# Enhancing Tax Awareness and Tax Knowledge among Future Taxpayers: A Study on the Effect of Embedding Technology in Teaching and Learning

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## ABSTRACT

The outbreak of the COVID-19 pandemic has significantly reshaped learning practices. The use of social media technology in higher education has been shown to empower teaching and learning, particularly in complementing conventional teaching approaches in the classroom. The change in norms in post-pandemic teaching has led many institutions, including higher education institutions, to realize the benefits of using technology as a teaching tool. This study investigates the effect of embedding technology into tax education, particularly on students' tax awareness and tax knowledge. The study used an experimental research design where pre- and post-data of control and experimental groups were collected and analyzed accordingly. This experimental study divided 160 students randomly into two classrooms, which used different teaching and learning approaches. Findings highlight that the use of technology through YouTube videos as a complementary method in teaching and learning demonstrated a more significant improvement in tax awareness and knowledge compared to the conventional method. The results proved that there is a significant difference in students' tax awareness between the two groups, where the technology-embedding approach shows a better tax awareness level compared to the conventional method. The level of students' tax knowledge for the technology-embedding approach shows a better result and improvement compared to the conventional method, even though the result fails to prove a significant difference. Overall, findings highlight a substantial positive impact on students' tax awareness and knowledge, particularly when compared to a control group that learns in a conventional method.

**Keywords:** Tax Education; Tax Awareness; Tax Knowledge; Teaching and Learning; Social Media

## INTRODUCTION

In the digital era, technology has become integral to daily routine, especially with the emergence of social media as one of the most influential aspects. Social media covers various applications that allow users to create, share, comment, and discuss various digital content. It is considered a 'dynamic', 'interactive', 'democratic', 'people-centric', 'erratic', 'social', and 'adaptive' (Manca & Ranieri, 2016). One aspect of technology social media that is often overlooked is its ability to transform teaching and learning towards a more social, open, and cooperation-oriented direction (Moghavvemi et al. 2018). Previous researchers have employed multiple theories and models to determine the capacity of social media to advance and develop in teaching and learning. A study by Fleck et al. (2014) applied the theory of Mixed Learning or "the Blended Learning theory" to study the use of YouTube in a classroom setting, and they noted that students are ready to use their commonly used online learning tools, which ultimately enhance their learning experience. Other researchers have also suggested that the combination of multiple social media can influence mixed learning in

the context of higher education (Artal-Sevil et al. 2015), where the effect is more on the teaching and learning process (Alebaikan &Troudi, 2010).

It is reported that when online sessions are used to add to traditional teaching methods, students' engagement improves and they understand the lesson at a faster rate (Graham et al. 2017). This blended learning undoubtedly increases flexibility and encourages independent feedback during the course (Alebaikan & Troudi, 2010; Korr et al., 2012). A study in hospitality and tourism found that social media is an effective tool in teaching especially in developing countries (Sobaih et al., 2016). These benefits, as mentioned earlier, related to blended learning have convinced many curriculum executors to accept them in their respective institutions.

The use of social media in higher education has been shown to empower the teaching and learning process (Manca & Ranieri 2016; Moghavvemi et al. 2017). Facebook is an example of social media used to collect information (Junco & Cotten 2012), used as a learning tool (Moghavvemi et al. 2017) and an incredible platform that connects students and spreads university culture (Yu et al. 2010). In addition to Facebook, YouTube is also a teaching tool under social media that allows the formation of social relationships. Based on the statistics, YouTube is the third most visited website in the world, behind Google and Facebook. Educational videos, edutainment, marketing, and science are constantly uploaded to YouTube, and their use in classroom settings is gaining attention, especially with the outbreak of the COVID-19 pandemic. The change in norms in post-pandemic teaching has led many institutions, including higher education institutions, to recognize the values of technology as a teaching tool, especially in making studies on their highest effectiveness.

