podcast at their own pace and are not constrained by time. Moreover, podcasts have a lot of potential in the online classroom setting by enabling differentiation in learning (Cooper, 2008) and providing extra support to students with special learning needs (Powell & Robson, 2014). A sense of belonging to the learning community could also be fostered through the usage of podcasts (Van Zanten et al., 2012). Year after year, numerous academics investigate the educational usage of podcasts in a classroom setting and discover that they have a positive impact on students, whether in terms of their lessons or motivation (König, 2021).

According to Harris and Park (2008), podcasting is being utilized not only to provide a repeat or summary of lecturer's timely academic material such as law-related news to students. This will help students communicate with their lecturer in terms of understanding and resolving the problems that the students face. Another study discovered that listening to podcasts influenced students' attitudes, behaviour, and self-efficacy. The majority of studies on student attitudes regarding podcasts have been descriptive, focusing on why students use podcasts and how satisfied they are with them (Chester et al., 2011).

2.0 RESEARCH METHOD

2.1 Search strategy

A systematic literature review was conducted to address the goal of this paper, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach for paper selection. The PRISMA framework was developed by Moher et al. (2009) as a collection of instructions or processes to methodically search for papers and manuscripts for systematic review studies utilizing a set of approaches. This framework is also based on specific evaluation criteria for inclusion and exclusion of studies which is useful in assessing the quality of selected papers or to include or omit articles from the study (Raja Hassan & Rahmatullah, 2022; Sudin et al., 2022).

The keywords that were used in the paper search are [("podcast") AND ("education" OR "university") AND ("learning") AND ("student*")]. The search was performed using the Scopus database by referring to these keywords. The search keyword will allow us to gather a wide selection of publications on the use of podcasts among university students and learning by using podcasts among university students. The documents found totaled 404 and fulfilled the qualifying criteria of journal articles, conference papers, and review papers.

2.2 Selection procedure

Figure 1 illustrates the PRISMA approach implemented for the selection process. We discovered a total of 404 papers in the search database. Next, a screening of the title and abstract among the 404 documents was conducted to find the related study. A total of 314 papers were deducted from the paper list because they are unrelated to this study. The balance of 90 papers was reviewed with full articles accessed and we found that 40 papers were not in the education field, 18 papers were not related to the podcast in education, and 14 papers were not related to university students. Thus, the final number of papers included in this study is 18.
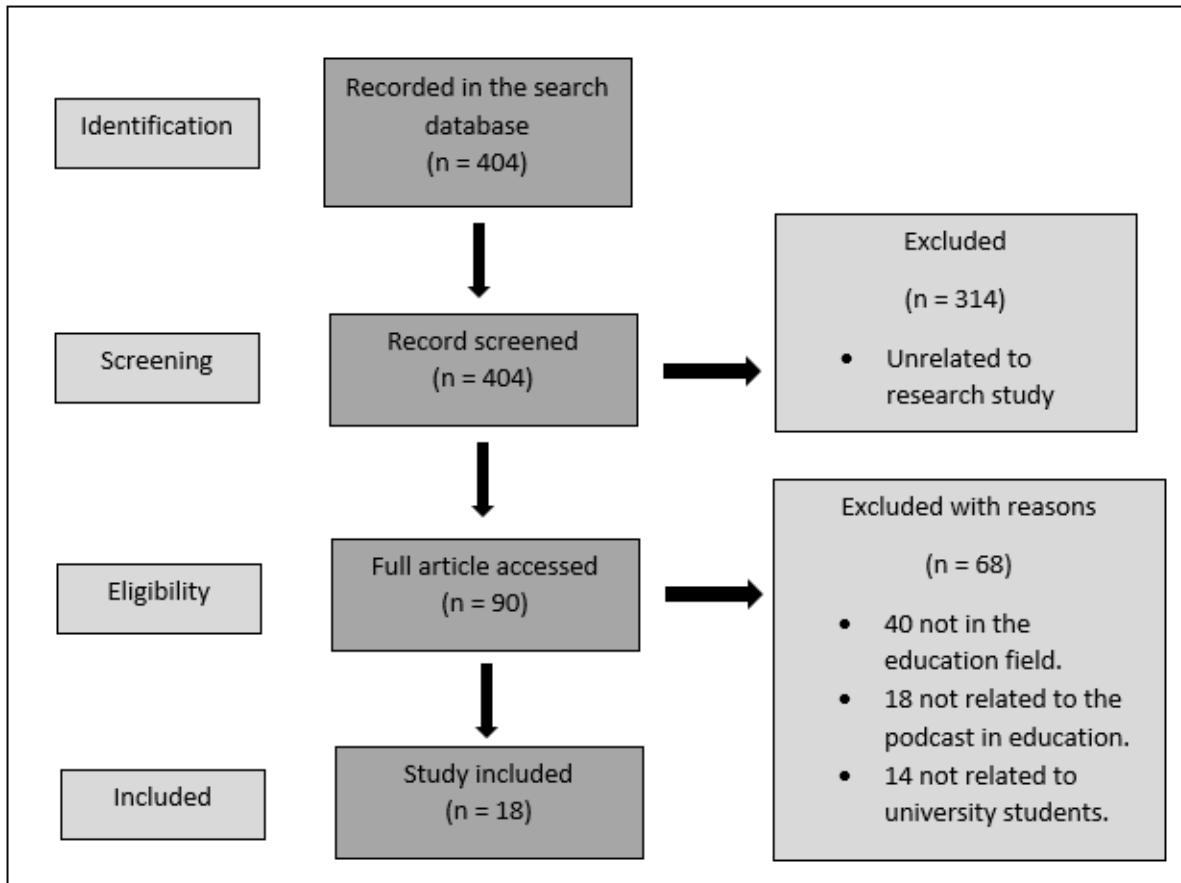
Figure 1: Result from the PRISMA approach