YouTube provides satisfaction to students when videos are used in teaching and learning in a traditional classroom setting (Torres-Ramírez et al., 2014). Clifton and Mann (2011) report that the use of YouTube to teach nursing procedures improves students' attention or focus, because reinforcing visual cues is easier than just listening (Johnson & Mayer, 2009). Other studies also reported increased retention in the course when social media was integrated into their courses (Alon & Herath, 2014; Barczyk & Duncan, 2012). Prior study by Dupuis et al. (2013) also reported that Biology students who watched online videos related to their classes achieved better grades than their classmates who did not watch online videos related to the course.

Based on the Malaysian Education Development Plan 2015-2025, a pedagogical approach that combines online learning and traditional face-to-face teaching will be implemented in all higher education institutions in the country (MOE, 2015). Some universities in Malaysia are beginning to implement blended learning, where many lecturers have begun using YouTube and Facebook as tools to complement their traditional teaching approaches. Students responded to this shift by also increasing their use of YouTube in learning during the pandemic. However, formal research on the use of social media as a complement in teaching and learning is limited, especially involving taxation courses.

Taxation is a core subject for accounting graduates, aimed at exposing students to the Malaysian tax administration system and the taxpayers' responsibilities. The focus of the course is to instil tax awareness and tax knowledge among future taxpayers. Taking into consideration the positive side of using social media technology in teaching and learning, this study aimed to examine the effects of embedding technology into tax education by using YouTube videos as a complementary teaching and learning tool. By employing a quantitative approach, students were divided into control and experimental groups. Group 1 is the studied group, while Group 2 will be a control group, which will be taught conventionally. Pre- and post-intervention data were collected, and statistical analysis, using SPSS software, was conducted to determine variance differences in the pre- and post-intervention data for both groups. It is anticipated that the findings can contribute valuable insights into the impact of using technology such as YouTube videos as a supplementary teaching method in tax courses, particularly regarding students' tax knowledge and awareness.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Currently, the integration of social media platforms into higher education has garnered significant attention, driven by the increasing recognition of its transformative potential in teaching and learning. Research have

demonstrated how various social media platforms have empowered teaching and learning in higher education (Manca & Ranieri, 2016; Moghavvemi et al., 2018; Hudin & Hudin, 2020; Hudin et al., 2020), fostering dynamism, interactivity, democratic access, adaptability, and social engagement in educational settings, as aligned with the principles of "Social Constructivism" as proposed by Vygotsky (1978) which emphasises the role of social interactions in knowledge construction.

Within the context of higher education, this framework highlights learning as an active process shaped by social relationships and shared experiences. The incorporation of social media tools into teaching supports this theoretical perspective by encouraging student engagement with course materials, peers, and educators in an interactive and student-centered manner (Moghavvemi et al., 2018). Moreover, it reinforces the view that knowledge evolves continuously through social participation and experiential learning.

Numerous studies have highlighted the alignment between Social Constructivist principles and the educational use of social media platforms such as Facebook and YouTube. These digital tools foster collaboration, information exchange, and active learner participation (Artal-Sevil et al., 2015). Moreover, the multimedia and visual features of platforms like YouTube support the constructivist view that learning outcomes are strengthened through exposure to varied stimuli and interactive engagement (Johnson & Mayer, 2009).

Furthermore, Fleck et al. (2014) employed the Blended Learning framework to explore the use of YouTube in classroom setting. Their findings revealed that students showed strong enthusiasm toward utilising familiar digital tools, which enriched their overall learning experience. This observation highlights the capacity of technology to promote learning within a student-centred environment. In addition, previous studies have suggested that the integration of multiple social media platforms can greatly enhance blended learning practices in higher education (Artal-Sevil et al., 2015). In these contexts, the influence of social media extends beyond conventional teaching and learning activities (Alebaikan & Troudi, 2010). Empirical evidence also shows that when online learning components are combined with traditional face-to-face instruction, students tend to respond more actively and learn at a faster pace (Graham et al., 2017; Korr et al., 2012). The flexible design of blended learning environments enables learners to adapt and respond more efficiently throughout their studies, leading to deeper engagement and improved comprehension.