2.3 Thematic analysis

The following Table 1 is the summary of articles' characteristics that have been selected from the papers.

Table 1: *Summary of extracted information from selected articles*

Author and Year	Title	Approaches used	Themes
(Mitchell et al., 2021)	Evaluation of A Delirium Awareness Podcast for Undergraduate Nursing Students in Northern Ireland: A Pre−/Post-Test Study	Questionnaire, Experiments	Student Performance
(Mnatzaganian et al., 2020)	Effectiveness of Providing Video Podcasts to Pharmacy Students in a Self-Study Pharmaceutical Calculations Module	Experiments	Student Performance
(Nalendra et al., 2020)	E-Learning for English for Business-Based Podcast: One of Learning	Observations, Interviews	Student Performance

	Solutions Amid the Pandemic of COVID-19		
(Chaikovska et al., 2019)	Podcasts in Teaching EFL for Students Majoring in Engineering	Questionnaire, Quasi-experiment	Student Performance
(Kapoor et al., 2018)	An Evaluation of Medical Student-Led Podcasts: What Are the Lessons Learnt?	Questionnaire	Student Acceptance
(Prakash et al., 2017)	Short-Duration Podcasts as A Supplementary Learning Tool: Perceptions of Medical Students and Impact on Assessment Performance	Questionnaire	Student Acceptance
(McSwiggan & Campbell, 2017)	Can Podcasts for Assessment Guidance and Feedback Promote Self-Efficacy Among Undergraduate Nursing Students? A Qualitative Study	Observations	Student Performance
(Flood et al., 2017)	Design and Evaluation of Video Podcasts for Providing Online Feedback on Formative Pharmaceutical Calculations Assessments	Questionnaire, Experiment	Student Acceptance
(Almeida-Aguiar & Carvalho, 2016)	Exploring Podcasting in Heredity and Evolution Teaching	Questionnaire	Student Acceptance
(Edmond et al., 2016)	A Comparison of Teaching Three Common Ear, Nose, And Throat Conditions to Medical Students Through Video Podcasts and Written Handouts: A Pilot Study	Questionnaire	Student Performance
(Raupach et al., 2015)	Moving Knowledge Acquisition from The Lecture Hall to The Student Home: A Prospective Intervention Study	Questionnaire, Experiments	Student Performance
(Moss et al., 2015)	The Changing Motivations of Students' Use of Lecture Podcasts Across a	Questionnaire	Student Acceptance