YouTube has been recognised as an effective educational platform that can enhance students' satisfaction when integrated into conventional classroom teaching (Torres-Ramírez et al., 2014). In practical disciplines such as nursing, its use to demonstrate procedures has been found to increase learners' focus and information retention (Clifton & Mann, 2011). The use of visual demonstrations aids memory development, resulting in a more engaging and memorable learning process. This observation is consistent with other studies showing that the inclusion of social media in teaching environments contributes to greater student satisfaction and knowledge retention (Alon & Herath, 2014). In another study involving a biology course, Junco and Cotton (2012) found that students who watched online videos related to their class achieved better grades than peers who did not watch online videos beforehand. This highlights how YouTube facilitates information gathering and enhances engagement. The inclusion of multimedia elements like videos has improved the understanding and retention of complex topics (Johnson & Mayer 2009; Clifton & Mann 2011; Junco & Cotten 2012). One of the notable advantages of YouTube in education is the ability for students to engage in self-paced learning. They can review and revisit content as needed, promoting a deeper understanding of the subject matter. Studies have shown that such flexibility improves learning outcomes (Junco & Cotten, 2012).

The COVID-19 pandemic forced a significant shift towards online and remote learning, leading social media, especially YouTube, to become an important platform in facilitating this educational transition to online and blended learning approaches. Despite this evolving landscape, formal research on the use of social media technology, particularly YouTube, as a supplementary tool in teaching and learning remains relatively scarce, especially within the context of tax courses. Based on the discussion, the study proposed the following hypotheses:

H1: The use of YouTube videos as a complementary method in teaching and learning can enhance students' tax awareness to a better level than conventional teaching and learning methods.

H2: The use of YouTube videos as a complementary method in teaching and learning can enhance students' tax knowledge to a better level than conventional teaching and learning methods.

## RESEARCH METHODOLOGY

This study investigates the effect of embedding technology in teaching and learning, with a focus on tax education, specifically on tax awareness and tax knowledge, with the use of an experimental approach. Data were collected using a survey questionnaire.

In investigating the impact of technology in teaching and learning, students, as a proxy of future taxpayers, are divided into two groups. Group 1 is the studied group, while Group 2 will be a control group. Both groups are provided with the same tax learning materials, while Group 1 (the studied group) has additional video material from a YouTube Channel to complement the teaching and learning sessions. The fifteen-minute video from YouTube was selected, and it comprehensively explains tax reliefs and rebates by the Inland Revenue Board of Malaysia's officers. The contents highlight the importance of paying taxes and the technical knowledge related to tax reliefs and rebates. The video uses a lot of image presentation. The integration of humor and messages by the officers makes the content more relatable and engaging for students.

Students were randomly allocated to two classrooms that used different teaching and learning approaches. Group 1 is the studied group where the teaching and learning are conducted with the video from the YouTube channel as a supplement, together with the learning material. Group 2, on the other hand, is a control group, where the teaching and learning are conducted conventionally.

A total of 160 undergraduate students participated in this experiment. They were randomly divided into two groups in different classrooms, namely the control and experimental groups, each with 80 participants. To assess their prior knowledge, all participants first took a survey questionnaire about tax awareness and tax knowledge before the session began. The questionnaire consisted of three parts: the demographic, tax awareness, and tax knowledge sections. Tax awareness was assessed using nine items adapted from Taing and Chang (2021), assessing participants' agreement on a 5-point Likert scale with statements related to tax awareness. In addition, 20 items adapted from Palil (2010) were used to assess their level of tax knowledge. A pre-test was conducted before the teaching and learning session to evaluate the two groups' awareness and knowledge concerning taxation matters.

During the teaching and learning session, students in the experimental group first watched the video from YouTube on computer screens in the classroom, followed by the lecture session. In contrast, students in the control group attended only a conventional teaching method using the same learning material. At the end of the session, both groups were required to attempt the same set of questionnaires once again to measure the impact of the teaching methods on their tax awareness and knowledge.

Data collection of "pre" and "post" teaching was carried out on both groups. The responses were analysed using SPSS Software, which specifically eliminates the difference in variance of the "pre" and post-intervention for both groups.