	Semester: An Extended Theory of Planned Behavior Approach		
(Smith & Morris, 2014)	Evaluation of Biomedical Science Students Use and Perceptions of Podcasting	Questionnaire	Student Acceptance
(Kalludi et al., 2013)	Efficacy and Perceived Utility of Podcasts as A Supplementary Teaching Aid Among First-Year Dental Students	Questionnaire	Student Acceptance
(Farshi & Mohammadi, 2013)	Use of Podcasts in Effective Teaching of Vocabulary: Learners' Attitudes, Motivations and Limitations	Questionnaire	Student Acceptance, Motivations
(Tam, 2012)	The Effectiveness of Educational Podcasts for Teaching Music and Visual Arts in Higher Education	Questionnaire, Interviews	Student Acceptance
(Strickland et al., 2012)	The Use of Podcasts to Enhance Research-Teaching Linkages in Undergraduate Nursing Students	Questionnaire	Student Acceptance, Motivations
(Özdener & Güngör, 2010)	Effects of Video Podcast Technology on Peer Learning and Project Quality	Experiments	Student Performance

In Table 1, several characteristics are presented, such as the title of the papers, author(s) of the papers, publication year, approaches used, and themes classified based on the study. The selected papers use different approaches to gather information or collect data such as questionnaires, observations, experiments, interviews, and quasi-experiments. Each theme used to classify the paper will be discussed in more depth in the next section.

The total number of chosen papers is 18. As shown in Figure 2, these papers can be tabulated according to the approaches used where the Questionnaire is the most commonly used approach (n=9), followed by the Questionnaire with Experiments (n=3), Observation

(n=2), Experiments (n=1), Questionnaire with Interviews (n=1), Questionnaire, Quasi-Experiments (n=1), and Observation with Interviews (n=1).

Figure 3 shows the papers that were distributed according to the year of publication. 3 related papers were published in 2017, followed by two papers in 2020, 2016, 2015, 2013, and 2012. Only one paper was published in other years including the year 2021.
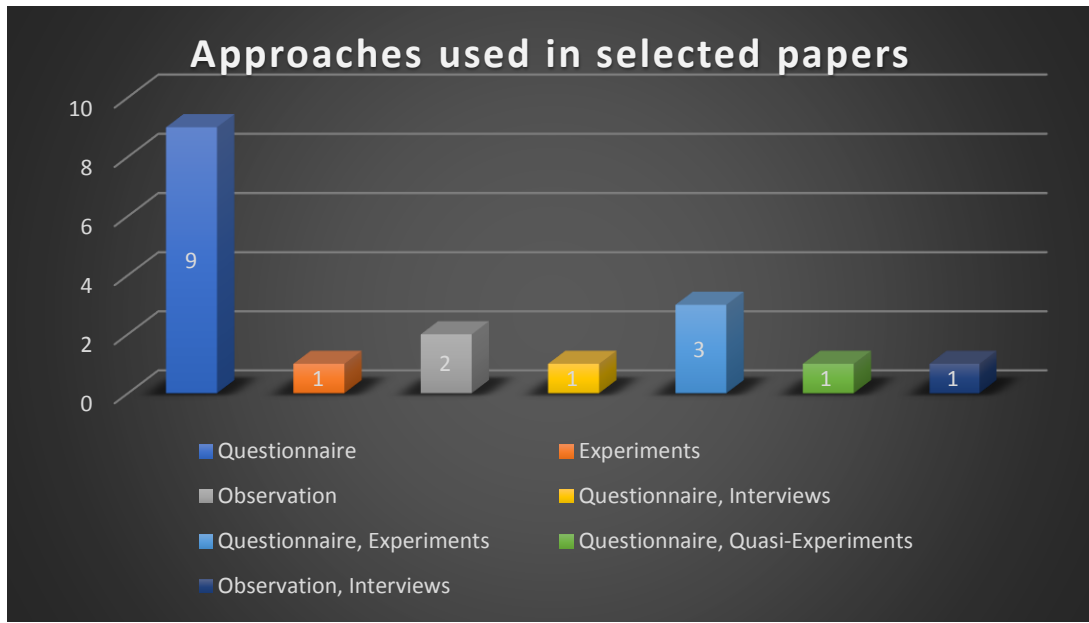