## FINDINGS AND DISCUSSION

### Respondent's Profile

Table 1 shows the profile of 160 respondents who took part in the experiment session.

Table 1: Respondents' Profile

| Categories | Frequency | Percentage (%) |
|---|---|---|
| Gender: | | |
| Male | 29 | 18.1 |
| Female | 131 | 81.9 |
| *Total* | 160 | 100.0 |

| | | |
|---|---|---|
| Age: | | |
| 15-19 | 52 | 32.5 |
| 20-24 | 105 | 65.6 |
| 25-29 | 3 | 1.9 |
| *Total* | 160 | 100.0 |
| Education level: | | |
| SPM | 42 | 26.3 |
| Matriculation | 8 | 5.0 |
| Diploma<br>Bachelor Degree | 31<br>79 | 19.4<br>49.4 |
| *Total* | 160 | 100.0 |
| Do you believe that you will become a taxpayer in the future? | | |
| Yes | 160 | 100.0 |
| No | 0 | 0.0 |
| *Total* | 160 | 100.0 |

Based on the table, the majority of the respondents were females, reflecting the ratio of students in most higher learning institutions in Malaysia, where males are fewer than females. Most of the respondents were between 20-24 years old, consistent with their status as students at the higher learning institutions. Interestingly, all respondents indicated that they will become taxpayers in the future. This implies that they are aware of their responsibility as citizens of Malaysia to pay tax when they begin earning an income after completing their studies.

## RESULT ANALYSIS AND DISCUSSION

To investigate the effect of embedding technology in teaching and learning towards tax awareness and tax knowledge, a t-test analysis was conducted to determine whether the means of the groups were significantly different during pre-test and post-test. Table 2 shows the mean, standard deviation, and t-test results of the pre-test and post-test for tax awareness.

Table 2: The t-test result pre and post-test for tax awareness

| Tax Awareness | Group | N | Mean | SD | T | Sig |
|---|---|---|---|---|---|---|
| Pre-test | Experimental | 80 | 4.2589 | 0.50115 | -1.329 | 0.001 |
| | Control | 80 | 4.1286 | 0.71973 | | |
| Post-test | Experimental | 80 | 4.4806 | 0.28984 | -1.989 | <0.01 |
| | Control | 80 | 4.3500 | 0.51058 | | |

Based on Table 2, the pre-test results for tax awareness show a significant difference for both groups ($p<0.01$). The mean for tax awareness before the teaching and learning session began for the experimental group is 4.2589, which was slightly higher compared with the control group at 4.1286. After the teaching and learning session was completed with a different teaching approach, the post-test results show a significant difference for both groups ($p<0.01$). The post-test results showed that the experimental group (mean = 4.4806) had better scores compared to the control group (mean = 4.3500). This suggests that students whose teaching and learning were supplemented with YouTube videos showed significantly better scores of tax awareness than those who relied solely on conventional methods. Therefore, H1 is supported.

Table 3 show the mean, standard deviation and t-test results of the pre-test and post-test for tax knowledge.

Table 3: The t-test result for pre and post-test for tax knowledge

| Tax Knowledge | Group | N | Mean | SD | T | Sig |
|---|---|---|---|---|---|---|
| Pre-test | Experimental | 80 | 3.4602 | 0.57808 | -3.035 | 0.298 |
| | Control | 80 | 3.1922 | 0.53808 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Post-test | Experimental | 80 | 4.4234 | 0.54721 | -1.109 | 0.839 |
| | Control | 80 | 4.3287 | 0.53312 | | |

Based on the findings in Table 3 regarding tax knowledge, the mean score for the pre-test is 3.1922 for the control group and slightly higher at 3.4602 for the experimental group. There is no significant difference between the pre-test results of the two groups, with $p > 0.01$. Even though H2 is not supported, the post-test scores of the two groups showed that the experimental group (mean = 4.4234) had better scores than the control group (mean = 4.3287). The results indicate that students whose learning was supplemented with video showed better learning achievements in tax knowledge than those who did not use it.