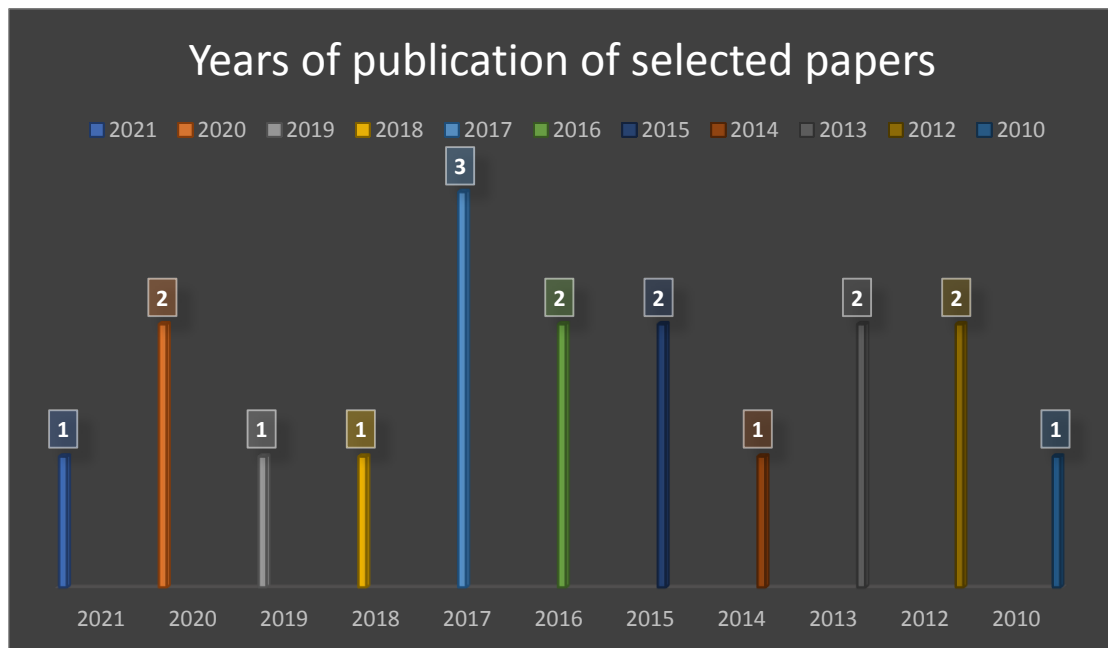*Figure 2:* Research approaches used in selected papers.

Figure 3: Selected papers according to years.

3.0 FINDINGS AND DISCUSSION

There were eighteen (18) papers that have been identified and meet the eligibility of the study following the PRISMA as in Figure 1. The summary of article characteristics that were obtained from the selected papers can be referred to in Table 1. All the selected papers were thematically analyzed and can be classified into three themes: student performance, student acceptance, and motivations.

3.1 Student Acceptance

In this challenging era, employing podcasts in education is one of the practical alternatives for teaching and learning. According to Kapoor et al. (2018), the majority of students believe that podcasts are of sufficient length, aimed at the proper academic level, and provide an effective learning approach. Students recognized the benefits of the podcast's brief duration, and the teacher's voice in the audio component had a significant impact on their learning, according to Prakash et al. (2017). It also allows students to control the podcast independently, which is more advantageous than reading textbooks or slides. Almeida-Aguiar and Carvalho (2016) observed similar findings, stating that podcasts are beneficial for learning, easy to understand and provide useful feedback to students. Flood et al. (2017) who reported the same findings, strongly support this.

Furthermore, adopting a podcast as an educational tool can help students become more engaged in their studies. Ninety-four percent of students, according to Smith and Morris (2014) utilize the podcast to 'listen again to understand' about the topic or subject. This demonstrates that students can listen to and watch the lesson numerous times without needing to ask their lecturer to reteach the specific topic they could not comprehend. According to Kalludi et al. (2013), the podcast was found to be beneficial by 91.3 percent of students because they could listen to instructor content at their leisure, indicating that they accept the usage of podcast technology in university education.

An educational podcast with supplementary information, according to Almeida-Aguiar and Carvalho (2016), is particularly advantageous in a pedagogical setting since it allows students more time in class to explore a subject and also promotes better interaction between classmates and also with their teacher. This means that instructors can include additional explanations in their podcasts to help students understand what they're listening to or watching. As a result, it will assist students in increasing their productivity in and out of class.

3.2 Student Performance

A podcast is a technology that helps students quickly gain knowledge and improve their studies according to the subjects. The use of podcasts has been proven to be effective in improving students' academic performance since most of the students prefer to use podcasts as a study platform in universities (Raupach et al., 2015; Edmond et al., 2016; Chaikovska et al., 2019; Mnatzaganian et al., 2020; Nalendra et al., 2020; Mitchell et al., 2021).

Furthermore, by making assessments to appear more manageable, podcasts enable the improvement of self-efficiency, where students reported growing confidence in their ability to possess the necessary information and abilities by having more clarity about what was needed of them (McSwiggan & Campbell, 2017). Furthermore, video podcast technology also promotes peer learning such as when students broadcast their projects as video podcasts which is far superior to submitting their projects via CD (Özdener & Güngör, 2010). Video podcasts as a project also improve students' performance.

3.3 Motivations

Student motivation is also an important thing that needs to be taken seriously when conducting a teaching and learning session. If a student is not motivated during the learning process, they will lose track of a particular topic or becomes uninterested. 26 out of 30 students in the study conducted by Farshi and Mohammadi (2013) indicated that they are willing to use podcasts again in the future for English language learning. 21 of them said they would recommend the podcasts to their friends. They also state that podcasts were also effective in drawing and maintaining their attention and interest. This suggests that podcasts have provided students with a multimodal learning experience. Furthermore, students can use podcasts to track down content they missed in class and catch up on instruction through self-learning outside of class (Tam, 2012).

Aside from that, podcasts appear to have aided students in better understanding the issue and piqued their interest in learning more about it. In the research conducted by Strickland et al. (2012), 71 students showed a high degree of satisfaction with the podcasts usage in their course. This means that students are more motivated to study when they utilize podcasts as a medium, and it also helps them remember material if they forget it.

3.4 Limitations

Despite the benefits of podcasts, there are also drawbacks to using them as a technology in education. One of the major drawbacks is that students use their own time to view the podcast,

finding it challenging to verify whether students really watched the entire podcast or only partially (Kapoor et al., 2018). This is among the primary issues that need to be addressed among educators to ensure that their students listen to or watch the entire recorded podcast for acquiring a complete comprehension of the topic.

Besides that, the standard issue that a student usually faces is the internet connectivity problem (Farshi & Mohammadi, 2013). Somehow, if the student lives in rural areas where internet connectivity is poor, it will be challenging for them to watch or listen to the podcast if their lecturer uploads the recording through a portal or they need to access it from a specific website. This is the most significant issue for students who live outside of town and have difficulty finding internet access when attempting to use podcasts for studying. Otherwise, whether students desire to view or listen to the podcast that was provided as a learning tool relies on their motivation and behavior.

4.0 CONCLUSION

This study looked at 18 studies from 2010 to mid-2021 that were discovered through a comprehensive literature search. This study made a contribution by examining the current level of research and practices in the use of podcasts in higher education. As indicated by the studies offered, the usage of podcasts in education among university students has had a favorable impact on education sectors. The impact of podcasts on university students is discussed in this research through three themes: student acceptance, student performance, and motivation. With podcast technology, it assists educators in maximizing their efforts to impart knowledge to their students. They do not have to meet with their lecturer face to face or organize a meeting every time they have a question about something they do not understand.

The limitation of this study is that it only searches and gathered related papers from one database which is Scopus. We hope to extend this review work to include more databases, such as Springer Link, ProQuest, Emerald, or JSTOR, and consider wider review scopes in the future. We would recommend for all educators to embrace podcast technology as part of technological tools to enhance additional types of teaching and learning so that students are not left demotivated with traditional methods such as reading books or presenting slides. It is detrimental to the teaching and learning process in the high education setting if such a valuable technology is left unutilized. All educators desire their students to develop a deeper understanding and topics they've learned over the course of a semester, and podcasts would be one of the most efficient tools to achieve that.

5.0 REFERENCES

Almeida-Aguiar, C., & Carvalho, A. A. (2016). Exploring podcasting in heredity and evolution teaching. *Biochemistry and Molecular Biology Education : A Bimonthly Publication of the International Union of Biochemistry and Molecular Biology*, *44*(5), 429–432. https://doi.org/10.1002/bmb.20965

Chaikovska, O., Zbaravska, L., & Bilyk, T. (2019). Podcasts in teaching EFL for students majoring in engineering. *Engineering for Rural Development*, *18*, 1915–1920. https://doi.org/10.22616/ERDev2019.18.N344

Chester, A., Buntine, A., Hammond, K., & Atkinson, L. (2011). Podcasting in education: Student attitudes, behaviour and self-efficacy. *Educational Technology and Society*, *14*(2), 236–247.