In conclusion, the use of YouTube videos as a complementary method in teaching and learning demonstrated a greater effectiveness in enhancing students' awareness and understanding compared to the conventional method. This finding is consistent with Clifton and Mann (2011), who report that the use of YouTube in teaching improves and maintains students' attention or focus, because remembering visual cues is easier than just listening (Johnson & Mayer, 2009). These findings are also supported by several subsequent studies that reported students also reporting higher satisfaction and increased retention in the course when social media was integrated into their courses (Alon & Herath, 2014; Barczyk & Duncan, 2012).

The increase in students' tax awareness through YouTube videos reflects the principles of constructivist learning theory, which emphasizes that knowledge is actively built through interaction and experience. The integration of multimedia elements such as imagery, humor, and interactive features supports the idea that learning is enhanced through diverse and engaging forms of input (Johnson & Mayer, 2009). This growth in tax-related understanding also extends to broader aspects of financial literacy, demonstrating YouTube's potential to raise awareness of real-world financial topics, including taxation (Alon & Herath, 2014). Therefore, this shows that incorporating technology into teaching and learning, like using YouTube videos, can lead to deeper learning outcomes and foster a more financially literate society, particularly in areas like taxation. Similarly, the observed improvement in tax knowledge among the experimental group aligns with earlier research by Junco and Cotten (2012) and Clifton and Mann (2011), who found that YouTube's multimedia features effectively improve both understanding and long-term retention of complex concepts.

## CONCLUSION

The main objective of this study is to investigate the effect of technology as a complement in teaching and learning tax subjects on students' tax awareness and tax knowledge. This experimental study randomly divided 160 students into two groups, each using different teaching approaches. Findings show that incorporating technology such as YouTube videos as a supplementary method in teaching and learning results in a more significant improvement in tax awareness and tax knowledge compared to traditional methods. The results indicate a notable difference in students' tax awareness between the two groups, with the technology-enhanced approach leading to higher tax awareness levels than the conventional method. Additionally, students' tax knowledge improved more with the technology-integrated approach, although this difference was not statistically significant. The insignificant result suggests that the intervention may require refinement or longer exposure to produce measurable learning outcomes.

Overall, the findings highlight a substantial positive impact on students' tax awareness and knowledge, especially when compared to a control group that did not include technology such as YouTube videos as a supplementary. This aligns with the broader trend in higher education, where incorporating technology, such as YouTube, is increasingly seen as a transformative force (Moghavvemi et al., 2018). The findings also highlights that the integration of YouTube in teaching supports the advancement of pedagogical strategies, encourages active learner participation, and accommodates a range of learning preferences. This outcome aligns with earlier studies that identified the positive influence of multimedia features, visual-based instruction, and opportunities for self-directed learning, which are the key elements embedded within YouTube's platform (Alon & Herath, 2014; Clifton & Mann, 2011). Furthermore, the growing emphasis on collaborative and technology-based learning, particularly with the widespread shift to online and remote education in the post-pandemic era, demonstrates YouTube's flexibility and relevance as an effective educational medium (Sobaih

et al., 2016). These insights are especially important in the context of tax education, an area where the application of innovative and technology-enhanced teaching tools remains relatively underexplored.

As education continues to evolve in a technology-driven environment, the inclusion of digital platforms, such as YouTube, offers promising potential to enhance learning outcomes and foster awareness of real-world financial issues, including taxation. While the present study establishes the effectiveness of YouTube as a supplementary learning tool, further empirical investigation and validation are essential to fully realize its transformative potential in the context of tax education. Furthermore, future research can be enriched by integrating additional social media platforms, interactive quizzes, or collaborative activities to increase engagement and improve learning outcomes. A comparative analysis can be conducted to identify factors that influence student motivation and satisfaction. Due to the reliance on self-reported survey questionnaires, which may introduce response bias, as students could overestimate their understanding or engagement, future studies can be conducted by employing mixed-methods approaches, such as focus groups or interviews, which may provide deeper insights into students' learning experiences and perceptions.

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