Cooper, S. (2008). Delivering student feedback in higher education: the role of podcasting. *Journal of Music, Technology and Education*, *1*(2), 153–165. https://doi.org/10.1386/jmte.1.2and3.153_1

Edmond, M., Neville, F., & Khalil, H. S. (2016). A comparison of teaching three common ear, nose, and throat conditions to medical students through video podcasts and written handouts: A pilot study. *Advances in Medical Education and Practice*, *7*, 281–286. https://doi.org/10.2147/AMEP.S101099

Farshi, N., & Mohammadi, Z. (2013). Use of podcasts in effective teaching of vocabulary: Learners' attitudes, motivations and limitations. *Theory and Practice in Language Studies*, *3*(8), 1381–1386. https://doi.org/10.4304/tpls.3.8.1381-1386

Flood, M., Hayden, J. C., Bourke, B., Gallagher, P. J., & Maher, S. (2017). Design and evaluation of video podcasts for providing online feedback on formative pharmaceutical calculations assessments. *American Journal of Pharmaceutical Education*, *81*(10), 100–103. https://doi.org/10.5688/ajpe6400

Grunow, T. R. (2020). Podcasting during the Pandemic and Beyond. In D. Kenley (Ed.), *Teaching About Asia in a Time of Pandemic* (pp. 131–139). Association for Asian Studies. Retrieved from: https://www.asianstudies.org/publications/teaching-about-asia-in-a-time-

of-pandemic/

Harris, H., & Park, S. (2008). Educational usages of podcasting. *British Journal of Educational Technology*, *39*(3), 548.

Hassan, H., Rahmatullah, B., & Mohamad Nordin, N. (2014). Towards School Management System (SMS) Success in Teacher's Perception. *Malaysian Online Journal of Educational Technology, 2*(4), 50–60.

Kalludi, S. N., Punja, D., Pai, K. M., & Dhar, M. (2013). Efficacy and perceived utility of podcasts as a supplementary teaching aid among first-year dental students. *Australasian Medical Journal*, *6*(9), 450–457. https://doi.org/10.4066/AMJ.2013.1786

Kapoor, S., Catton, R., & Khalil, H. (2018). An evaluation of medical student-led podcasts: What are the lessons learnt? *Advances in Medical Education and Practice*, *9*, 133–138. https://doi.org/10.2147/AMEP.S148513

König, L. (2021). Podcasts in higher education: teacher enthusiasm increases students' excitement, interest, enjoyment, and learning motivation. *Educational Studies*, *47*(5), 627–630. https://doi.org/10.1080/03055698.2019.1706040

McSwiggan, L. C., & Campbell, M. (2017). Can podcasts for assessment guidance and feedback promote self-efficacy among undergraduate nursing students? A qualitative study. *Nurse Education Today*, *49*, 115–121. https://doi.org/10.1016/j.nedt.2016.11.021

Mitchell, G., Scott, J., Carter, G., & Wilson, C. B. (2021). Evaluation of a delirium awareness podcast for undergraduate nursing students in Northern Ireland: a pre−/post-test study. *BMC Nursing*, *20*(1). https://doi.org/10.1186/s12912-021-00543-0

Mnatzaganian, C. L., Singh, R. F., Best, B. M., & Morello, C. M. (2020). Effectiveness of providing video podcasts to pharmacy students in a self-study pharmaceutical calculations module. *American Journal of Pharmaceutical Education*, *84*(12), 1579–1583. https://doi.org/10.5688/ajpe7977

Mohamad, A. I., Rahmatullah, B., Ibrahim, L. F. M., Saari, E. M., & Downing, K. J. (2022). Exploring Parents Perception Of Online Learning Through A Systematic Literature

Review. *Borneo International Journal EISSN 2636-9826*, *5*(1), 8–15.

Mohamad Samuri, S., Abdul Ghani, H., Rahmatullah, B., & Ab Aziz, N. S. (2016). Sistem sokongan keputusan untuk menilai dan memantau prestasi guru: Kajian rintis di SMK Bachok, Kelantan. *Journal of ICT in Education*, *3*, 55–72.

Mohamed, N. F., Govindasamy, P., Rahmatullah, B., & Purnama, S. (2022). Emotional Intelligence Online Learning and its Impact on University Students' Mental Health: A Quasi-Experimental Investigation. *Pertanika Journal of Social Science and Humanities, Volume 30, Issue 2, June 2022*, *30*(2), 665–680. https://doi.org/10.47836/pjssh.30.2.13

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, T. P. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses : The PRISMA Statement. *PLoS Med*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Moss, N. D., Hamilton, K., White, K. M., & Hansen, J. (2015). The changing motivations of students' use of lecture podcasts across a semester: an extended theory of planned behaviour approach. *Innovations in Education and Teaching International*, *52*(6), 599–609. https://doi.org/10.1080/14703297.2012.746513

Nalendra, A. R. A., Rahayuningsih, R., Rosalinah, Y., Subroto, I., Wibowo, A. I., & Nelfianti, F. (2020). E-Learning for English for Business-Based Podcast: One of Learning Solutions Amid the Pandemic of COVID-19. *Journal of Physics: Conference Series*, *1641*(1). https://doi.org/10.1088/1742-6596/1641/1/012111

Newman, N., & Gallo, N. (2019). News podcasts and the opportunities for publishers.

Özdener, N., & Güngör, Y. (2010). Effects of video podcast technology on peer learning and project quality. *Procedia - Social and Behavioral Sciences*, *2*(2), 2217–2221. https://doi.org/10.1016/j.sbspro.2010.03.311

Powell, L., & Robson, F. (2014). Learner-generated podcasts: a useful approach to assessment? *Innovations in Education and Teaching International*, *51*(3), 326–337. https://doi.org/10.1080/14703297.2013.796710

Prakash, S. S., Muthuraman, N., & Anand, R. (2017). Short-duration podcasts as a

supplementary learning tool: Perceptions of medical students and impact on assessment performance. *BMC Medical Education*, *17*(1). https://doi.org/10.1186/s12909-017-1001-5

Raja Hassan, R. M. F., & Rahmatullah, B. (2022). Systematic Review on Students' Awareness on Cyberbullying at High School Level of Education. *Insight: Jurnal Ilmiah Psikologi*, *24*(1). https://doi.org/10.26486/psikologi.v24i1.1978

Raupach, T., Grefe, C., Brown, J., Meyer, K., Schuelper, N., & Anders, S. (2015). Moving knowledge acquisition from the lecture hall to the student home: A prospective intervention study. *Journal of Medical Internet Research*, *17*(9), e223. https://doi.org/10.2196/jmir.3814

Roslin, A. R., Rahmatullah, B., Zain, N. Z. M., Purnama, S., & Yas, Q. M. (2022). Online learning for vocational education: Uncovering emerging themes on perceptions and experiences. *Journal of Vocational Education Studies*, *5*(1), 1–15. https://doi.org/10.12928/joves.v5i1.6097

Smith, K., & Morris, N. P. (2014). Evaluation of biomedical science students use and perceptions of podcasting. *Bioscience Education*, *22*, 3–15. https://doi.org/10.11120/beej.2014.00024

Strickland, K., Gray, C., & Hill, G. (2012). The use of podcasts to enhance research-teaching linkages in undergraduate nursing students. *Nurse Education in Practice*, *12*(4), 210–214. https://doi.org/10.1016/j.nepr.2012.01.006

Sudin, I. A. A., Rahmatullah, B., Abdullah, M. F. W., Tamrin, K. F., Khairudin, M., & Yahya, S. R. (2022). Kajian tinjauan literatur sistematik terhadap pendedahan pelajar universiti kepada percetakan 3D sebagai persediaan ke industri. *Journal of ICT in Education*, *9*(1 SE-Articles). https://doi.org/10.37134/jictie.vol9.1.5.2022

Tam, C. O. (2012). The effectiveness of educational podcasts for teaching music and visual arts in higher education. *Research in Learning Technology*, *20*(1). https://doi.org/10.3402/rlt.v20i0/14919

Van Zanten, R., Somogyi, S., & Curro, G. (2012). Purpose and preference in educational

podcasting. *British Journal of Educational Technology*, *43*(1), 130–138. https://doi.org/10.1111/j.1467-8535.2010.01153.x